

ECOLOGICAL TAX AS AN ECONOMIC TOOL FOR ENVIRONMENTAL POLICY IN UKRAINE

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Abstract. The essence of the ecological tax, features of ecological taxation in Ukraine are determined. The analysis of the dynamics of pollutants emissions into the ambient air, waste generated in the territory of Ukraine and the indicators of income for the components of the environmental tax in terms of their enrolment at different levels of the state budget is carried out. The system of economic tools for nature management and environmental protection in Ukraine is presented. The types of environmental taxes collected in foreign countries are investigated, problems of environmental taxation in Ukraine are identified. The main directions of improving the environmental tax have been determined taking into account the experience of economically developed countries of the European Union.

Keywords: ecological taxation, economic mechanism of nature management.

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Introduction

The high level of environmental pollution in Ukraine and the chronic shortage of financial resources for the implementation of the state's environmental policy and environmental protection activities make it necessary to improve environmental taxation. The current environmental situation confirms the insufficient level of financial support for both the processes of overcoming environmental damage and its prevention. The world community is raising attention to the issue of preserving the environment through optimization of environmental taxes system. Taking into account the undertaken European integration processes, Ukraine cannot remain aloof from the processes of transformation of the EU countries tax systems. In the adopted Tax Code, a system of environmental taxation is declared, the development of which should be implemented in the direction of increasing the efficiency of its public purpose – financing activities, projects to reduce the excessive burden on the environment.

Analysis of the Recent Publications and Studies

According to the study conducted by the Center for Environmental Policy and Law at Yale University, Ukraine in 2016 took 44th place in the rating of environmental efficiency among 180 countries (*Ukraine in the rating of environmental efficiency, 2016*). The lowest position on the criteria for the effectiveness of state policy in the sphere of ecology was taken by Ukraine in terms of air pollution with nitrogen dioxide (Table 1).

Table 1

Positions of Ukraine by the criteria of efficiency of state policy in the field of ecology

Environment condition and its impact on the population health	Health status of the population - 45	Risks to health related to environmental pollution	45
	Air quality – 76	Air quality in households	38
		Air pollution (health risk due to air pollution by fine dust PM 2.5)	89
		Air pollution (average percentage of population, the health impact of which by air pollution with a fine dust PM2.5 is higher than the threshold)	120
		Air pollution (influence on the health of the population of air pollution with dioxin nitrogen)	144
	Water and sanitary – 61	Dangerous sanitary conditions	75
The quality of drinking water		56	

Source: composed by the author based on (*Ukraine in the rating of environmental efficiency, 2016*)

The data of the State Statistics Committee of Ukraine testify to the significant amount of pollutant emissions to the atmosphere, the general volumes of wastes generated in the country's territory, compared to the European countries (Table 2).

Table 2

Volumes of pollutants emissions into the atmosphere and waste in Ukraine in 2011-2016

Index	Years					
	2011	2012	2013	2014	2015	2016
Volumes of pollutants emissions into the atmosphere, kt	6678.0	6877.3	6821.1	6719.8	5346.2	4521.3
Volumes of waste, kt	25914.2	447641.2	450726.8	448117.6	355000.4	312267.6

Source: composed by the author based on (*State Statistics Committee*)

In the regional aspect Dnipropetrovsk, Ivano-Frankivsk and Zaporizhzhya oblasts are leading in emissions of atmospheric pollutants, and Dnipro, Odessa, Kramatorsk are leaders among the cities of Ukraine. In the first half of 2017, the level of air pollution was estimated

as high in 15 cities of Ukraine: Dnipro, Odessa, Kramatorsk, Slavyansk, Kamyanske, Kherson, Lysychansk, Mariupol, Kiev, Lutsk, Mykolaiv, Zaporizhzhya, Kryvyi Rih, Uzhgorod, Rubizne (*Review of the state the natural environment pollution in Ukraine in the first half, 2016*).

