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Assessment of the environmental-economic development of the region (a case study of the Omsk region)

Ol'ga V. Gokova

PhD in Sociology,
Associate Professor at the Department of regional economics and territorial management,
Dostoevsky Omsk State University,
644077, 55a Mira av., Omsk, Russian Federation;
e-mail: capri484@yandex.ru

Svetlana A. Esipova

PhD in Geography, Docent,
Associate Professor at the Department of management,
Ugra State University,
628012, 16 Chekhova st., Khanty-Mansiysk, Russian Federation;
e-mail: SA_E@mail.ru

Abstract

An analysis of environmental-economic problems of the region is one of the most current topics of scientific researches nowadays. Consideration of the issue of balancing between economic development and the preservation of a healthy environment is the main goal of regional development. Environmental issues had become a major concern for experts. The relevance of the environmental and economic issues is related to the fact that in modern countries, along with progressive developments in the security of the individual, the range of dangers associated with the entry of these countries into the field of increased technological and socio-ecological risk is beginning to expand. The economic activity zones which fall outside the scope which is governed by legal regulations and laws are starting to expand worldwide. This means an increase in the level of danger and environmental threats on a regional scale both for the State and its members. This situation calls for the need to strengthen the role of the region in strategic decision-making, including the development of environmental policy. The article examines the environmental-economic situation in one of the regions of the Russian Federation – the Omsk region. The article also reviews the environmental-economic performance of the region and highlights the close linkage between environmental and economic areas. Environmental considerations are becoming a relevant focus of the authorities in the development of state and regional programs.

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Keywords

Environmental-economic issues, economic development, environment, environmental threats, region.

Introduction

In Omsk city, which is a regional center, there is a wide range of environmental problems related to the presence of a considerable number of enterprises of the military-industrial complex, the biggest oil refineries, an industrial carbon plant factory, and of a thermal power factory here. In terms of the total anthropogenic impact on the natural environment, the ecological situation in the Omsk region remains stable, and in a number of indicators, it tends to improve, which indicates the effectiveness of measures taken and measures implemented in the field of environmental protection.

The main anthropogenic load on the environment in the Omsk region is concentrated in the well-developed industrial city of Omsk. The major pollutants are road transport, energy industries, refineries, petrochemical, chemical and mechanical industries, public housing, and agriculture. A specificity of industrial enterprise distribution within the city limits results in that the citizens feel uncomfortable from being emitted into the atmosphere the substances which are related to technological processes of specific industries.

An increasing in negative impacts on the environment compounds the problem of spatial development. Environmental considerations are becoming a relevant focus of the authorities in the development of state and regional programs. In that regard, there is a close linkage between environmental and economic areas.

The environmental-economic situation in the Omsk region

As can be seen, there is a direct link at the national level between the country's economic development and increasing of negative impact on the environment [Glazyrina, Söderbaum, 2005, 6]. Figure 1 presents data for major countries that have maximum carbon dioxide emissions.

During the period from 1971 to 2018, the blow-out volume of carbon dioxide into the atmosphere increased from 14 080 to 31 342 mln tons. With reference to the documents provided by the UN summit which took place in 2018 and was devoted to resolving the question of climate change, it can be stated that emissions increased by 2.5% compared to the previous year. Carbon dioxide emissions level increased by 4.2% in China, by 5.1% in India, and by 2.9% in the USA. This contributes to the containment of economic growth, while environmental protection activities require additional changes and costs. In this way, there are contradictions in environmental-economic relations [Byulleten'..., www].

In today's world, it is increasingly said that ecology becomes one of the key indicators of the economic capacity of regional systems. This indicator helps to identify opportunities in the region for dynamic development.

In order to get an objective assessment of the situation in the region a system of environmental-economic indicators needs to be developed. In assessing the environmental-economic situation, first of all, a state of airspace, water resources, and energy and land use should be analyzed.

