# GOSPODARKA I SPOŁECZEŃSTWO W EUROPEJSKIEJ PERSPEKTYWIE

## SZANSE I ZAGROŻENIA ROZWOJU SPOŁECZNO-GOSPODARCZEGO ROLA EKONOMII SPOŁECZNEJ W ROZWOJU SPOŁECZEŃSTW

REDAKCJA Paweł galiński Izabela seredocha

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# ENVIRONMENTAL TAXATION AND ITS FINANCIAL IMPACT ON THE DEVELOPMENT OF TERRITORIES

#### Słowa kluczowe

podatek środowiskowy, dochody z podatku środowiskowego, wydatki na ochronę środowiska

#### Keywords

environmental tax, environmental tax revenue, environmental protection expenditure

#### INTRODUCTION

Tax system instruments are one of the methods to be used for solving and removing the problem of negative environmental processes taking place nowadays. In recent years, tax policy has become a central pillar of government measures to boost the economy and tackle social and environmental issues<sup>1</sup>. Environmental taxation has not developed in a significant way so far, but there is potential for it to become a major source of revenue in a world where climate change and other environmental threats are taken more seriously<sup>2</sup>.

<sup>&</sup>lt;sup>1</sup> Taxation Trends in the European Union. Data for the EU member states, Iceland and Norway, 2018 edition [online], https://ec.europa.eu/taxation\_customs/sites/taxation/files/taxation\_trends\_report\_2018.pdf [accessed: 10.01.2019].

<sup>&</sup>lt;sup>2</sup> Paying Taxes 2018: PwC Ukraine team presented results of a joint project with the Word Bank Group [online], https://www.pwc.com/ua/en/press-room/2017/paying-taxes-2018-press-briefing.htmlp, p. 41 [accessed: 12.01.2019].

The aim of these taxes is both to encourage companies to change behaviours so that they operate in a way which benefits the environment, and to achieve specific environmental objectives and targets set by government and international bodies<sup>3</sup>.

In Ukraine environmental tax has been imposed on enterprises polluting in 2011 but most of the environmental problems still are to be resolved as the system of environmental taxation in Ukraine is not optimal. A large part of its elements do not cause a multiplicative effect aimed at reduction of the negative impact on the environment. So, an adequate assessment of the efficiency of the environmental taxation system in Ukraine functioning is urgent.

The analysis of indicators for comparision and concluding is carried out for the period of the environmental tax existence in Ukraine (2011–2018). For the European Union (EU) data are available till 2017 (including).

The aim of the article is to analyze the current situation in environmental taxation in Ukraine in terms of identifying main problems existing in this area, compare Ukraine's performance with the EU countries for studying best practice within the issues discussed and provide recommendations for the environmental taxation improvement and efficiency increase in Ukraine.

# ENVIRONMENTAL TAXATION BASIC PRINCIPLES, FUNCTIONS AND FEATURES: AN OVERVIEW

In "Environmental taxes – a statistical guide" issued by European Commission (2013)<sup>4</sup> the environmental tax is defined as "a tax whose tax base is a physical unit (or a proxy of a physical unit) of something that has a proven, specific negative impact on the envi-

<sup>&</sup>lt;sup>3</sup> *Paying Taxes* 2009: The global picture, World Bank Group and PwC [online], https://www.pwc.com/gx/en/paying-taxes/assets/paying-taxes-2009.pdf, p. 60 [accessed: 13.01.2019].

<sup>&</sup>lt;sup>4</sup> Environmental taxes – a statistical guide [online], http://ec.europa.eu/eurostat/documents/3859598/5936129/KS-GQ-13–005-EN.PDF, p. 9, p. 13 [accessed: 09.02.2018].

ronment". The same definition is used in the European system of accounts<sup>5</sup> and Regulation (EU) No 691/2011 on European environmental economic accounts<sup>6</sup>.

Basic subgroups within environmental taxes are as follows<sup>6</sup>:

- 1. Energy taxes (including fuel for transport, in which CO<sub>2</sub> taxes).
- 2. Transport taxes (excluding fuel for transport).
- 3. Pollution taxes. This group includes taxes on measured or estimated emission to air (except CO2 taxes) and water, on the management of waste and noise.
- 4. Resource taxes covers taxes on extraction of raw materials, with the exception of oil and gas.

In Ukraine, the environmental tax was enacted in 2011 with the adoption of the Tax Code [4, article 240] and charge the taxpayers engaged in the following<sup>7</sup>:

- 1) emissions of pollutants into the air from stationary sources of pollution;
  - 2) discharges of pollutants directly into water bodies;
- 3) waste disposal (except for placement of certain types (classes) of waste as secondary raw material to be placed on its own territory of economic entities);
- 4) the generation of radioactive waste (including already accrued);
  - 5) temporary storage of radioactive waste over the deadline.

In addition, there are environmental taxes regulating the use of natural resources, which are not a component of the environmental tax. These include rental fee for the following:

- 1) use of mineral resources and the radio frequency resource of Ukraine;
  - 2) special use of water and forest resources, as well as land tax.

<sup>&</sup>lt;sup>5</sup> Glossary: European system of national and regional accounts (ESA 2010) [online], http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:European\_system\_of\_national\_and\_regional\_accounts\_(ESA\_2010) [accessed: 10.02.2018].

<sup>&</sup>lt;sup>6</sup> Regulation (EU) No 691/2011 of the European Parliament and of the Council of 6 July 2011 on European environmental economic accounts [online], http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:02011R0691–20140616 [accessed: 10.02.2018].

<sup>&</sup>lt;sup>7</sup> Tax Code of Ukraine [online], https://zakon.rada.gov.ua/laws/show/2755–17?lang=en [accessed: 20.01.2019].

Ukrainian legislation, unlike foreign ones, already defines the types of activities that are the basis of environmental taxation in the definition of environmental taxes, and specifies which radioactive waste is taxed, that is, the definition of environmental tax by the Tax Code of Ukraine is excessively detailed. In Ukraine there are taxes/fees that regulate the use of natural resources, electricity and the use of vehicles, however, they are not part of the environmental tax. But this aspect of the national taxation system should not be taken critical, as many countries have the experience of gradually transforming some national taxes into environmental ones, e.g. United Kingdom<sup>8</sup>.

Various types of environmental taxes that can be levied in the EU countries partially coincide with the components of the environmental tax in Ukraine: for example, pollution taxes and, partially, energy taxes in the EU, and such components of the environmental tax in Ukraine as emissions of pollutants into the atmospheric air, discharges of pollutants to water bodies, waste disposal, taxes on volumes of electric energy produced by operating organizations of nuclear installations (nuclear power plants).