In 2017, "Top 100 main polluting enterprises" included 33 enterprises that cause the greatest damage to water bodies, the atmosphere and 34 enterprises, which form a large number of industrial wastes. This was announced at a briefing by the Minister of Ecology and Natural Resources Ostap Semerak. He noted that most of the enterprises that entered the rating are concentrated in Donetsk, Dnipropetrovsk and Zaporizhzhya regions. The first three of the largest air pollutants in Ukraine are: PJSC ArcelorMittal Kryvyi Rih, PJSC "Mariupol Metallurgical Combine named after Ilyich, Burshtynska TPP of PJSC DTEK Zakhidenergo (*TOP-100, 2016*).

Considering the above, it is extremely important and vital for Ukraine to determine the prospects for the development of environmental taxation in terms of its theoretical and practical significance. Ecological taxes should be considered not only as a source of filling budgets, but also as a tool to achieve environmental security of the state and to address environmental quality problems, raise funds to finance the costs of protecting and managing natural resources. In addition, the environmental tax as an innovative tax technology should become an effective financial tool to ensure the sustainability of the state's environmental development. The role of such economic instruments of environmental policy is steadily growing.

The aim of the presented scientific investigation and tasks

The aim is to present the essence of the environmental tax as an economic tool for nature management and protection, the state of environmental taxation in foreign countries and the national economy, the rationale for reforming and improving the efficiency of the environmental taxation system in the context of the concept of society sustainable development.

Coming out of the set aim, it is suggested to solve the following tasks:

- a) to explore aspects of environmental taxation and types of environmental taxes in foreign countries;
- b) to disclose the content of the environmental tax as an economic tool for nature management and its structure;
- c) to analyze the order of formation and the dynamics of revenues of the environmental tax to the budget of Ukraine;
- d) to determine the strategy of Ukraine in the direction of further ecologization of the economy and ensuring the environmental safety of the country;
- e) to present ways of reforming the national system of environmental taxation and the direction for the further research.

Key Findings

The economic mechanism of nature management and environmental protection in Ukraine should be implemented on the basis of the principles of payment for the special use of natural resources and for the harmful impact on the environment and the targeted use of

funds received from the environmental tax on the restoration and maintenance of natural resources in an appropriate condition and the elimination of pollution sources. (Fig. 1).

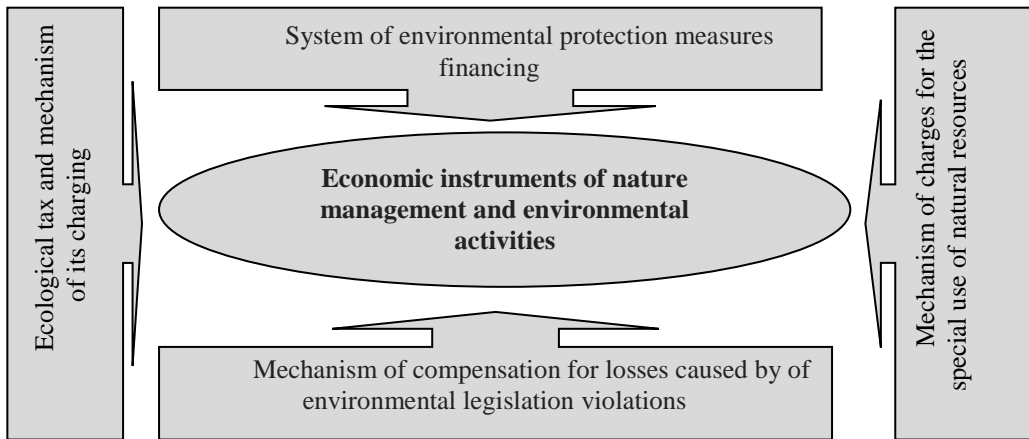


Fig. 1. System of economic instruments of nature management and nature protection activities

Note: author's development

Ecological taxation as one of the most important incentives for rational nature management provides opportunities not only to address pressing environmental issues, but also to stimulate reduction in pollutants emissions and to create environmental awareness among polluters. The basic idea of introducing environmental taxes is to establish a direct relationship between the amount of tax deductions and the degree of negative impact on the environment and natural resources because of business entities activities (Varlamova, 2015).