In Omsk city live a majority of the population of the Omsk region. The city is rich in its industrial enterprises. A large complex for the processing of oil, the production of rubber, of carbon black, of tires, and of numerous chemical products are represented here [Drugov, Rodin, 2011, 245].

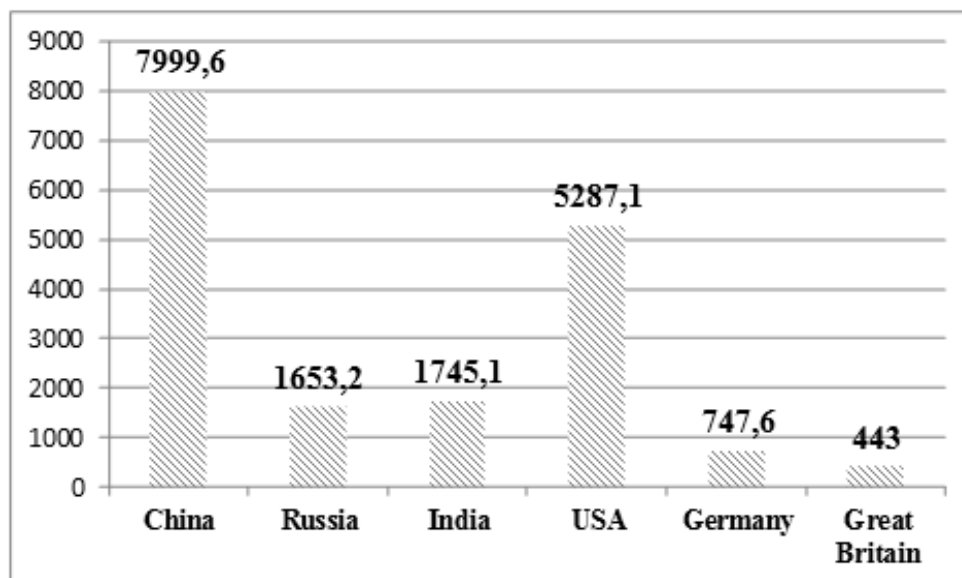


Figure 1 - Carbon dioxide emissions by countries in 2018, mln tons¹

As of 1 January 2019, there were 1162 objects at the federal accounting that have a negative effect on the environment (Figure 2). The largest enterprises that provide harmful emissions are:

- AO “Gazpromneft-ONPZ” (Joint-Stock Company);
- AO “Omsk Kauchuk” (Joint-Stock Company);
- OOO “Tehyglерod” (Limited Liability Company);
- OAO “OPO Popov Radio Equipment Plant” (Joint-Stock Company) [Okhrana..., 2019, 15-16].