Also, EU environmental taxes include taxes that are distinct from environmental in Ukraine: for example, transport taxes and taxes on EU resources and rental fees for special use of forest resources, water, use of minerals etc. in Ukraine.

It should also be taken into account that during their comparisons the total correspondance of the EU environmental taxes and environmental taxes in Ukraine is not ensured as environmental payments are considered only as revenues from the environmental tax by the State Statistics Service of Ukraine.

Environmental taxes have many important advantages, such as environmental effectiveness, economic efficiency, the ability to raise public revenue, and transparency. Also, environmental taxes have been successfully used to address a wide range of issues including waste disposal, water pollution and air emissions.

In the Organisation for Economic Co-operation and Develop-

<sup>&</sup>lt;sup>8</sup> S.M. Kozmenko, T.V. Volkovets. Features of environmental taxation in foreign countries, *Bulletin of Sumy State University*, 2012, No. 1, pp. 11–18, p. 12.

ment (OECD) countries effective environmental taxes are designed on the following principles:

- 1. Environmental tax bases should be targeted to the pollutant or polluting behavior.
- 2. The scope of an environmental tax should ideally be as broad as the scope of the environmental damage.
- 3. Environmental taxes should apply uniformly with few (if any) exceptions.
- 4. The tax rate should be commensurate with the environmental damage.
- 5. The tax must be credible and its rate predictable in order to motivate environmental improvements<sup>9</sup>.

But according to<sup>10</sup> the environmental tax has a non-tax nature, since the compensation is a feature of non-tax payments.

Environmental taxes have three key roles and functions: internalization of external costs (i.e. optimal tax rate should correspond to overall social marginal costs of pollution, the so-called Pareto efficiency of environmental use), educational (serve to encourage potential pollutants, i.e. emitters of harmful substances to reach a decision about whether to pay an additional tax unit or to give up emission of additional unit of pollution, an end result being levelled marginal costs of pollution of all emitters), and financial (all taxes are usually financially generous, and collected funds could serve in environment protection). In addition to these functions, environmental taxes have the function of improving environmental quality<sup>11</sup>.

Environmental taxation functions are also identified as: fiscal (is realized through raising budget revenue), environmental protection (is achieved by financing environmental programs aimed at solving environmental quality problems) and incentive (such taxes are intended to stimulate the environmental behavior of taxpayers, which

<sup>&</sup>lt;sup>9</sup> Environmental Taxation. A Guide for Policy Makers [online], https://www.oecd.org/env/tools-evaluation/48164926.pdf [accessed: 14.01.2019].

<sup>&</sup>lt;sup>10</sup> T.M. Shulha, Formation and development of environmental taxation in Ukraine. *Scientific Bulletin of the International Humanitarian University. series: Jurisprudence*, 2013, No. 6–3, Vol. 2, pp. 68–70, p. 69.

<sup>&</sup>lt;sup>11</sup> S. Hodžić, V. Bratić, Comparative analysis of environmental taxes in EU and Croatia. *Ekon. Misao i Praksa DBK*. GOD XXIV, 2015, BR. 2, pp. 555–578., p. 560–561.

should reduce the burden on the environment and ensure its protection). In order to reduce environmental payments to the budget, an entity should reduce the level of environmental pollution caused by its economic activity, which is impossible without investing in resource-saving, wasteless technologies etc.<sup>12</sup>

Trade-offs between fiscal (revenue raising) and environmental objectives should be addressed. In the long-term, if environmental taxes are effective, revenues will decline as a result of behavioural change. This is a natural consequence of the application of an environmental tax. To stabilise revenues in the short-term, governments might find it useful to index the tax rate to inflation or gross domestic product (GDP) growth or to foresee regular tax increases.

The criteria used for the impact of environmental taxes on environmental degradation, social equity and the economy are: environmental effectiveness (analysing whether the tax is capable of leading to an overall reduction in pollution and/or result in reduced consumption of energy or other scarce resources); social impacts (including indirect impacts, resulting from changing relative prices, and the potential for regressive impact of the tax); economic and fiscal impacts, including impacts on GDP, international competitiveness, employment, and government revenues<sup>13</sup>.

One of the criteria for the effectiveness of the taxation system is also the degree of integration, coherence and a combination of environmental and tax interests of the state, taxpayers and citizens<sup>14</sup>.

Due to many developing countries' capacity constraints, it might be advisable to first target a tax base for which existing effective collection mechanisms exist. Revenues can subsequently be used to improve fiscal capacity. In developing countries, fiscal space is limited and environmental policies tend not to be prioritised. In this context, loose symbolic earmarking, or even legal earmarking of

<sup>&</sup>lt;sup>12</sup> Yakusha Ya. Problems of the European experience of environmental taxation adaptation to Ukrainian conditions, *Economy of the Crimea*, 2011, No.3 (36), pp. 73–77.

<sup>&</sup>lt;sup>13</sup> J. Cottrell, T. Falcão, *A Climate of Fairness. Environmental Taxation and Tax Justice in Developing Countries* [online], 2018, p. 9, https://www.globaltaxjustice.org/sites/default/files/A\_Climate\_of\_Fairness.pdf [accessed: 02.03.2019].

<sup>&</sup>lt;sup>14</sup> Bets M.T., Bezpalova O.V. Environmental taxation in Ukraine and its prospects. *Scientific Bulletin*, Iss. 14.7, 2004, Lviv: UkrSFTU, pp. 154–158, p. 155.

a proportion of revenues, can be an important tool to raise awareness of the implementation of the tax, gain popular support, and to ring fence funds for a specific environmental cause<sup>15</sup>.

#### UKRAINE'S PERFORMANCE: KEY FEATURES AND FINDINGS IN ENVIRONMENTAL TAXATION ISSUES

At the macro level, an important aspect in the field of environmental taxation is the distribution of funds between the levels of the budget system and the directions of their spending. Throughout the period of the environmental tax existence and the previous fees and charges for pollution of the environment, the proportions of distribution of tax revenues in Ukraine between the budgets and the regulatory legal base that determines them have constantly changed. This fact makes it impossible to formulate consistent policy of environmental activities and the implementation of multi-year programs in this area<sup>15</sup>.

