

Ecological tax as a tool for leveling the negative impact on the environment

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Abstract. The current environmental impact fee falls short in compensating harm and encouraging environmental protection. It lacks fiscal function and transparent regulation, risking unreliable pollution accounting. The hypothesis of the study is that the transition to tax relations with organizations and individual entrepreneurs that have a negative impact will create objective prerequisites for the effective regulation of environmental externalities by increasing the reliability of the payment base, improving administration as a result of establishing tax liability and tax incentives for environmental protection measures. The purpose of the study is to develop the concept of an environmental tax as a way to achieve a balance of interests of the state, society and companies while reducing emissions, discharges of pollutants and waste disposal. The study is based on general scientific methods of scientific knowledge (analysis, synthesis, generalization, grouping, classification), as well as special economic and mathematical methods. The concept has been proposed and the elements of an environmental tax have been developed to replace the current fee for negative environmental impact. The novelty lies in the proposed approach to the calculation of the tax base, based on the “conditional pollutant” indicator, the use of which greatly simplifies the mechanism for calculating and administering the tax.

Keywords: environmental tax, tax base, compensation, environmental protection.

1 Introduction

The financial mechanism for environmental regulation of negative environmental impact (hereinafter – NEI) is based on the collection of fees for the emission of pollutants into the atmosphere, discharge into water and waste disposal. However, over the years, the NEI fee has played an extremely low fiscal role: the share of environmental non-tax payments in the total volume of federal budget revenues amounts to 1.5%, and that of regional and local budgets is 0.1%; the share of the environmental impact fee in the total amount of

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environmental non-tax payments is 5%. As a result, it does not fulfill the task assigned to it to provide financial support for environmental protection measures. Comparing this fee with environmental spending shows that for the country as a whole, only 2.57% of all environmental spending can be covered by the environmental impact fees. Based on this it can be concluded that an uncodified public payment in the form of an environmental impact fee is unable to solve the problem of financially providing compensation for environmental damage. It seems that finding a balance of interests of the state and business entities providing NEI can be achieved within the framework of tax rather than para-fiscal relationships.

Guided by this hypothesis, the following purpose of the study can be formulated: to scientifically substantiate that the environmental impact fee must be transformed into an environmental tax in order to provide financial support for measures to compensate for environmental damage. To achieve this goal, the following tasks should be solved:

- 1) to identify the shortcomings of the current environmental impact fee,
- 2) to substantiate and argue the feasibility of transitioning to tax regulation of the activities of economic entities that emit, discharge pollutants and dispose of waste,
- 3) to propose elements of an environmental tax.

The novelty of the results obtained lies in the proposal of a mechanism for calculating and charging a tax, which is characterized by simplicity and versatility. The establishment of an environmental tax, in accordance with the developed architectonics, will eliminate significant gaps and conflicts that cause practical difficulties for both payment administrators and payers.

2 Materials and methods

In the course of the study, an analysis of the current environmental impact fee was carried out, including using special economic and mathematical methods of statistical analysis in the context of Russian regions. The reasons for the low fiscal value of the specified fee to compensate for the damage caused by pollutants to nature have been identified. The concept of transformation of the financial mechanism of environmental regulation in the direction of establishing a tax instead of the environmental impact fee has been substantiated, the elements of the environmental tax have been identified, and the size of the rate has been modeled according to 19 cases of polluting companies.

3 Results

The modern mechanism for calculating and charging environmental impact fees is based on the following factors: characteristics of the source of pollution, type of pollutants depending on its hazard class, actual emissions, established pollution limits, the fact that a polluted object or area is under special protection, spending on measures to reduce NEI. Polluting facilities are divided into three groups: (1) stationary, emitting emissions into the atmosphere; (2) discharges into water bodies; (3) generating production and consumption waste.

In Russia as a whole, environmental impact fees cover less than 3% of all environmental protection costs, in 45 regions this share is significantly lower. In the Volgograd, Lipetsk, Sakhalin, Ulyanovsk and Oryol regions, the Republic of Tatarstan, Moscow and St. Petersburg, less than 1% of environmental costs can be covered by NEI fees. In 40 regions, the share of environmental impact fee in these costs is higher than the value for the country as a whole, in 19 of them the share does not exceed 4%, and in 16 regions it is in the range from 4 to 8%. In the Republic of Ingushetia, the Chechen Republic

and the Irkutsk region, the share of environmental impact fee in the cost of environmental protection is about 9%. Only in the Kamchatka Territory and the Republic of Tyva, the share of environmental impact fee in these costs amounts to 16 and 31%, respectively. It should be noted that the Chechen Republic, the Republic of Ingushetia and the Republic of Tyva are among the regions with the lowest environmental costs.

In the course of the study, it was found that the reasons for the insignificant contribution of environmental impact fee to compensation for damage to the natural environment are:

- 1) the lack of a transparent system of environmental regulation,
- 2) insufficient reliability and completeness of the state accounting of objects that provide NEI, carried out in the form of maintaining a state register of objects,
- 3) low responsibility for providing incomplete, inaccurate information to the state register of objects subject to environmental supervision,
- 4) the absence of the possibility of pre-judicial collection of debts for the NEI fee, despite the fact that the volume of accounts receivable (11.6 billion rubles) is more than half of the amount of environmental impact fee receipts (19.8 billion rubles). The situation is further complicated by the fact that in some cases, missing the three-year limitation period entails a refusal to consider and satisfy the claims.