The practice of tax systems functioning in foreign countries shows that environmental taxation has three main functions: environmental, incentive and fiscal. The fiscal one is realized through replenishment of the budget with environmental taxes of various types. The environmental function is realized by financing environmental programs aimed at addressing environmental quality problems. Such taxes are intended to stimulate the environmental behaviour of payers, which should help reduce the burden on the environment and ensure its protection (Yakusha, 2011.). After all, in order to reduce environmental payments to the budget, an enterprise should reduce the level of environmental pollution caused by its economic activities, and this is impossible without investing in resource-saving, non-waste technologies, fixed assets for nature protection purposes, etc. (Pushak, 2016). Nowadays about 500 varieties of environmental taxes are applied in foreign countries. According to the target direction, they are divided into three groups. The first one includes the taxes that have a fiscal function, they increase incomes, directed not only to cover the costs of environmental regulation, but also to replenish the budget. The second group includes the taxes to cover expenses; they are aimed at restoring the environment (payment for water collection, waste disposal, etc.). The latter group includes incentive taxes levied for changing the behaviour of subjects that are detrimental to the environment, that is, "taking into account" responsible behaviour. Table 3 provides a list of environmental taxes and payments levied in European countries.

Table 3

Taxes and payments of an environmental nature that apply in Europe

Type of tax	Countries											
	Great Britain	Denmark	Norway	Sweden	Czech Republic	France	Germany	Latvia	Poland	Netherlands	Finland	Slovenia
Carbon dioxide emission tax		+	+			+					+	+
Fee for water pollution		+			+							+
Waste and waste disposal tax	+	+	+	+		+			+	+	+	
Tax on vehicle emissions			+	+			+					
Energy consumption tax		+		+			+			+	+	
Tax on products containing environmentally harmful substances		+	+	+	+	+	+	+	+			
Packaging tax (glass, metal, plastic)		+	+	+							+	
License for the activities of companies posing environmental hazard						+						
Fees for felling trees and plantations									+			
Heat emissions tax		+										
Taxes on vehicles use	+	+		+				+				+
Tax / fee for emissions into the atmosphere					+	+			+			
Environment protection charge	+			+								

Source: composed by the author based on (*Dragan, 2011*)

The experience of applying environmental tax in foreign countries demonstrates its effectiveness. The state policy leads to reduction of emissions to the environment, improvement of its condition, application of the newest non-waste technologies by business entities, and stimulates the innovative development of the state. Currently, the environmental tax in Ukraine is not a budget-forming one. Income tax to the state budget during 2014-2016 amounted from 2691.0 million UAH to 4987400000.UAH, the share of the environmental tax in the budget revenues ranged from 0.27% to 1.31%, in GDP – from 0.06% to 0.31% (Table 4).

Table 4

The dynamics of ecological tax revenues to the state budget of Ukraine in 2014-2016

Index	Years		
	2014	2015	2016
Planned receipts of environmental tax, UAH million	5355.5	3162.9	3017.5
Received tax, UAH million	4830.9	2691.0	4987.5
Income level, %	90.3	85.1	165.3
Environmental taxes, % of GDP	0.31	0.06	0.18
Environmental taxes, % of budget revenues	1.31	0.27	0.83

Source: composed by the author based on (*State Statistics Committee*)

Ukraine consolidated its obligations to ecologize the economy and ensure environmental safety in legal form by adopting in 2010 the Law of Ukraine "On the main principles (strategy) of state environmental policy for the period until 2020" (Table 5). Accordingly, one of the sources of financial support for the state environmental policy is the ecological tax.