The distribution of the amounts of environmental tax is carried out in the following proportions<sup>16</sup>:

- 45% of the tax to the general fund of the State Budget of Ukraine (except for the tax, which is charged for carbon dioxide emissions from stationary sources of pollution, which is transfered to the general fund of the state budget in full; the tax that is charged for the generation of radioactive waste (including already accrued) and / or temporary storage of radioactive wastes by their producers above the established by the license term, which is transfered to the special fund of the state budget in full);
- 55% to the special fund of local budgets (except for the tax that is charged for the generation of radioactive waste), including:
- to rural, city budgets, budgets of united territorial communities, created in accordance with the law and a prospective plan for the formation of community territories 25%;

<sup>&</sup>lt;sup>15</sup> Kanonishena-Kovalenko K. *Environmental Tax from A to Z.* Kyiv: Foundation «Vidkryte Suspilstvo», 2017, 108 p., pp. 6–7.

<sup>&</sup>lt;sup>16</sup> http://sfs.gov.ua/zakonodavstvo/podatkove-zakonodavstvo/listi-dps/73141. html [online] [accessed: 25.01.2019].

- regional budgets and the budget of the Autonomous Republic of Crimea – 30%;
  - budgets of the cities of Kyiv and Sevastopol 55%.

It is important to identify the budget funds that were earmarked for environmental taxation, where significant changes took place: from the formation of extra-budgetary funds, from which revenues could be spent only on environmental protection measures (until 1998) to transfer of these revenues to the budget. Since 2012, the proportions of the distribution of revenues from the environmental tax and its funds have changed every year (table 1). As a result, the environmental tax could not perform its functions in full due to misplaced revenues from it, and budget planning on environmental tax revenues and environmental protection expenditures could not be effectively realized in the medium and long term. Revenues tranfered to the special budget fund can be spent only on specific goals, whereas transfer of environmental tax revenues to the general fund of budgets contradicts the nature of this tax - such funds are not directed towards compensation for the damage to the environment done, and are distributed to the budget without further targeted use<sup>17</sup>.

**Tab. 1.** Environmental tax revenues distribution between general and special funds in state, local and consolidated budgets of Ukraine, 2011–2018 [mln. UAH]

Environmental tax revenues	2011	2012	2013	2014	2015	2016	2017	2018
State budget	1085, 3	1263, 6	2364,9	3614,5	1105,4	1619,1	1720, 7	2779, 6
General fund	-	-	-	2585,9	1105,4	1619,1	1720, 7	2266, 0
Special fund	1085, 3	1263, 5	2364,9	1028,6	-	-	-	513, 5
Local budgets	1190, 5	1552, 4	1534,5	1216,4	1585,6	3368, 2	2977, 6	2141, 8
General fund	_	-	_	_	1585,6		-	_
Special fund	1190, 5	1552, 4	1534,5	1216,4	-	3368, 2	2977, 6	2141, 8
Consolidated budget	2275, 8	2816, 0	3899,5	4830,9	2691,0	4987, 4	4 698, 4	4921, 5
General fund	-	-	-	2585,9	2691,0	1619, 1	1720, 7	2266, 0
Special fund	2275, 8	2816, 0	3899,5	2245,0	-	3368, 2	2977, 6	2655, 4

The structure of the distribution of environmental taxes is tied to the territory of its formation, which prompts local budgets to receive their own revenues. A positive fact is that the increase in revenues of local budgets and the distribution of the share of environmental taxes between the levels of budgets are vertical, which makes it possible to adhere to the polluter pays principle<sup>17</sup>.

Environmental tax revenues (table 2) from the time of its introduction until 2014 increased, but a significant decrease has been recorded in 2015. A considerable increase again took place in 2016. As a whole, the amount of the environmental tax paid in Ukraine in the period analyzed has doubled.

Table 2. Dynamics of the environmental tax revenues to the consolidated budget of Ukraine for 2011–2018

Indicator	2011	2012	2013	2014	2015	2016	2017	2018
Total budget revenue (excluding inter-budget transfer payments), mln. UAH	398 5,5	445 5,2	4427,8	4560,6	6520,3	7828,5	1016, 9	1184, 2
% to GDP	29,8	29,7	28,2	28,0	32,8	32,8	34,1	33,7
Total tax revenue, mln. UAH	3346,9	3605,6	3539,6	3675,1	5076,3	6507,8	8281,5	9863,4
% to GDP	28,1	23,8	22,4	22,4	25,5	27,3	27,8	27,8
% to total budget revenue	84,0	80,9	79,9	80,6	77,9	83,1	81,4	83,3
Environmental tax, mln. UAH	2275, 8	2816, 0	3899,4	4830,9	2691,0	4987, 4	4698, 4	4921,5
% to GDP	0,2	0,2	0,3	0,3	0,1	0,1	0,16	0,14
% to total budget revenue	0,6	0,6	0,9	1,1	0,4	0,4	0,5	0,4
% to total tax revenue	0,7	0,8	1,1	1,3	0,5	0,5	0,6	0,5

<sup>&</sup>lt;sup>17</sup> Chala O.A. Modern aspects of the environmental tax distribution in the context of ensuring the ecologization of the national economy, *Effective economy*, *No.* 3, 2015 [online], http://www.economy.nayka.com.ua/?op=1&z=3908 [accessed: 26.01.2019].

One of the reasons for the constant increase in environmental taxes revenues may be due to the increase in environmental tax rates, continuously being increased throughout the environmental tax existence period. Commencing 1 January 2018, the payers of environmental tax had to apply the respective tax rates increased by 11.2 percent. From January 1, 2019, the rate of carbon dioxide tax rate by stationary sources increased by 24.4 times (from 0,41 UAH per tonne till 10 UAH per tonne) with the aim of stimulating polluting enterprises to reduce environmental pollution, as well as approximating greenhouse gas emission rates to the EU countries' ones; rent for oil extraction increased by 2%; the rate for iron ore mining increased by 0.8%; the rent for the special use of forest resources, for the purchase of wood of main and minor forest species increased by 50%<sup>18</sup>.

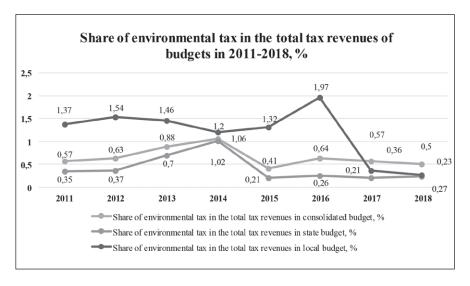
**Table 3.** Environmental tax revenues and environmental protection expenditures in local, state and consolidated budgets of Ukraine in 2011–2018 [mln. UAH].