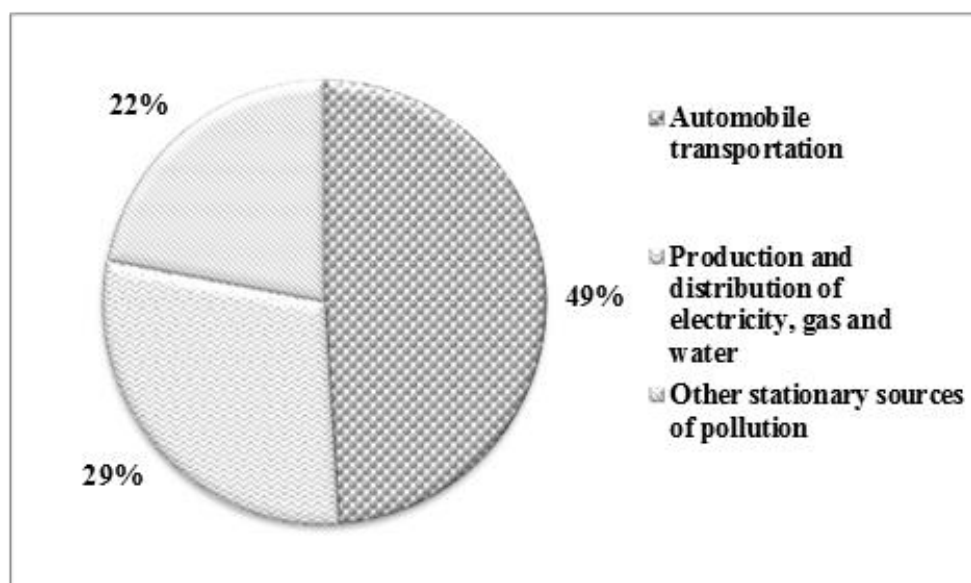


Figure 2 - The main source of emissions to the atmosphere in Omsk²

¹ The histogram was compiled on the basis of the following source: [Byulleten'..., www].

² The diagram was compiled on the basis of the following source: [Okhrana..., 2019, 19-20].

It should be noted that the total emissions of pollutants were declined over the past few years. The main river of the region is the Irtysh River. For a long while the water in the river has complied with 4 "b" class in pollution grade rating, but in the last five years, it has become a little cleaner, and now it complies with 4 "a" class [Bereg, www].

Approximately 71 studies were conducted in Omsk city with the aim of identifying soil pollution by petroleum products. The exceeding the maximum permissible concentrations were detected in 8 samples. According to studies the highest value of pollution was 3787 mg/kg while the tolerance level is 1000 mg/kg.

Thus, Omsk was among the 12 most environmentally disadvantaged Russian cities where emergency measures are required. As part of the national project "Clean Air" in these cities, by 2024 it is necessary to reduce the volume of emissions into the atmosphere by 25%. A plan for paying for negative environmental impact has also been established. Its amount is 143 million 87 thousand rubles. The number of fees that came to the budget for the 2019 year amounted to 156 million 759 thousand rubles. Based on these data, it can be concluded that the plan is exceeded by 9.5% [Okhrana..., 2019, 21-22].

An increase in payments flowing into the budget occurs on the following grounds:

- the additional charges if emissions limits are exceeded;
- the arrival of advance payments.

The group of companies "Titan" is a prime example of minimizing the negative impact on the environment. The environmental management system is functioning effectively at the enterprise. As a result of the planning in the group of companies "Titan" the following results were obtained:

- the decrease in emissions into the atmosphere in 18.6%;
- the decrease in concentrations of toxic substances in wastewater by 43% on average for each of the elements.

"Omskshina" also conducts its environmental policy. Thanks to the activities carried out at the enterprise, the number of emissions into the atmosphere decreased by almost 4 times, which indicates the effectiveness of the measures taken.

Another factor of effective environmental policies is the installation of new UV treatment equipment. The UV water purification process is a modern alternative to chlorination.

"Omsk Glass Plant" offers to work in non-waste production. Dust from production will be collected in dust treatment plants and returned to production. Also, ventilation suction devices are provided at the enterprise, dust collecting filters are installed in exhaust systems, which provide a high degree of air purification.

Public administration in the field of environment

The changing political and economic environment requires a new approach to environmental problems. The legislation of the Omsk region in the field of nature management, environmental protection, and environmental safety is formed on the basis of federal laws, taking into account the specific environmental, social, and economic conditions of the Omsk region.

Also, environmental safety is regulated on the basis of the laws of the Omsk region, decrees of the Governor of the Omsk region, and decisions of the Government of the Omsk region.

In order to preserve natural ecosystems and improve the quality of the natural environment, in order to ensure the right of everyone to a favorable environment, reliable information on its condition and to compensate for damage caused to health or property by an environmental offense, State environmental supervision is carried out.

The state environmental policy of the Omsk region for the period up to 2030 is focused on sustainable environmental and economic development with the preservation of a favorable environment, biological diversity, natural resources, the realization of the right of everyone to a favorable environment, includes the following areas:

- establishing an effective management system in the field of environment and providing environmental safety;
- preventing and reducing the current negative impacts on the environment;
- the development of the environmental monitoring system;
- ensuring environmentally friendly waste management, the decline in its formation and increasing the proportion of utilized waste;
- the development of environmental culture, the development of environmental education and care;
- the development of specially protected natural areas system;
- ensuring effective participation of citizens, public associations, non-profit organizations, and business community in environmental projects and other activities aimed at environmental protection and environmental safety.

