ЕКОНОМІКА ПРИРОДОКОРИСТУВАННЯ ТА ОХОРОНИ НАВКОЛИШНЬОГО СЕРЕДОВИЩА

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THE HOUSEHOLD WASTE MANAGEMENT TARIFF IN UKRAINE AND ITS EFFECT ON THE WASTE MANAGEMENT PERFORMANCE INDICATORS

ABSTRACT

Introduction. The article analyzes the efficiency of household waste management in Ukraine and summarizes the conclusions. The results are compared with the results in the European Union and the main differences are highlighted. The hypothesis that waste management tariffs are insufficient to stimulate change and achieve the desired waste disposal and recycling targets is considered, and conclusions are drawn.

The aim of the article. The aim of the research to analyze relation between the poor household waste management results and the organizational and financial aspects in Ukraine. The reference indicators to compare with are the official reported household waste management data and the results of own research in the advanced European countries.

The method. The research analyzes all the available official data, related to the household waste generation rates in the Ukrainian cities, and the treatment methods implemented to avoid their accumulation in landfills. Furthermore, this article explores into the waste management tariffs formation methods in the various Ukrainian regions, and finally, concludes the average household waste management cost per ton. Finally, the share of the household waste management cost in the annual income per ca pita in Ukraine is compared with the same ratio in three advanced European countries: Germany; Switzerland and; Netherlands.

Results. The research analyzed the household waste mass flow in Ukraine and found out that more than 99% of it ends up in the landfills, while this value in European Union is less than 25%. Further analyses were conducted to understand the efficiency of the installed household waste treatment infatuation and the results showed it was unsatisfactory (less than 25%). In the final part of the research, the tariffs in Ukraine were compared to those in Germany, Switzerland and the Netherlands, and it was concluded that the tariffs in Ukraine are too low to justify the installation of adequate infrastructure and build sufficient sorting and recycling facilities.

Keyword: household waste**;** tariffs; recycling rate; landfill; waste treatment.

The main material

The most adequate method to evaluate the results of the household waste management in Ukraine is to break them down to three main indicators: waste prevention; recycling and; waste conversion to energy. Below are the available evidence on the current situation of each indicator:

1. *Waste prevention*. The household waste generation rate in Ukraine declined from 355 million ton in 2014 to 295 million ton in 2017 but, the trend reversed starting form 2018 and throughout 2019 when the generation rate reached 441 million ton. The annual household waste generation per ca pita showed a continuous increase from 250 kg/ca pita in 2014 to 260.8 kg/ca pita in 2019 [1].

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2. *Recycling*. The official statistics revealed that recycling rates are marginal, less than 1% was reported on the official portal [1].

3. *Waste conversion to energy*. The share of household and similar waste that was sent to incineration with subsequent energy production fluctuated between 1.7 and 2.2% of all the generated between 2014 and 2018. [1]. According to the official data, there is only one functional waste incineration facility in Ukraine, located in Kyiv, that is capable of processing 30,000 ton/year.

The analysis of the waste generation rates and the various treatment methods in Ukraine [2] and in the European Union (EU) [3] allowed creating a preliminary understanding of the mass flow balance differences (table 1). The data that was taken as reference is from 2019, this was done to eliminate any distortion related to the pandemic of the Russian war against Ukraine.