	20	11	20	12	20	13	20	14	20	15	20	16	20	17	20	18
Budget	Revenues	Expenditures														
Consolidated budget	2 275,8	3891,0	2 816, 0	5298,0	3 899, 4	5594,0	4 830, 9	3482,0	2 691, 0	5530,0	4 987, 4	6255,0	4 698, 4	7349,0	4921,5	8242,0
State budget	1085, 3	3008,3	1263, 5	4135,0	2 364, 9	4595,0	3614, 4	2597,0	1105, 4	4053,0	1619, 1	4772,0	1720, 7	4740,0	2266,0	5241,0
Local budgets	1190, 5	882,0	1552, 4	1163,0	1534, 5	0'666	1216, 4	885,0	1585, 6	1477,0	3368, 2	1484,0	2 977, 6	2609,0	2655,4	3001,0

http://sfs.gov.ua/zakonodavstvo/podatkove-zakonodavstvo/listi-dps/73141.html, http://www.visnuk.com.ua/uk/news/100011175-u-2019-rotsi-zastosovuyutsya-novi-stavki-rentnoyi-plati [accessed: 28.02.2019].

When analyzing the fiscal role of an environmental tax, its share in total budget revenues and tax revenues is important. Data given in Table 2 testify that the share of environmental tax revenues in the total tax revenues in consolidated budget varies in the range of only 0,5–1,3%. In general (table 3, figure 1), environmental tax revenues account for a very small portion in the consolidated budget revenues – from 0.41% to 1.06%.

In the state budget's revenues, the share of environmental tax ranges from 0.21% to 1.02%, and in total revenues of local budgets – up to 2%.



**Figure 1.** Share of environmental tax revenues in the total tax revenues of local, state and consolidated budgets of Ukraine in 2011–2018.

Source: Reports on the state budget execution, https://www.treasury.gov.ua/ua/file-storage/vikonannya-derzhavnogo-byudzhetu [accessed: 01.04.2019]

The fiscal role of the environmental tax for local budgets in general and for the state and consolidated budgets is insignificant.

# ENVIRONMENTAL TAXATION IN THE EU: LESSONS FOR UKRAINE

Since the environmental tax is currently not performing its functions in Ukraine, the environmental tax system needs to be improved. In addition, the international obligations undertaken by Ukraine (Association Agreement between Ukraine and the EU signed in 2014) are challenged by the need to modernize the system of environmental taxation. Therefore, it is useful to study the European experience in managing environmental taxation.

The main feature of the environmental policy of the EU countries is that it aims at preventing the occurrence of environmental pollution by conducting an environmental assessment through Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA)<sup>19</sup>. As to the Ukraine, without an effective EIA it would steadily move towards a resource-dependent country, where the quality of life of the population will grow much more slowly than the GDP. Unlike environmental monitoring, EIA is carried out at a stage where the pollution is not yet taking place and there is the possibility of minimizing or even eliminating it. EIA are a key element in preventing environmental damage when planning and granting permissions for industrial (production) activities<sup>20</sup>. The Unified Register of Environmental Impact Assessment is operating as of January 2018<sup>21</sup>.

Implementation of the system of environmental payments in Europe was taking place at the end of the past century within the so-called green tax reforms –restructuring of tax systems by the introduction of environmental payments and simultaneous reduction of

<sup>&</sup>lt;sup>19</sup> Naidenko O. Ye. Problems of environmental taxation and ways of their solution [online], *Economy and Society*, Iss. 8, 2017, pp. 627–633, http://www.economy-andsociety.in.ua/journal/8\_ukr/105.pdf [accessed: 05.03.2019].

<sup>&</sup>lt;sup>20</sup> Andrusevych A. Live like in Europe: an assessment of the environmental impact and quality of life [online], https://dt.ua/ECOLOGY/zhiti-po-yevropeyski-ocinka-vplivu-na-dovkillya-ta-yakist-zhittya-\_.html [accessed: 5.03.2019].

<sup>&</sup>lt;sup>21</sup> Myron B. Rabij, Igor Davydenko, and Anzhelika Livitska. Ukraine: Kyiv Environment Newsletter [online], http://www.mondaq.com/x/666250/Clean+A-ir+Pollution/Kyiv+Environment+Newsletter [accessed: 23.02.2018].

the tax burden on labor remuneration. These resulted in a "win-win situation": economic incentives for environmental protection and environmental management through the introduction of environmental taxes while reducing the tax burden on other taxation objects<sup>22, 23</sup>.

In order to avoid comparision of Ukraine's and the EU performance in monetary units because of the effect of exchange rate, it is worth considering the share (percentage of total revenues from taxes and social contributions) of environmental tax in tax revenues of the budgets of countries (table 2, table 4).

The share of environmental tax in tax revenues in Ukraine (0.5–1.3% throughout the analyzed period) is almost 10 times lower compared the European countries where it ranges from 4 to 12%. For example, Bulgaria, Greece, Croatia, Latvia, Malta, Netherlands, Romania and Slovenia stand out among EU countries with the share of 9–11%, 8–10%, 7–9%, 10–12%, 8–9%, 9–10%, 7–9%, 10–11% correspondingly; data provided for Serbia tesify about the share of 8–12%. The share in Estonia, Cyprus, Italy, Poland accounts for around 8%, in the UK is more or less than 7%, in Germany and France – around 4–5%, overally in the EU (28 countries) – around 6% (table 4).

<sup>&</sup>lt;sup>22</sup> Yatsyshin Yevhenii. Ecological taxation: Ukrainian realities and European practice, No. 23 (625) [online], http://yur-gazeta.com/publications/practice/ekologichne-pravo-turistichne-pravo/ekologichne-opodatkuvannya-ukrayinski-realiyita-evropeyska-praktika.html [accessed: 16.01.2019].

<sup>&</sup>lt;sup>23</sup> Shevchenko I.V. Ecological taxation: foreign experience and Ukraine, *Strategic priorities*, No. 2 (31), 2014, pp. 55–60.