Table 5

**Planned indicators of the state environmental policy of Ukraine
for the period up to 2020**

Measures to ecologize the economy and ensure the ecological safety of Ukraine	Measure units
1. Reduction of pollutant emissions by stationary sources	by 25%
2. Establishment of pollutants content norms in the exhaust gases of mobile sources Euro-5	–
3. Increased use of energy sources with low carbon dioxide emissions	by 20%
4. Reducing the level of water pollution by polluting substances (organic substances, compounds of nitrogen and phosphorus)	by 15%
5. Increase in the afforestation area	Up to 17%
6. Land reclamation on the site	Not less 4.3 thou. Hectares
7. Increase in the volume of harvesting, utilization and use of waste as a secondary raw material	1.5 times
8. Reduced storage of household waste that is subjected to biological degradation in designated areas	by 15%
9. Increasing energy efficiency of production through implementation of resource conservation in the energy sector and energy consuming industries	Up to 50%
10. Increased use of renewable and alternative energy sources	Up to 55%
11. Increase in the share of land used in organic agriculture	Up to 7%

Source: composed by the author based on (*The Law of Ukraine "On Amendments to the Budget Code of Ukraine regarding the Targeted Direction of Environmental Tax", 2015*)

In the leading foreign countries, environmental taxation is based on the principles that are reflected in the reports of the Organization for Economic Cooperation and Development (OECD), namely: the "polluter pays" principle, the principle of periodic updating of rates of environmental taxes and the principle of the need to secure targeted use of the funds received. However, in Ukraine, even in the aforementioned Basic Principles of State Environmental Policy for the period up to 2020 (8), the basic principle "polluter pays" is very softened in favour of pollutants – it is society that must prove to them that they caused environmental damage and must answer for it, and not polluters, prove that the amount of payments they have to pay in accordance with the law, fines and claims from bodies authorized to conduct environmental impact assessment and monitoring, is less than the damage caused by them. The main principle of environmental taxation have it that it is a polluter who should incur the

costs of implementing measures to prevent the formation of pollution and to combat its consequences in order to ensure the proper quality of the environment for society. That is, the costs of such measures should be reflected in the cost of goods and services that cause pollution during their production and / or consumption (*Garkushenko, 2013*).

On the principle of the need to secure the targeted use of the funds received, in the world practice there are several main options for using the proceeds from environmental taxes: financing of specific environmental programs; reduction of deforming taxes; reduction of the state budget deficit; increase in government spending. In Ukraine, the environmental tax was included in the budgets as follows: 65% – to the special fund of the state budget, 50% of which – with the focus on financial support for exclusively targeted projects for the environmental modernization of enterprises within the limits of the amounts of the environmental tax they paid; 35% – to the special fund of the local budget. So, the state took at its disposal a twice larger share of the revenues from the environmental tax, which gave rise to a number of financial difficulties with respect to the objectives of the ecologization of individual regions, which differ significantly in the rate of technogenic catastrophe imminence. During 2016-2017 a model for fiscal decentralization of environmental taxation was created. At the end of 2015, it was decided to redirect the revenues from the environmental tax from the general fund of local budgets to a special fund with the aim of using these funds exclusively for environmental protection programs, which was certainly positive. Accordingly, 80% of the proceeds from the environmental tax went to special funds of local budgets (of which 25% were directed to rural and city budgets, and 55% to regional budgets), and 20% remained in the general fund of the state budget (*The Law of Ukraine "On Amendments to the Budget Code of Ukraine regarding the Targeted Direction of Environmental Tax", 2015*).

In accordance with the Law of Ukraine No. 2245 (*The Law of Ukraine "On Amendments to the Tax Code of Ukraine and Certain Legislative Acts of Ukraine regarding the Balance of Budget Revenues in 2018"*) and the explanations of the State Fiscal Service (*About administration of the environmental tax in 2018*) dated January 1, 2018, environmental tax payers transfer the amount of tax levied for emissions, discharges of pollutants and waste disposal, as one payment order to accounts opened in the bodies, carrying out treasury services of budgetary funds and ensure the distribution of these funds in the ratio determined by the budget code, as follows:

- 45% – to the general fund of the state budget (except for the environmental tax levied for the generation of radioactive waste (including already accumulated one) and / or temporary storage of radioactive waste by its producers in excess of the term specified in the special license terms);
- 55% – to the special fund of local budgets (except for the environmental tax levied for the generation of radioactive waste), including: rural, township, city budgets, budgets of joint territorial communities created in accordance with the law and the long-term plan for the formation of community territories - 25 %; regional budgets and the budget of the Autonomous Republic of Crimea -30%; the budgets of the cities of Kiev and Sevastopol – 55%.