In view of the foregoing, the authors hereof suppose that the development of effective and efficient measures to reduce the negative impact on the environment should be carried out on the basis of a systematic approach aimed at ensuring the legal certainty of the tax conditions for business activities. The establishment and introduction of an environmental tax can provide tax incentives for environmental protection, support for environmental investments, and effective tax administration.

The architectonics of the environmental tax is presented in Table 1.

Table 1. Elements of the environmental tax.

Name of the tax element	Specification
Taxpayers	Organizations and individual entrepreneurs conducting economic activity using objects of I, II, III environmental categories on the territory of the Russian Federation, on the continental shelf and in the exclusive economic zone. Small and medium-sized businesses that apply special tax regimes are not exempt from taxation.
Object of taxation	Negative impact on the environment, human life and health.
The tax base	The volume of conditional pollutants (hereinafter referred to as CP) contained in actual emissions, discharges, waste in physical terms (tons). The CP is calculated as the product of the actual volume of pollutants and a factor defined as the ratio of the maximum allowable concentration (MAC) of pollutants to the CP MAC. An alternative option is possible: the amount of CP contained in the standard volume of emissions, discharges, waste, established by the Ministry of Natural Resources of Russia.
Tax rate	Set in fixed amounts per 1 ton of CP.
Fiscal period	Calendar year. The reporting period is a quarter.
Calculation order	The tax amount is determined as the product of the tax base and the tax rate, adjusted for increasing and decreasing factors depending on the (non)fulfillment of the plan to reduce emissions, discharges, waste, the implementation of compensatory measures, the equipment with automatic devices for monitoring emissions, discharges of pollutants, the absence of the fact of exceeding the established regulations, use of the best available technologies, etc. Tax amounts are included by organizations in the costs of production and sale of goods (works, services), property rights when calculating corporate income tax, and by individual

	entrepreneurs – in expenses taken into account when calculating personal income tax.
Procedure and terms payment	It is paid as part of a single tax payment. Advance tax payments are subject to payment by the taxpayers no later than the 28th day of the month following the expired reporting period.
Tax incentives	Exemption from taxation for the performance of research and development work related to environmental protection.

Source: Compiled by the authors.

To determine the exact values of the tax rate, adjusting coefficients, appropriate calculations are required based on simulation based on the financial statements of organizations and individual entrepreneurs providing NEI. Examples of calculation of MAC sizes for types of pollutants, based on emission inventory data given in draft standards for maximum allowable emissions, were compiled by Yu.M. Kochnov [1].

According to the data from declarations of 19 polluting companies, the authors calculated the rates for the maximum emissions of pollutants into the air. For 9 cases, the average estimated rate amounted to 208 rubles per ton of CP, the weighted average rate was 203 rubles per ton of CP, for 4 cases the rate was below 100 rubles, for 3 cases it ranged from 120 to 140 rubles. It should be noted that the minimum calculated rate was obtained for the enterprises that show the largest volumes of reduced emissions. This conclusion is also confirmed by the negative correlation coefficient between the size of the calculated rate and the volume of conditional emissions, as well as the lower value of the weighted average compared to the arithmetic one. It is important to calculate the rate separately for emissions within and above the limits. It is obvious that the rates for above-limit emissions should be multiple times higher. According to our calculations, the arithmetic average calculated rate for above-limit emissions was 911 rubles per 1 ton of CP, the weighted average was 485 rubles (the influence of the mining and smelting plant).

Note that for these cases, the rate increase should not be interpreted as an increase in the tax burden, since it is referred to a clear underestimation of the negative environmental effect and the lack of compensation for this effect using the existing environmental impact fee mechanism.

4 Discussion

Studies on the use of market mechanisms for environmental protection [2-6] note the significant role of taxation in solving problems associated with environmental policy. At the same time, we are talking not only about global warming, especially after Covid [7]. Scientists propose environmental taxes as the main instrument for regulating issues related to negative environmental impact [8-11]. It is substantiated that tax tools are designed to assess the relationship between the amounts of deductions from enterprises to the budgets and the degree of harm that these enterprises cause to the environment [12-15].

At the same time, there are no proposals in the literature to establish a payment base on the basis of our proposed indicator: CP, the use of which greatly simplifies the calculation mechanism, and, consequently, administration.

5 Conclusion

The improvement of the financial support for compensation for environmental damage should be carried out not by adjusting the mechanism for calculating, collecting and administering environmental impact fees, however it should be done on the basis of a radical transformation in the direction of establishing and introducing an environmental tax.

The practical significance of the results in the form of proposals for the implementation of the environmental impact fee as an environmental tax in the Tax Code of the Russian Federation is to increase the efficiency of administration, which results in an increase in tax revenues, and will also create motivation for environmental protection through tax incentives.

It is important to calculate the rate separately within the limits and above the limit. The resulting rates can serve as a guideline for establishing a tax rate for 1 ton of pollutants, and it is necessary to provide for increasing factors for above-limit emissions. Country-wide rate calculations require data by pollutants. Rosstat does not generate such data: there is no allocation of the amount of emissions within the allowed emissions and beyond the limits; and some pollutants in the form of volatile organic compounds are considered as a single group when determining MAC, which makes the calculation unreliable.

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