Table 4. Environmental tax revenues in the EU in 2011-2017 [EUR million and % of GDP]

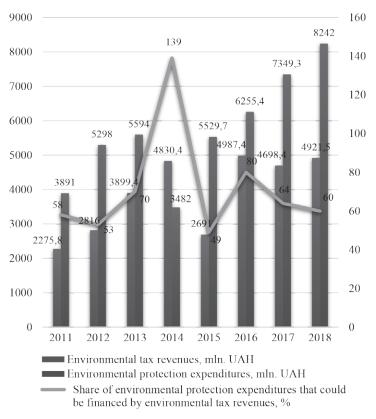
Year	20	2011	2012	12	2013	(3	2014	[4	2015	[5	2016	91	2017	[7
Country	Total, milon	% of total	Total, million	% of total										
	enro	reven.	enro	reven.	enro	reven.	enro	reven.	enro	reven.	enro	reven.	enro	reven.
EU <sup>2</sup> (current composition)	317 172,46	6,18	327 510,87	6,16	332 668,05	6,13	344 118,88	6,14	360 145,98	6,13	364 780,16	6,11	368 796,24	5,97
Euro area (19 countries)	229 595,52	5,89	235 135,02	5,86	240 129,61	5,84	245 751,28	5,84	251 161,16	5,79	259 857,91	5,83	265 578,91	5,72
Belgium	8 529,3	4,87	8 313,7	4,54	8 129	4,3	8 337,3	4,33	8 659,4	4,43	9 374,9	4,73	9 826,7	4,74
Bulgaria	1 107,66	10,59	1 119,38	10	1 174,6	6'6	1 167,82	9,61	1 315,89	10	1 334,32	6,57	1 383,89	20'6
Czechia	3 846,08	6,94	3 606,43	6,52	3 359,89	6,11	3 281,3	6,18	3 490,56	80′9	3 725,42	6,07	3 974,74	5,86
Denmark	9 957,41	89'8	10 098,54	8,46	10 712,52	8,76	10 621,61	8,02	10 847,43	8,4	11 065,4	8,38	10 878,28	2,98
Germany	58 691	5,61	58 274	5,38	57 947	5,17	58 292	5,02	58 063	4,79	58 449	4,6	59 259	4,46
Estonia	454,26	8,59	489,06	8,56	484,64	8,04	533,07	8,22	562,83	8,14	645,19	8,81	92'089	8,73
Ireland	4 206,32	8,5	4 168,74	8,16	4 425,35	8,32	4 629,43	8,02	4 927,07	7,88	5 059,07	7,71	5 148,92	7,46
Greece	6 017	8,05	6 265	8,45	6 585	9,45	6 628	9,49	6 749	9,57	929 9	9,01	7 162	6,5
Spain	16 885	4,92	16 339	4,75	19 622	5,63	19 382	5,41	20 857	5,59	20 754	5,44	21 382	5,32
France	39 614	4,24	40 946	4,21	42 897	4,26	43 716	4,26	47 493	4,53	50 128	4,71	52 925	4,77
Croatia	1 200,72	7,62	1 124,97	7,13	1 248,92	7,86	1 379,96	99′8	1 502,95	9,04	1 625,71	9,21	1 679,78	80'6
Italy	49 980	7,31	56 315	86'2	55 320	7,88	58 175	8,26	26 067	7,85	58 705	8,17	57 384	7,85
Cyprus	545,5	89'8	502,5	8,15	494	8,62	536,8	9,13	525,3	6′8	536,6	8,81	572,9	8,62
Latvia	604,8	10,5	660,4	10,21	723,46	10,71	790,25	11,16	859,36	11,63	68'206	11,54	941,53	11,11

Lithuania	527,68	6,12	548,13	6,02	587,27	6,16	633,88	6,24	691,52	6,33	747,92	6,41	807,4	6,42
Luxembourg	1 018,61	6,13	1 038,78	6'2	1 003,92	5,44	975,26	5,03	948,5	4,74	928,95	4,42	946,69	4,25
Hungary	2 656,42	7,15	2 594,59	62'9	2 554,75	9′9	2 621,76	6,51	2 823,5	6,55	2 986,41	6,67	3 141,88	9′9
Malta	211,27	9,24	205,49	8,52	205,67	26'2	239,77	8,42	6′697	8,84	277,14	8,34	303,05	8,16
Netherlands	22 224	9,46	21 178	86'8	21 564	8,91	22 216	8'8	22 925	98′8	23 754	8,62	24 563	8,49
Austria	7 508,22	5,76	7 663,47	5,65	7 724,33	5,49	7 973,44	5,51	8 201,85	5,43	8 382,56	5,53	8 841,99	5,64
Poland	10 018,44	8,04	10 072,65	7,83	9 521,62	7,32	10 581,94	7,83	11 423,25	7,97	11 579,8	7,87	12 536,76	7,65
Portugal	4 078,24	6,53	3 637,59	6,27	3 761,42	5,94	3 933,9	6,13	4 341,62	6,52	4 811,43	7,04	5 041,16	7,02
Romania	2 573,54	68'9	2 632,32	7,12	2 890,02	7,36	3 493,06	8,45	3 888,33	99′8	3 962,9	8,77	3 577,68	7,39
Slovenia	1 276,81	96'6	1 389,15	10,3	1 428,2	10,65	1 452,74	10,51	1 509,36	10,53	1 563,87	10,46	1 602,27	10,13
Slovakia	1 278,5	6,3	1 252	6,07	1 274,35	2,67	1 349,44	5,68	1 392,45	5,47	1 467,39	5,58	1 497,53	5,32
Finland	5 945	7,16	5 949	6,95	5 953	69′9	5 957	9′9	6 118	6,63	6029	7,03	6 693	6,88
Sweden	9 740,19	5,58	10 216,22	5,6	10 257,76	5,42	9 547,29	5,11	9 929,55	5,07	10 376,07	ιC	10 258,22	4,8
United Kingdom	46 476,47	6,94	50 910,75	2,06	50 818,36	7,13	55 672,85	7,17	63 763,36	7,11	58 266,22	6,94	55 786,1	6,75
Liechtenstein	39,24		38,7		37,13		41,78		46,95		46,27			
Norway	9 015,06	2,98	9 360,81	5,68	9 279,08	5,9	8 817,51	6,03	8 234,67	6,15	8 135,1	6,26	8 202,85	5,95
Switzerland	8 639,62	96'36	8 910,38	6,35	8 684,76	6,19	8 918,76	6,19	10 299,66	60′9	10 438,18	6,21	10 542,15	6,15
Serbia	1 106,24	8,85	982,48	8,36	1 147,04	9,15	1 303,15	10,46	1 384,87	11,09	1 516,05	11,41	:	
Turkey	21 403,55		23 148,97		26 024,24		23 839,13		26 459,7		26 534,3		24 392,9	
Source: E 20.02.2019].	urostat. E	hvironn	Eurostat. Environmental tax revenues, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_ac_tax⟨=en [accessed:	revenue	ss, http://a	ıppsso.eı	urostat.ec.	europa.e	u/nui/shov	w.do?da	taset=env_	.ac_tax&	lang=en [a	ccessed:

Despite doubled environmental tax revenues in Ukraine in 2016–2018 compared to previous periods (table 2), environmental pollution rates remain steady, and environmental studies testify about a permanent environmental crisis.