The tax that is charged for the generation of radioactive waste is transferred fifty-fifty to the general fund of the state budget and the special fund of the state budget. Failure to meet the environmental tax revenue plan in 2014-2016 is caused by reduction in the amount of declaration of the environmental tax due to a decrease in the volume of emissions, discharges and the placement of pollutants, including in connection with a decrease in production

volumes; use of low-sulphur energy coal, which results in the combustion of less pollutants; introduction of environmental technologies that ensure the complete elimination or reduction of pollution of ambient air and water bodies.

The term "environmental tax", given in the Tax Code of Ukraine, corresponds to the general definition used by the European Community, OECD and the International Energy Agency (IEA) (*About administration of the environmental tax in 2018*). It should be noted that with the adoption of the Tax Code, the innovative environmental tax in Ukraine has become a logical continuation of its predecessor - the charge for pollution of the environment. According to Article 14.1.57 of the Tax Code of Ukraine (*The Tax Code of Ukraine, 2010*), an environmental tax is a nation-wide mandatory payment charged on actual volumes of emissions to the air, discharges to water bodies of pollutants, disposal of waste, the actual volume of radioactive waste that is temporarily stored by their producers, the actual volume of generated radioactive waste and the actual volume of radioactive waste accumulated before 01.04.2009.

The effective environmental legislation of Ukraine established a direct link between the use of environmental measures by the state and sources of their financing, among which an environmental tax holds an important place. Ecological tax is the main source of payments to state and local environmental funds, these are funds that can be used only for targeted financing of environmental protection measures.

The structure of the environmental tax with the distribution of funds from its receipt in the ratio determined by the Budget Code is given in Table. 7.

Table 7

Ecological tax structure in 2016

Ecological tax structure	Amounts of environmental tax revenues			
	General fund, MUAH	Special fund, MUAH	Consolidated budget	
			MUAH	% in the structure
Ecological tax structure revenue total, incl.	1619.7	3368.3	4987.4	100.0
Revenues from emissions of pollutants into the atmosphere by stationary sources of pollution	626.4	2505.6	3132.0	62.8
Revenues from discharges of pollutants into water bodies	28.5	113.8	142.3	2.8
Revenues from the placement of waste in specially designated sites or on facilities, except of the placement of certain types of waste as secondary raw materials	187.2	748.8	935.9	18.8
environmental tax, which is charged for the generation of radioactive wastes (including those already accumulated) and / or the temporary storage of radioactive wastes by their producers beyond the terms established by the license	777.1	-	777.1	15.6

Source: composed by the author based on (*State Statistics Committee, Official website of the State Treasury Service of Ukraine, 2016*)

For the environmental tax, the Tax Code of Ukraine provides for a decreasing factor of 0.8 for transition to low-waste and non-waste resource and energy-saving technologies, introduction of the best existing technologies. Such a norm provides for the possibility of obtaining certain tax preferences by implementing innovative technologies, the use of which will allow less pollution of the environment and more efficient use of natural resources. Amendments made to the Tax Code of Ukraine in accordance with the Law of Ukraine No. 2245-VIII dd. 07.12.2017 will also encourage business entities to take such steps. Therefore, from 01/01/2018, the rates of environmental tax compared to those in force in 2017 will increase by 11.2%.

