

# Chapter 46

## Environmental Taxation: Experience of Foreign Countries



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### 46.1 Introduction

Today, the issues of ecology and nature management are extremely acute; for decades, the world community has been discussing the introduction of measures to support the environment. There is a wide range of environmental problems that require urgent action: pollution of the environment and the world's oceans, destruction of flora and fauna of the planet, as well as climate change. Food security, climate change, and biodiversity conservation are high on the international agenda for sustainable development (Cadillo-Benalcazar et al., 2020).

Currently, there are two categories of environmental disasters: those that can be prevented and those that are inevitable. Scientists are implementing new technologies to calculate damage and predict possible cataclysms, but in some countries, such as the Russian Federation, it is impossible to estimate the extent of pollution.

There are many methods for assessing the environmental situation to prevent eco-disasters, one of which, and certainly, the most effective is environmental taxation. Despite all the advantages, environmental taxation has not gained much popularity in Russia. Budget revenues under this item account for only 0.02% of the total volume of tax assessments, while for European countries the same indicator averages 2.5%.

Environmental taxation mechanisms are based on the “polluter pays” principle, which assumes that all costs of preventing and eliminating environmental damage are borne by the polluter company. At first glance, this principle seems fair, but in

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practice, it is not always a preventive measure in the context of environmental pollution. Often all the costs of these charges are borne not by the polluting companies, but by the consumer. So, harmful industries reduce their costs of “green” taxation by increasing the cost of final products. Another way to shift the costs of environmental taxation is to reduce the social benefits of employees because the legislation of some European countries provides for the implementation of such measures (Postula & Radecka-Moroz, 2020). Thus, it is the consumers and employees of the polluting companies that suffer, not the socially irresponsible enterprise itself. At the level of a basic economic analysis of activities, it can be concluded that it is much more profitable for a company to pay an environmental tax than to reduce the volume of environmentally hazardous production.

Another factor hindering the strengthening of the efficiency of environmental taxation is the lobbying of the interests of domestic companies by states. In other words, governments are reluctant to impose a tax rate that is too high, because this will negatively affect the level of prices of manufactured products, which in turn will lead to a decrease in the competitiveness of these companies. It is important to note that the greatest harm to the environment is caused by companies in the extraction sector, that is, environmental problems are especially significant for countries with a resource-based economy, the main source of income for which is the aforementioned companies.

In addition, environmental problems cannot be solved only by efforts made at the state level (Galli et al, 2020), and it is extremely important in this process to increase the environmental literacy of the population and develop a culture of environmental management. Only the adoption of the ideas of environmental awareness can fully solve the problems of climate change and environmental pollution.

## 46.2 Methodology

Taking into account the disappointing forecasts of scientists regarding the approach of a global climate catastrophe, more-and-more countries are beginning to actively use measures to support the environment. One of the most effective measures is considered to be environmental taxation, which allowed European countries not only to ensure the flow of funds to the budget for the development of “green” projects but also to promote the formation of environmental thinking. In this regard, an analysis of the key mechanisms of environmental taxation in European countries seems to be especially relevant in the context of an emerging climate threat.

The purpose of this study is to identify the degree of efficiency of environmental taxation mechanisms in the countries of the European Union and the subsequent development of methodological approaches to the formation of a tax mechanism for environmental regulation in the Russian Federation. In accordance with this goal, the following tasks can be identified: first, to study the existing mechanisms of environmental taxation in the European Union; second, to assess the effectiveness of existing mechanisms through comparative analysis; thirdly, to draw conclusions

regarding the advisability of introducing “green” taxation in the Russian Federation, and to determine the possible risks and the scale of environmental benefits.

The methodological basis was the scientific research of foreign economists in the field of ecology and nature management, as well as taxation, civil, and budgetary legislation. The source of statistical data for assessing the effectiveness of “green” taxation was the open database of the OECD and Eurostat. Scientific generalization, methods of statistical, cause-and-effect, and comparative analysis were used as research methods. When conducting the analysis, the study of the effectiveness of environmental taxation was carried out based on EU data with the identification of the main trends and patterns of its development in European countries.