The volume of environmental protection expenditures (expenditures for radioactive safety are not taken into account) increases as a whole (table 3) but it is important to compare them with

# Dynamics of environmental tax revenues and environmental protection expenditures



**Figure 2.** Dynamics of environmental tax revenues and environmental protection expenditures (consolidated budget) for Ukraine in 2011–2018, (mln. UAH).

the environmental tax revenues: during the whole period of the environmental tax existence (except for 2014), expenditures exceeded the amount of environmental tax revenues. From 50 to 80% (139% in 2014) of environmental protection measures could be financed by the environmental tax revenues (figure 2).

But the distribution of environmental tax revenues between special and general funds is changed constantly which doesn't make it possible to use them fully for financing environment protection measures as stated above.

The inefficiency of the local authorities decision-making concerning the use of the environmental tax revenues is testified by the fact that only 32% of them were adequately used in 2016 from local budgets, none of the region (oblast) has used the environmental tax in full<sup>24</sup>.

In the study<sup>25</sup> it is stated that the highest level of comfort of life is found out in the regions, in which the share of expenditures for environment protection exceeds the share of the environmental tax revenues. In this regard, a conclusion on the casual nature of the environmental tax, environmental activities of pollutants and the level of comfort of life in the region is drawn.

Most Ukrainian enterprises are not able to implement measures for the rational use of natural resources and environmental protection by themselves, to use low-cost, resource-saving and energy-saving technologies under current economic situation in the country. Entities require government support in the form of introducing tax privileges on environmental taxes, thus funds received as a result of preferential regime of paying environmental tax could be directed by enterprises on environmental measures, in particular, for complying with international environmental commitments by Ukraine<sup>26</sup>.

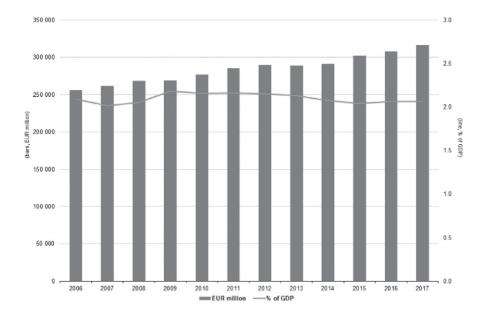
<sup>&</sup>lt;sup>24</sup> Local authorities managed to disburse only one third of the funds from the environmental tax, the Ministry of Environment and Natural Resources of Ukraine [online], https://menr.gov.ua/news/31607.html [accessed: 18.02.2019].

<sup>&</sup>lt;sup>25</sup> Shako Olena. Efficiency of environmental taxation in Ukraine, *Finance, accounting and audit,* 2015. Issue 1 (25), pp. 156–169.

<sup>&</sup>lt;sup>26</sup> Environmental tax-2019 in Ukraine: "hot" changes as a step towards a European model of development or an element of increasing pressure on business? *Ecobusiness. Ecology of the enterprise*, No.1, 2019 [online], http://ecolog-ua.

Therefore, the compensatory and fiscal functions of the environmental tax are not realized.

At the same time, in European countries environmental tax performs both compensatory (tax revenues are several times higher than government expenditures on environmental measures) and fiscal (environmental tax accounts for up to 10% of all tax revenues) functions (table 4, figure 3). Significant volumes of environmental tax revenues in the EU countries determine the possibility for financing necessary environmental protection measures by governments.



**Figure 3.** National expenditure on environmental protection, EU-28, 2006–2017, (EUR million and % of GDP).

Source: Eurostat. National expenditure on environmental protection, EU-28, (env\_ac\_pepsgg), (env\_ac\_pepssp), (env\_ac\_pepsnsp) and (nama\_10\_gdp), https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:National\_expenditure\_on\_environmental\_protection,\_EU-28,\_2006-2017\_(EUR\_million\_and\_%25\_of\_GDP).png [accessed: 10.03.2019]

com/articles/ekologichnyy-podatok-2019-v-ukrayini-garyachi-zminy-yak-krok-do-yevropeyskoyi-modeli [accessed: 01.02.2019]

Ukraine has introduced a program of preferential financing of environmental programs for the modernization of enterprises of the largest polluters of the environment, but the interest of the business sector in using such programs and carrying out modernization is low. The amount of environmental tax paid by enterprises is insignificant and does not stimulate a high-value modernization<sup>27</sup>.

Only one company in 2016 took advantage of such opportunity. The Ministry of Ecology and Natural Resources, together with PJSC CB "Ukrgasbank" and international partners, offered preferential eco-loans to enterprises from the list of «TOP-100 largest pollutants». PJSC "Zaporizhstal" (Metinvest Group) used such a loan to replace the furnace filter, another 16 enterprises were negotiating for such a loan<sup>28</sup>. Therefore, the stimulating function of environmental taxation in Ukraine is also not realized.

In addition to the stated above, administration and control over the environmentalal tax in Ukraine is characterized by inconsistency as the interaction between the fiscal services and the environmental expertise is not regulated, the functions of different agencies are not clearly defined. Around 300 legal acts are accounted in the field of environmental legislation in Ukraine, many of which are not coordinated with each other.

The experience of countries with developed market economy convinces that the main purpose of environmental taxes (fees) is not the budget revenue raising, but provision of incentives to the tax-payer for a positive and responsible attitude towards environment. Money received can be used as incentives for environmental protection by pollutants, developing and implementing wasteless technologies, waste utilization etc.<sup>29</sup>

 $<sup>^{27}</sup>$ Kanonishena-Kovalenko K. Environmental Tax from A to Z. Kyiv: Foundation «Vidkryte Suspilstvo», 2017, 108 p.

<sup>&</sup>lt;sup>28</sup> Semerak Ostap. During the year, only one company took advantage of an eco-loan for the modernization of production, the Ministry of Environment and Natural Resources of Ukraine [online], https://menr.gov.ua/news/31608.html [accessed: 22.01.2019]

<sup>&</sup>lt;sup>29</sup> Serebrianskyi D.M., Yushchenko Yu.V. European experience in the introduction and functioning of the environmental taxation system: lessons for Ukraine, *Bulletin of the Tax Service of Ukraine*, 2009, No. 41, pp. 41–45.