Table 1. Household waste treatment mas flow balance in Ukraine and EU

Ukrainian region	Annual household generation (thsd. ton)	Reclaimed from recycling centers (%)	Sent to waste treatment factories (%)	Sent to composting and aerobic digestion (%)	Sent to incineration facilities (%)	Sent to landfills (%)
Vinnytska	269	0.28	6.9	0.0	0.0	92.82
Volynska	407	1.7	3.76	0.0	0.0	94.53
Dnipropetrovska	816	1.47	0.0	0.0	0.0	98.53
Donetska	702	0.01	0.58	0.01	0.0	99.4
Zhytomyrska	322	0.01	0.0	0.0	0.0	99.99
Zakarpatska	303	0.2	0.0	0.0	0.0	99.8
Zaporizhzhska	427	0.04	0.7	0.0	0.0	99.26
Ivano-Frankivska	209	0.42	0.26	0.0	0.0	99.31
Kyivska	314	3.33	4.2	0.0	0.0	92.47
Kirovohradska	155	1.92	27.33	0.0	0.0	70.75
Luganska	154	0.04	0.0	0.0	0.0	99.96
Lvivska	619	0.54	2.0	1.21	0.0	96.25
Kyiv city	1,569	1.71	7.62	0.0	7.07	83.6
Mykolaivska	286	14.6	0.0	0.0	0.0	85.4
Odesska	521	3.25	0.0	0.0	0.0	96.75
Poltavska	290	0.56	0.0	0.0	0.0	99.43
Rivnenska	223	1.71	0.0	0.0	0.0	98.29
Sumska	185	0.62	0.0	0.0	0.0	99.38
Ternopilska	677	0.26	78.61	0.0	0.0	21.13
Kharvivska	780	0.03	1.92	0.0	0.0	98.05
Khersonska	196	0.02	0.0	0.0	0.0	99.98
Khmelnytska	362	0.7	0.0	0.36	0.0	98.94
Cherkaska	210	0.04	0.0	0.0	0.0	99.96
Chernivetska	214	0.05	0.0	0.0	0.0	99.95
Chernihivska	256	0.16	0.0	0.0	0.0	99.84
Total in Ukraine	10,466	1.3	7.42	0.08	1.06	90.14
EU (27 countries)	220,450	30.66	0.0	18.16	26.72	24.46

Source: [2].

Obviously, the household waste mass flow in Ukraine is almost completely oriented towards landfilling, while only 24.46% of it ends up in landfills in the EU. The absence of a prevailing

household waste source segregation in Ukraine led to the observed ignorant percentage of the recyclables that were collected in the recycling centers, an exclusion can be made only for Mykolaiv region. Unlike Ukraine, the EU is diverting away from sorting mixed waste to the recovery of only clean and dry secondary raw material (SRM), that was segregated at source, the results were evident in the statistical data, where we observed the waste treatment facilities mentioned only in the Ukrainian reports. The food waste recycling is another major differentiation point of the household waste mass flow comparison, no serious composting, or any other food waste recycling infrastructure was evident in Ukraine while EU data showed that over 18% of the food waste been recycled. Finally, EU relies heavily on the incineration of the vast majority of the mixed household waste to produce energy which led to an average of 26.72% of the waste been incinerated while only one such facility is operating in Ukraine and managed to incinerate only 1% of the total generated waste.

The efficiency of the existing household waste treatment infrastructure can be a good indicator to understand the real recycling rates in Ukraine by monitoring the number of residues that are sent from the waste treatment facilities to the landfills, this can be concluded based on the official statistics provided in table 2.

Table 2. The efficiency of the household waste treatment infrastructure in Ukraine

Ukrainian Region	Received for treatment	Reclaimed SRM	
	т	т	%
Vinnytska	23,514	6,071	25.82%
Volynska	5,100	3,468	68.00%
Donetska	91,891	134	0.15%
Kyivska	7,769	4,661	59.99%
Kirovohradska	15,615	434	2.78%
Kyiv city	239,385	22,351	9.34%
Ternopilska	105,758	82,658	78.16%
Kharkivska	5,430	127	2.33%
Total in Ukraine	494,463	119,904	24.66%

Source: [4].