### 46.3 Results

As defined by the OECD, environmental taxation includes all taxes and fees levied for damage to nature as a result of pollution or the depletion of natural resources.

The environmental tax has appeared relatively recently and is still not levied in all states. The need for green taxes arose more than 30 years ago when it became apparent that environmental degradation was caused by inadequately balanced patterns of consumption and production of goods. Industrial disasters such as Chernobyl, Seveso, Bhopal, or AZF, oil spills such as Amoco Cadiz, Prestige, or Exxon Valdez, “global pollution”, signify ozone depletion and climate change, and are signs of anthropogenic impact on the environment.

Despite the tightening of environmental control by the OECD and the global trend toward relocalization of production, the volume of environmental pollution in these countries remains high (Daigneault et al., 2020).

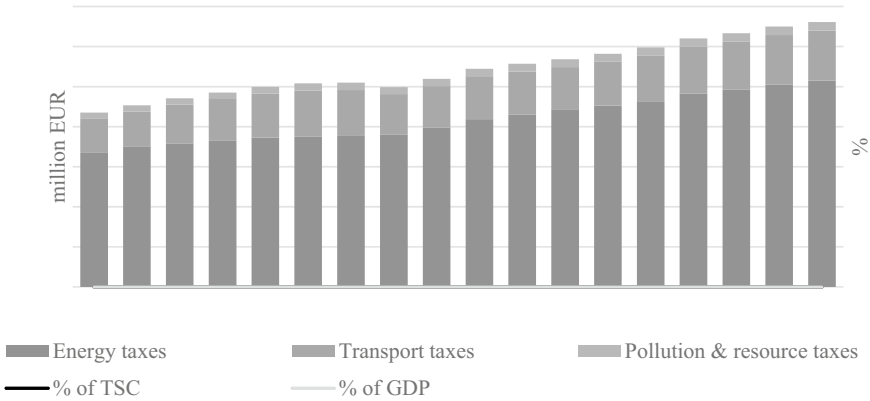
In the countries of the European Union, revenues from the environmental tax in 2019 amounted to more than 330 billion Euros or 2.4% of the GDP of the European Union countries. At the same time, taxes on energy use amounted to 257.5 billion Euros or 1.8% of GDP, transport tax was 4 times less than income or 62.4 billion Euros, tax on environmental pollution amounted to 0.1% of GDP or 10, 6 billion Euros. On the one hand, this indicates a relatively low amount of harmful emissions into the atmosphere compared to the situation in countries with developing economies. On the other hand, it also points to government lobbying for domestic companies. For example, in the UK, environmental tax payments are made by reducing social benefits to employees. Thus, it is not the polluting company that suffers, but its personnel (Pichler et al., 2021). However, the tax burden can also be imposed on the end consumer, who pays twice as much for sustainable production (Table 46.1).

Figure 46.1 shows the dynamics of tax revenues to the budget from environmental taxation for 27 European countries. The absolute value of the indicator demonstrates constant growth, however, a similar trend is not observed for relative values, including the share in GDP and the share in total tax revenues, thus, the public policy (Fig. 46.1).

**Table 46.1** Structure of environmental taxation in the EU, 2018–2019

	2019		2018				
	Million euro	% of total environmental taxes	% of GDP	% of TSC	% of (specific type of) environmental tax revenue (by tax payer)		
					Corporations	Households	Non-residents
Total environmental taxes	330,577	100.0	2.4	5.9	46.7	49.9	3.2
Energy taxes	257,534	77.9	1.8	4.6	50.4	45.4	3.9
Transport taxes	62,433	18.9	0.5	1.1	32.4	67.0	0.4
Taxes on pollution/resources	10,610	3.2	0.1	0.2	42.2	55.4	1.0