As to one of the most drastic environmental problems in Ukraine - waste management, at the first meeting of the Coordinating Council on the implementation of the National Waste Management Plan in Ukraine until 2030, which was adopted by the Cabinet of Ministers of Ukraine on February 20, 2019<sup>30</sup>, Deputy Prime Minister of Ukraine, Minister of Regional Development, Construction, Housing and Communal Services of Ukraine Hennadii Zubko said that today, 2,7% of waste is burned in Ukraine, and in the EU as an example, this figure goes up to 26%. If we talk about recycling, the situation is much worse: 43% of waste in the EU is recycled and returned to consumption, while in Ukraine this figure accounts only 3%. According to H. Zubko, the implementation of the National Plan is very important for the development of the regions. Key points within it are as follows: a package of tasks for each type of waste (from the adoption of the necessary legal framework to specific measures for the collection, processing and recycling); development of regional waste management plans; construction of non-hazardous waste landfills; construction of regional complexes for the restoration of domestic waste; adoption of the bill on "municipal waste" development of new state building standards for landfills. The program is aimed at constructing a waste management system in Ukraine based on EU standards and a closed loop economy<sup>31</sup>.

It takes a year or two to build a waste recycling plant, but this is not possible at present due to the imperfection of national legislation. Waste is a resource that can and must be recycled to produce secondary raw materials or energy, but its processing is more expensive than the output received. So, for creating waste recycling industry in the country, it is necessary to impose a tariff for waste processing, which will be an unpopular decision for any authorities<sup>32</sup>.

<sup>&</sup>lt;sup>30</sup> https://www.kmu.gov.ua/ua/npas/pro-zatverdzhennya-nacionalnogo-planu-upravlinnya-vidhodami-do-2030-roku [online] [accessed: 10.03.2019].

<sup>&</sup>lt;sup>31</sup> http://www.minregion.gov.ua/press/news/uryad-shvaliv-natsplan-upravlinnya-vidhodami-do-2030-roku-zubko/ [online] [accessed: 10.03.2019].

<sup>&</sup>lt;sup>32</sup> Mamaieva Mariia. The emergence of waste processing plants in Ukraine takes several years [online], https://www.unn.com.ua/uk/exclusive/1791584-na-poyavu-v-ukrayini-smittyepererobnikh-zavodiv-potribno-kilka-rokiv [accessed: 06.04.2019].

Based on the study of scientific findings of <sup>33</sup> et al. and having made own conclusions upon the research conducted, for improvement of the environmental taxation in Ukraine it is recommended to:

<sup>33</sup> Budko O.V. Improvement of environmental taxation as a component of sustainable development of the enterprise, *Investments: practice and experience*, 2015, No. 22, pp. 46–50.

Mandryk V.O., Novak U.P. New environmental tax in Ukraine: state of affairs and wayss of improvement, *Scientific Bulletin of NFTU of Ukraine*, 2011, Iss. 21.9. pp. 93–99.

Veklych O. Taking into account the foreign experience of environmental taxation in order to increase fiscal efficiency of environmental taxes in Ukraine, *Ecological taxation: a collection of scientific works on the results of scientific and practical events; Research Institute of Financial Law*, Kyiv: Alerta, 2013, pp. 128–133.

Nikitishyn Andrii. Tax regulation as an instrument of the state environmental policy, *Foreign trade: economy, finance, law,* 2017, No. 2, pp. 126–137.

Novytska N.V. Causes and consequences of reforming the environmental tax in Ukraine, *Scientific Bulletin of the National University of the State Tax Administration of Ukraine (Economics and Law)*, 2011, No. 1(52), pp. 187–194.

Economic aspects of natural resource management and sustainable development under decentralization of power in Ukraine [ed. by M.A. Khvesyk, S.O. Lyzun]; K.: SE IENRSD of the NAS of Ukraine, 2015, p. 72.

Rybachok N.P. Modern Theoretical and Legislative Basis of Environmental Taxation in Ukraine, *Financial Law*, No. 4 (26), 2013, pp. 15–18.

Matviichuk N.M. Environmental taxation as an instrument of state financing of environmental protection measures, *Global and National Problems of Economy*, 2017, Issue 15, pp.445–450.

Naidenko O. Ye. Problems of environmental taxation and ways of their solution [online], *Economy and Society*, Iss. 8, 2017, pp. 627–633, http://www.economyandsociety.in.ua/journal/8\_ukr/105.pdf [accessed: 05.03.2019].

Harkushenko O.N. The state of affairs and prospects of the implementation of environmental taxes in Ukraine, *Economy of Industry*, 2013, No.3 (63), pp. 37–46.

Avramenko N.L., Shpylkivska Z.V. Ways of Improving the Environmental Tax System in Ukraine, *Young Scientist*, 2015, No. 2 (17), pp. 58–63.

Yakusha Yana. Ecological taxation as a component of ecological policy of the state [online], *Collection of scientific works of the ChSTU*, Series "Economic sciences", 2013, Issue 35, Part 1, pp.181–187. file:///D:/Download/Znpchdtu\_2013\_35(1)\_\_29.pdf [accessed 05.03.2019].

Shevchenko I.V. Ecological taxation: foreign experience and Ukraine, *Strategic priorities*, No. 2 (31), 2014, pp. 55–60.

Ministry of Ecology and Natural Resources of Ukraine [online] https://menr.gov.ua/en/ [accessed 25.03.2019]

Boyko, L.I., Mazievich T.A. 2018. Changes in the tax regulation of environmental processes. *Young Scientist*, No. 3 (55), pp. 316–321.