As part of the implementation of the national project "Ecology," a comprehensive plan of measures was developed to reduce emissions of pollutants into the atmospheric air of Omsk. It consists of 5 sections and includes measures to reduce emissions of pollutants:

- from transport (including the displacement of oil by gas, renewal of rolling stock, development of road infrastructure);
- from industrial enterprises aimed at introducing new technological solutions using the best available technologies (BAT), etc.;
- from thermal power plants and the private sector.

In addition, the Omsk Comprehensive Plan includes the following activities:

- atmospheric air monitoring (modernization of the state observation network, expansion of the regional monitoring network);
- additional measures affecting the state of the atmospheric air (reclamation of landfills, landscaping, etc.).

The participants of the Omsk Comprehensive Plan are the largest enterprises in Omsk: AO "Gazpromneft-ONPZ" (Joint-Stock Company), AO "TGK-11" (Joint-Stock Company), OOO "OmskTehyglyerod" (Limited liability Company), PAO "Omsk Kauchuk" (Public Joint-Stock Company), PAO "Omskshina" (Public Joint-Stock Company), OOO "Omsk Plant of Polypropylene" (Limited Liability Company), AO "Omsk Heat Distribution Systems" (Joint-Stock Company), PAO "Saturn" (Public Joint-Stock Company), AO "Omsk Plant of Transport Engineering" (Joint-Stock Company).

The implementation of the comprehensive Plan of Omsk will reduce pollutant emissions by 56,212 thousand tons by 2024.

Conclusion

The Russian experience showed that conducting of "greening" among production processes only will not be sufficient to the reduction and prevention of adverse impact on the environment. It is imperative, together with common "greening" to introduce environmental elements into the structure of intra-firm management. That is what will allow organizations to achieve maximum results both in production and environmental protection.

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Оценка эколого-экономического развития региона (на примере Омской области)

Гокова Ольга Владимировна

Кандидат социологических наук,
доцент кафедры региональной экономики и управления территориями,
Омский государственный университет им. Ф.М. Достоевского,
644077, Российская Федерация, Омск, просп. Мира, 55а;
e-mail: capri484@yandex.ru

Есипова Светлана Александровна

Кандидат географических наук, доцент,
доцент кафедры менеджмента,
Югорский государственный университет,
628012, Российская Федерация, Ханты-Мансийск, ул. Чехова, 16;
e-mail: SA_E@mail.ru

Аннотация

Анализ эколого-экономических проблем региона является одной из наиболее актуальных тем научных исследований в настоящее время. Рассмотрение вопроса о балансе между экономическим развитием и сохранением здоровой окружающей среды является основной целью регионального развития. Экологические проблемы стали главной заботой экспертов. Актуальность эколого-экономических вопросов связана с тем, что в современных странах наряду с прогрессивными разработками в области безопасности личности начинает расширяться спектр опасностей, связанных с вхождением этих стран в сферу повышенного технологического и социально-экологического риска. Зоны экономической деятельности, выходящие за рамки сферы, регулируемой правовыми нормами и законами, начинают расширяться во всем мире. Это означает повышение уровня опасности и экологических угроз в региональном масштабе как для государства, так и для его членов. Такая ситуация диктует необходимость усиления роли региона в принятии стратегических решений, в том числе в

разработке экологической политики. В статье описывается эколого-экономическая ситуация в одном из регионов Российской Федерации – Омской области. Рассматриваются эколого-экономические показатели региона, подчеркивается тесная связь между эколого-экономическими районами. Экологические вопросы становятся актуальным направлением деятельности органов власти при разработке государственных и региональных программ.

Для цитирования в научных исследованиях

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Ключевые слова

Эколого-экономические проблемы, экономическое развитие, окружающая среда, экологические угрозы, регион.

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