The table shows that licensed household waste treatment facilities in Ukraine, that were able to present their process efficiency indicators are located in 8 regions only, these facilities received less than 10% of the total generated waste. The efficiency of these facilities varies between 0.15% and 78.16% and in average 24.66%, the least efficient facilities are the ones in Donetsk region (0.15%) then, Kharkiv region (2.33%) flowed by the ones in Kirovohrad region (2.78%). The most efficient household waste treatment facilities were the ones in Ternopil, Volyn and Kyiv regions (78.16%, 68% and 59.99% accordingly). The availability of waste incineration plant in Kyiv didn't improve the results due to its small capacity comparing the huge amounts of the offered waste. The date from Donetsk, Kharkiv and Kirovohrad show a clear example of pseudo-waste treatment processes, when a lot or waste is offered for treatment to fix the statistics while on the other side, no significant recycling SRM recovery takes place. One of the main reasons for the low efficiency of the installed waste treatment capacities could be the absence of waste source segregation, the contaminated and wet RSM is very difficult and unsafe to sort thus, the recovered material is of very low quality SRM that is either not desirable for traders and recyclers or can be accepted by them after providing considerable discounts.

The treatment and recycling process, including the segregated waste collection infrastructure, is a very expensive process, the requires a sufficient waste management tariff to cover these expenses. Netherlands, for example, implements a complex system of differentiated tariff systems that are linked to the volume of the waste, the number of waste containers used, the number of times these

containers are offered for collection and the number of waste bags used [5]. In Switzerland, the municipalities are obliged by law to calculate the waste management tariff in such way, to cover all the costs related to waste life cycle, used infrastructure, and the administrative expenses [6]. In Germany, the plastics packaging waste is collected for free, the reason is that Germany, like many other EU countries, impose a tax on the plastics packaging producers, that is used later on to pay the collection and recycling [7]. Whichever tariff system is used in any of these countries, the ultimate target is to ensure that all the financial, social and environmental costs associated with the life cycle of the household waste are fully compensated by the waste producer.

The household waste management tariffs have undergone extensive analysis and revisions starting from 2019 in all the regions of Ukraine, the current research analyzed the tariffs in 23 regions and 20 cities and found out that they were increased in all of them during this period. The following were the main declared reasons for such country- wide tariffs revisions:

a) the current tariffs were fixed for many years despite the inflation rates;

b) the prices of the fuel, spare parts and consumables spiked in the last years and heavily affected the household waste management costs;

c) the current infrastructure and assets are old and outdated, and the current tariffs very low to allow changing the old equipment or buy the spare parts to maintain the assets in satisfactory condition.

The household waste management system in Ukraine has three main drivers that help to differentiate the tariffs: the service scope; the type of the waste generators and; the unit of calculation (table 3).

The table shows that in 7 regions, the tariffs were found to be unified for all types of waste generators but, in another 7 regions, customers were divided into 3 categories: citizens; budget organizations and; others. In Lviv, Ivano-Frankivsk, Sumy and Mykolaiv, we observed the implementation of 2 categories of waste generators: budget organizations and; others but, Ivano-Frankivsk and Mykolaiv implemented the previously mentioned categorization in parallel in some municipalities in the region. In 11 regions, waste generators are divided based on the type living space into two main categories: those who live in multi-story buildings and; those who live in houses. This categorization system, however, is implemented with others, mentioned earlier, based on the service provider. In Kyiv, the waste generators who live in multi-story buildings are divided further based on whether the building are equipped with garbage chute. Finally, In Khmelnytskyi region, citizens are divided further based on whether they have signed an agreement with the service provider.

When it comes to the service unit measurement, the most popular calculation units was UAH/m^3 but, in some regions, this unit is linked to the waste generation norm per person. In Mykolaiv and Cherkasy, this norm was set at 1.3 m^3/year, in Kharkiv, 2.15 m^3/year. At the same time, other units like UAH/ton, UAH/citizen on monthly basis, and UAH/m3 per citizen annually are also implemented.

In 5 regional centers (Kharkiv, Dnipro, Zhytomyr, Sumy, and Chernivtsi) one of the implemented household waste service packages is the one that combines collection and disposal, when it is the only package available in Lviv. The other alternative packages are formed for each type of the services separately.