- intensify the transfer of the tax burden from labor and capital to environmental taxes and resource payments by increasing the share of such taxes while maintaining the total amount of taxes (fiscal neutrality), stimulating so the modernization of production, reduction of unemployment etc.;
- change the Tax Code of Ukraine in the context of putting limits on emission, pollutants discharges and waste disposal due to the fact that environmental tax in terms of all its components does not foresee such limits, which, in turn, does not stimulate companies to the pollution reduction by introducing new resource-saving technologies and equipment. Excessive volumes should be taxed at higher rates, thus, rates scale for the volumes of excess emissions of pollutants and waste disposal should be developed. Special accounts at enterprises for accumulating some share of funds from environmental taxes are to be opened;
- exempt from taxation the enterprises for the period of their reconstruction and modernization aimed at increasing the environmental sustainability of production;
- introduce taxation of hazardous products that harm environment (e.g., packaging materials, fertilizers, electrical and electronic equipment etc.).
  - impose penalties for environmental offenses;
- expand the scope of transport taxes by introducing railway taxes, taxes on traffic and taxes on the used (decommissioned) cars etc.;
  - expand the range of tax agents paying the environmental tax;
- use stimulating prices and allowances for eco-friendly products;
- transfer the environmental tax revenues only to the special fund of the state and local budgets and to abolish rules of the Budget Code that allow local authorities to spend environmental tax revenues on financing activities that are not related to the environment protection;
- differentiate environmental tax rates by increasing it in more "polluted" regions, which will make it possible to improve the environmental situation in these territories faster and stimulate business entities to purchase advanced technologies and modern equipment being safe for environment;

- implement quarterly indexation of environmental tax rates taking into account the inflation rate at the end of the reporting quarter;
- introduce the EU experience in fertilizer and pesticide taxation as Ukraine is an agrarian country;
- use an accelerated depreciation, which will make it possible to update fixed assets faster;
- introduce preferential rates or value-added tax exemptions for the sale of eco-friendly technologies;
- introduce a preferential taxation regime of real estate used as environmental protection facilities;
- reduce environmental tax payments by the amount of expenditures faced by enterprises for environmental protection measures;
- unify approaches to the main groups of environmental taxes determination and attribution of each tax to one of the groups
  energy, transport, resource or pollution ones in accordance with the practice of foreign countries;
- improve fiscal and tax legislation in terms of increasing financial discipline;
- put into action the environmental tax for mobile sources of pollution again etc.

#### CONCLUSION

In foreign practice it is determined that environmental taxes include payments according to the "polluter pay principle" – the polluting economic agent should aim at increasing the natural resources use efficiency and improvement of the environment, and only then fiscal function of environmental tax comes into force. But in Ukraine revenue generation is sill prioritised.

Environmental policy in the EU is based on the market signals to the private sector – creating conditions under which businesses become more profitable by reducing environment pollution.

The use of taxes, payments and fees of environmental nature in European countries testifies that they include all of them related to the environment. In Ukraine, other taxes, payments and fees (which, similar to foreign experience, could be considered as environmental ones) alongside with the environmental tax are levied, however, neither legally nor statistically, they are not recognized as such.

In order to achieve environmental goals, it is necessary to ensure the targeted and efficient disbursement of environmental tax funds and to stimulate the modernization of polluting enterprises. Despite the fact that a significant part of environmental protection expenditures can be financed by the environmental tax revenues received, an important question about how the envisaged measures can eliminate the negative environmental impacts of pollutants arised.

As to the increase of the environmental tax rates to the level of foreign countries, it should be done carefully and gradually, taking into account the level of economic development of Ukraine and all subsequent consequences for industrial enterprises, as the increase in environmental tax rates will seriously concern taxpayers in terms of how to maintain the profitability and implement environmentally safe technologies.

Analysis of the environmental taxation in Ukraine makes it possible to state that environmental taxes, in contrast to the EU countries, do not perform neither fiscal, nor compensatory or incentive functions. The current system of environmental taxation in Ukraine needs to be improved, as enterprises are not interested in solving ecological and economic problems, including environmental protection. Only some enterprises try to implement rational environmental management.

The inconsistency of legislative acts also puts forward the necessity to further develop domestic system of environmental management.

Improvement of the environmental taxation system will result in Ukraine's compliance with the terms of the Ukraine – EU Association Agreement, enhancing Ukraine's competitiveness and bringing the system of environmental management at local and national levels closer to the best international practice.

#### **STRESZCZENIE**

#### Opodatkowanie środowiska i jego finansowy wpływ na rozwój obszarów

W pracy zbadano cechy, trendy i sprzeczności opodatkowania środowiska na Ukrainie. Przeprowadzono analizę porównawczą ukraińskiego i europejskiego opodatkowania środowiska. Określono, że podatek środowiskowy na Ukrainie wykonuje funkcje fiskalne, kompensacyjne i motywacyjne w sposób nieefektywny. Przyczyny takiej sytuacji są następujące: przy stałym wzroście stawek podatku środowiskowego od momentu jego wprowadzenia wielkość przychodów z tego podatku i jego udział w całkowitych dochodach podatkowych pozostają nieznaczne i niewystarczające do sfinansowania niezbędnych środków ochrony środowiska; niewłaściwe wydatkowanie dochodów; niezdolność większości ukraińskich przedsiębiorstw do wdrożenia środków ochrony środowiska; niespójna administracja i kontrola opodatkowania środowiskowego, liczne akty prawne w dziedzinie prawodawstwa dotyczącego środowiska nie są ze sobą skoordynowane; brak zachęt do pozytywnego i odpowiedzialnego podejścia do środowiska przez podmioty gospodarcze itp.

Stwierdzono, że dochody z podatków środowiskowych w UE przekraczają takie dochody na Ukrainie dziesięciokrotnie, uwzględniając udział w całkowitych dochodach podatkowych. Dochody podatkowe w krajach europejskich są kilkakrotnie wyższe niż wydatki rządowe na środki ochrony środowiska w przeciwieństwie do Ukrainy. Przedstawiono zalecenia dotyczące opodatkowania środowiska na Ukrainie.

#### **SUMMARY**

### Environmental taxation and its financial impact on the development of territories

Features, trends and contradictions of environmental taxation in Ukraine are researched. A comparative analysis of Ukrainian and European environmental taxation is carried out. It is defined that the environmental tax in Ukraine performs fiscal, compensatory and incentive functions inefficiently. The reasons for such situation are identified as follows: with the constant increase of environmental tax rates since its introduction, the volume of revenues from this type of tax and its share in the total tax revenues remain insignificant and insufficient to finance the necessary environmental protection measures; misuse of existing revenues takes place; inability of the majority of Ukrainian enterprises to implement environmental protection measures; inconsistent administration and control over the environmental taxation, numerous legal acts accounted in the field of environmental legislation are not coordinated with each other; lack of incentives for a positive and responsible attitude towards environment by economic agents etc.

It is found out that environmental tax revenues in the EU exceed such revenues in Ukraine by ten times, taken their share in the total tax revenue. Tax revenues in the European countries are several times higher than government expenditures on environmental measures unlike Ukraine. Recommendations for the environmental taxation in Ukraine improvement are provided.

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