To achieve the strategic goals indicated in Table 5, we consider it expedient to apply the practice of developed countries. In the EU countries, there are such types of environmental tax, charging of which is not provided for in the legislation of Ukraine, and which effectively induce economic agents to reduce emissions of pollutants. More popular is the tax on environmentally harmful products in consumption. The introduction in Ukraine of a tax on products and packaging that contains environmentally hazardous substances will make it possible to implement more effectively the economy of nature management. The experience of collecting charges for return emissions is also widespread. It is an economic instrument of environmental policy, which provides for the transfer of finance from special funds of enterprises, which, through scientific and technological progress, were able to reduce the amount of harmful emissions to the environment. This not only leads to a reduction in emissions, but also encourages the new technologies introduction at enterprises. In Sweden, the charge for reverse emissions allowed to reduce emissions to atmospheric air.

Reforming the domestic system of environmental taxation is proposed by limiting the amount of environmental pollution, the introduction of preferential taxation, the introduction of an environmental tax on "electronic waste." According to official data, 4500 tons of accumulators and batteries are sold annually in Ukraine, which are mainly thrown out to landfills. It is these emissions of waste that pose a significant danger to the environment and people (*Konina, Yankovskyi, 2016*).

In addition, we believe that the current economic mechanism for nature management is characterized by a lack of incentive principles. Expenditures on environmental measures several times exceed the amount of environmental payments, so entrepreneurs will rather replenish the budget than introduce new technologies. To improve the situation, it is necessary to stimulate the interest of business entities in the implementation of resource-saving technologies, the release of environmentally friendly products, the use of harmless raw materials. It is necessary to develop a system of preferential taxation for business entities that use wasteless, resource-saving technologies; for customs clearance of fixed assets intended for environmental protection and introduction of accelerated depreciation of environmental value; introduce preferential VAT rates for sales operations with environmental technologies.

According to the Tax Code, penalties are collected from taxpayers. We believe that it is necessary to establish high fines for excessive pollution of the environment, for violation of the rules for waste handling and to change the methodology for calculating fines. To date, the size of the fine is tied to a non-taxable minimum or charged in absolute terms. To encourage a reduction in emissions, it is necessary to link it to the size of the economic damage from the violation and the potential expenditures of the intruder enterprise for environmental protection measures.

Taking into account the imperfection of the current legislation on the collection and administration of environmental taxes, the proposals by Naydenko O. E. (*Naydenko, 2017*) are

suitable and appropriate regarding the introduction of differential environmental tax rates in the context of the country's regions, introduction of an environmental tax for production and import of fertilizers and pesticides, introduction of a progressive scale of correction factors applied to environmental tax rates for more limited emissions / discharges of pollutants into the air / water objects.

The proposed ways to improve environmental taxation will strengthen its stimulating and environmental function, will contribute to the solution of environmental problems through the financial provision of nature protection measures, which in turn will contribute to improving the environmental situation and living conditions of the population.

Conclusions and Suggestions

Among modern global world problems of mankind, environmental problems occupy almost the most important place, as the main agenda is to ensure sustainable development of society. Environment protection and rational use of natural resources are now being given special attention by government structures and the international community. In such conditions, an environmental tax should be viewed not only as a source of cash flow to the budget, but also as a way of improving living conditions for the population, an economic tool for nature management that serves as a means of encouraging commodity producers to actively invest in innovation nature-oriented and resource-saving activities. However, today the current system of environmental taxation in Ukraine is not effective. The assessment of the fiscal value of the environmental tax has demonstrated its insignificance in the context of the scale of environmental problems, despite the growth in income from its structural elements. In order to bring the environmental tax in compliance with the essence of an economic instrument that provides sufficient funds for financing state environmental programs and changes in the approaches to company management, encourages rational management of natural resources, introduction of innovative environmental technologies, it is necessary to harmonize state environmental policy with the basic principles of tax legislation in European countries. Society orientation on improvement the quality of life standards predetermines further exploration related to the search for motivations for business, ways to increase the effectiveness of environmental taxation and improve the mechanism of environmental investment in Ukraine.

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