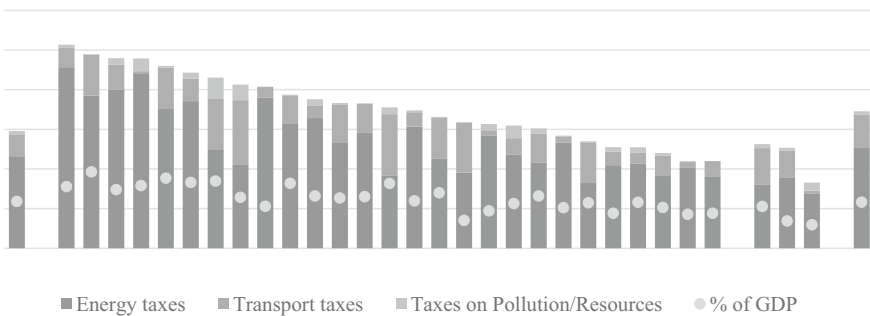
Source Compiled by the authors based on European statistical system (2020)



**Fig. 46.1** Environmental tax revenue by type environmental taxes as a share of TSC and GDP, EU-27, 2002–2019 (million EUR, %). *Source* Compiled by the authors based on European statistical system (2020)

The structure of revenues from environmental taxation is sustainable. The energy tax accounted for an average of over 75%, the transport tax—about 20%, and the tax on environmental pollution averaged 3%.

The geographical structure in the context of environmental taxation is very uneven. Among European countries, there are obvious leaders in terms of the share of environmental taxes in the total amount of taxes, like Bulgaria, Greece, Latvia, and Estonia. There are also countries where the share of environmental revenues in the total amount of taxes is not so great, for example, Germany and Luxembourg. However, this trend is largely due to the development of environmental thinking in these states, as well as the strict requirements of the law regarding environmental pollution. For example, in Germany, a fine from 25 to 800 Euros can be levied for improper disposal of waste (Fig. 46.2).



**Fig. 46.2** Environmental tax revenue by category as % of TSC and GDP, 2019 (%). *Source* Compiled by the authors based on European statistical system (2020)

In all EU countries, the most profitable environmental tax is the tax on energy consumption. However, most of the taxpayers belong to households; in almost all countries, 40% of the budget revenues from energy taxes come from this sector of the economy. It is also important to pay attention to Luxembourg, where most of the taxpayers are non-residents of the country, this trend is due to the attractiveness of the business environment and a large influx of foreign investment into the country.

It is not by chance that the transport tax in the EU is classified as environmental. In 1993, the Euro-1 environmental standard was already published, which determined the maximum permissible value of harmful emissions into the atmosphere when the car engine is running. Currently, the Euro-6 standard is in force, where the requirements for the environmental friendliness of the vehicle have become much more stringent (Hajek et al., 2021). Also on the territory of the EU, there are fees for entering the “green” zones, for example, in France, there are 32 zones that differ in the degree of pollution, while each zone has its entry tariff. In many regions, travel on environmentally hazardous vehicles is prohibited. Transport tax revenue in the European Union has remained unchanged for 10 years now and fluctuates between 1–5%, since, as previously noted, an inflow of 62.4 billion Euros was recorded in 2019. At the same time, it can be noted that despite the insignificant changes, the situation is changing for the better, since the size of fines and taxes is growing from year to year and not the number of deductions to the budget (Johansson & Henriksson, 2020). This allows us to speak about the improvement of the ecological situation in the region. Earlier studies have shown that increasing the cost of emission allowances can help reduce emissions (Hajek et al., 2021). So, an increase in the cost of a quota of 1 Euro will entail a decrease in greenhouse gas emissions by 7.9 kg of CO<sub>2</sub> per person of the population.

The Russian Federation also has a transport tax that ranges from 2.5 to 5% depending on the engine size, but its nature is significantly different from its European counterpart. In Russia, when determining the tax base, a single criterion is taken into account, namely the volume of the car’s engine, while in European countries; the transport tax is levied primarily on the number of harmful emissions released into the atmosphere. Thus, the transport tax in Russia cannot be counted among the “green” taxes, but rather belongs to the category of taxes on luxury.

As a result of the study, it is possible to draw certain conclusions about the key advantages and disadvantages of environmental taxation. The strengths of EU environmental taxation include the following: First, green taxation encourages companies to behave in a more environmentally friendly way as they strive to balance the marginal cost of reducing emissions and the cost of paying the corresponding tax. The level of the tax rate has a direct impact on the willingness of companies to switch to green production. Secondly, due to additional budget revenues from “green” taxes, the state can compensate for the damage caused to nature, organize events dedicated to the environmental agenda, and finance environmental projects. Thirdly, the experience of European countries confirms that the use of “green” taxes promotes the active introduction of innovations, the search for new sources of energy and in general, increases the well-being of the nation, for example, it has been proven

that there is a synergy between renewable energy sources and rural development (Clausen & Rudolph, 2020).

Despite all the aforementioned advantages, the introduction of this type of taxation carries some disadvantages. Currently, the introduction of environmental taxation can be difficult for the state, since the determination of the marginal social costs, which are the basis for taxation, is not always possible. Under ideal circumstances, the tax should compensate for the entire set of damage caused to nature. However, when determining the tax rate, the state is guided by obligations established by international agreements. In addition, environmental taxation is heavily criticized by corporations as it increases production costs. It is no coincidence that many states subsidize manufacturing companies to ensure their competitiveness in the global market, otherwise companies register their activities in states that provide more trustworthy conditions in the context of supporting the environment and natural resource use. This leads to an outflow of capital from the country. The introduction of additional taxes or an increase in existing ones can have a significant impact on the company's business processes and force the management to significantly change their activities. For example, in earlier studies, there was a direct relationship between an increase in the greenhouse gas tax rate and the introduction of new transportation models within the company which are by no means always safer for the environment (Gagné et al., 2020). "Green" taxes also negatively affect consumers for some reasons: the rise in the cost of final products, the rise in the cost of utilities in the context of the impossibility to switch to environmentally friendly energy sources. To mitigate these consequences, states are introducing measures to support the purchasing power of the population, for example, through social payments to the population.

Every year, the European Commission fights against all of the above negative consequences within the framework of the Stability and Growth Pact, which aims to coordinate the economic policies of the EU member states. The European Commission published recommendations on environmental taxation, intending to combat tax dumping by taxing imports from countries that have not introduced a single tariff on greenhouse gas emissions. All proceeds from this tax are used to finance the European Commission's Environmental Pollution Fund. In addition, governments practice the introduction of "incentive" taxes to increase the involvement of companies in solving environmental problems. The company can also be awarded a cash bonus for the transition to "green" production.

The experience of environmental taxation in the European Union, despite some shortcomings, can be regarded as an example of an effective tax policy. According to the authors, the experience of EU environmental taxation can become the basis for the development of an effective environmental strategy in Russia. It should be noted that the government bodies of Russia are gradually increasing spending on solving environmental issues. Especially, large-scale growth of expenses has been observed in the last two years, while it is achieved mainly due to an increase in other expenses. In 2020, the "other expenses" category amounted to over RUB 332 billion and exceeded all other items of expenditure. Since 2009, wastewater treatment has been a significant expense item; in 2020, water treatment costs took second place and amounted to 285 billion rubles. Russia has spent over 138 billion rubles on solving

the problems of climate change. In 2020, in general, there is a positive trend and growth of this item of expenditure, so the current volume of expenditures is twice as high as in 2009.

Solving environmental problems is an extremely important component of a socially-oriented state, but an increase in environmental costs should be accompanied by a more efficient distribution (Lötjönen et al., 2021). So, according to Greenpeace, the state plans to send a total of about 300 million rubles for waste incineration projects. Within the framework of this project, it is planned to build and modernize about 150 enterprises—waste incineration plants, which will cause even greater harm to the environment. Due to such a distribution of costs, the harm to the environment will not be leveled, therefore, it is extremely important not only to increase costs but also to spend the attracted funds more efficiently.

Determining the optimal environmental tax rate depends on many external political and economic factors. Thus, different environmental parties have different positioning on environmental issues and take into account the mood of the voters and the length of the party leadership when developing an environmental strategy (Hochman & Zilberman, 2021).

## 46.4 Conclusions/Recommendations

Environmental taxation is one of the most important instruments of government bodies to combat environmentally harmful industries and inefficient use of natural resources. Green taxes can be very effective if they are designed correctly; taxpayers, including environmentally hazardous enterprises, have been identified, and an optimal tax rate has been established. The proceeds from green taxes are used for financial consolidation or for lowering other tax rates. The principles of transparency and completeness of the information can become a decisive factor in the process of recognizing environmental taxation by the public as an integral element of the state's environmental strategy.

Based on the research conducted, certain conclusions can be drawn regarding the effectiveness of the environmental taxation system in the European Union and the potential for the introduction of “green” taxes in Russia. First, there are three main components of environmental taxation in the EU countries: energy tax, transport tax, and environmental pollution tax. The volume of budget revenues from various types of taxes differs significantly in the terms of attracted funds. The largest share belongs to the energy tax. Each EU country has its tax rate, which is determined based on the characteristics of a particular state.

Secondly, the mechanisms of environmental taxation can be considered effective, despite some shortcomings that can be identified within the framework of this system. The volume of revenues from environmental taxation is growing from year to year, which is direct proof of the effectiveness of the system. The funds received are the sources of many green projects and environmental initiatives, as well as catalysts for investing in renewable energy sources and optimizing production. For the countries



of the European Union, the most serious problem at the stage of introducing the environmental tax was the danger of reducing the competitiveness of local companies. However, this disadvantage can be mitigated at the expense of other financial instruments of the fiscal policy of states, including grants and subsidies. It should be noted that to achieve the greatest efficiency of the tax system in the field of environmental protection, the introduction of taxes alone will not be sufficient, and “green” taxes should work along with other financial instruments.

Thirdly, for the Russian Federation, the issue of ecology is also quite acute. Although it is not yet so actively involved in the international environmental agenda, government agencies are gradually increasing spending on solving environmental problems; although sometimes, the effectiveness of projects is questioned. According to the authors, the introduction of a “green” tax in Russia would be advisable. When developing legislation in the field of environmental taxation, it would seem rational to take into account the vast international experience, in particular, the experience of the European Union. The environmental tax would increase the total amount of budget revenues, while these revenues could become a source of financing for various “green” projects, that is, the scale of the environmental benefit from the tax can be quite significant. The introduction of new taxes should not contradict the principle of economic rationale, i.e., the introduction of an environmental tax must be economically justified by the state, while the rate for other taxes may be adjusted.

Of course, the introduction of a new type of tax is associated with economic and political risks, but the experience of European countries shows that all risks can be neutralized through the use of auxiliary tools, including incentive taxes. It is also necessary to ensure the transparency of the environmental taxation system for the Russian citizens to accept this system and to maintain the authority of the state in their eyes.

In conclusion, the authors would like to give some recommendations that will help to establish the optimal rate of the “green” tax. First of all, the competent authorities should take into account that the environmental tax should be aimed at a company that is harmful to the environment, or on harmful activities, in other words, it is necessary to clearly define the taxpayer and the object of taxation. The number of tax revenues should fully compensate for the damage to the environment and should be reflected in the level of the tax rate. At the same time, it is necessary to take into account the fact that the environmental strategy is of a long-term nature and regular monitoring need to be carried out by the state. The purpose of environmental taxation should be considered not to temporarily cover environmental damage, but to prevent it. Due to revenues from environmental taxation, it is possible to reduce the tax burden on economic agents for other types of taxes. When introducing environmental taxation, it is critically important to apply government support measures such as subsidies, tax incentives, and loans to “green” economic entities to achieve greater efficiency. This will stimulate economic actors to switch to “green” consumption through compensation payments. An open dialog with citizens of Russia on environmental taxation and spending in this area will help maintain the authority of the state and will allow the introduction of green taxes to be regarded as a necessary measure in the eyes of the public. If we take into account all the above recommendations, then environmental

taxation can become an effective tool in the fight against climate change and other problems, as has been proven in the experience of foreign countries.

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