To finalize a common base, that ensures getting accurate analysis of the household waste management tariffs in Ukraine, the following assumptions had to be considered:

a) UAH/ton is the measurement unit to be used;

b) the household waste density in Ukraine is 216 kg/ton;

c) the average household waste generation per ca pita in Ukraine is 260.8 kg;

d) the waste generation category to implement in the analysis is “all”, and if such is not applicable then, “citizens” or “multi-story buildings”, if none of the above categories exists then, the category “others” will be used. Specifically for Kyiv, the category “multi-story buildings with a chute” will be the category of choice. In case clients are divided based on the existence of a service contract, it will be assumed that all of them have signed a household waste management contract;

e) the tariff in Kyiv region is the average tariff of three areas: Obukhovo, Brovary, and Boryspil,

they were chosen as the most populated in Kyiv region.

f) the currency conversion rate is calculated based on 2019 statistics, issues by the central Bank of Ukraine; [8], this choice was made to exclude all the adverse effects of the pandemic and the following aggression and the Russian war against Ukraine;

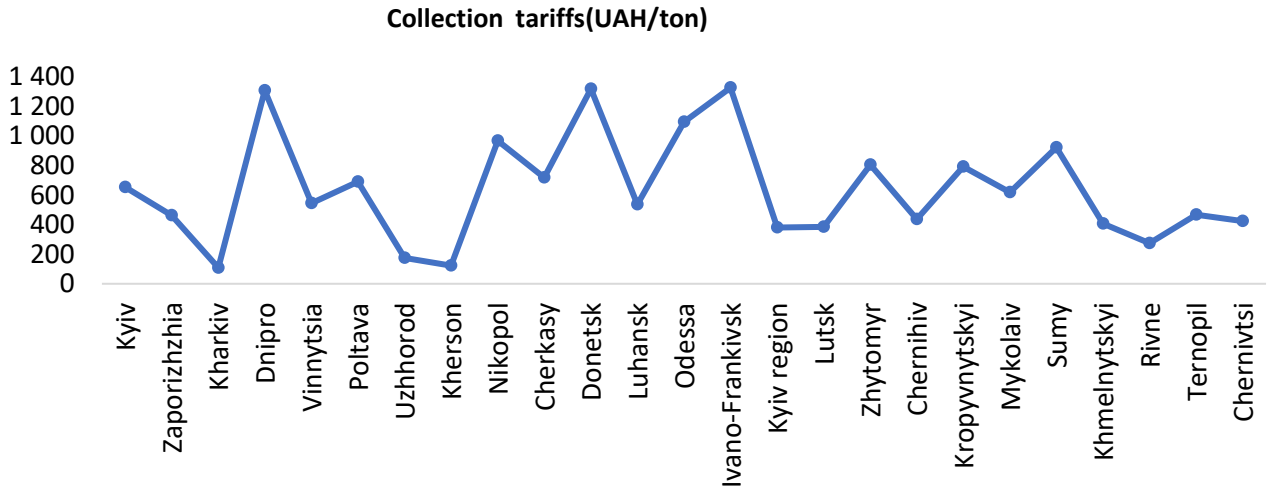
d) due to the Russian aggression against Ukraine, the tariff in Crimea was impossible to include in the analysis, for the same reasons, the tariffs in Severodonetsk will be considered, for Donetsk, the average of the tariffs in Marinka and Pokrovsk.

Table 3. The household waste tariffs differentiation drivers in Ukraine

City	Service scope	Types of waste generators	Unit of calculation
Kyiv	collection; collection & disposal; disposal	all; multi-story buildings (with or without chutes); houses; clients with own containers	UAH/m^3; UAH/citizen on monthly basis; UAH/bag
Zaporizhzhia	collection; disposal	all	UAH/m^3; UAH/ton
Kharkiv	collection; disposal	all; citizens; budget organizations; multi-story buildings; houses; others	UAH/m^3; UAH/citizen on monthly basis
Dnipro	collection; collection & disposal; disposal	all; multi-story buildings; houses	UAH/m^3; UAH/citizen on monthly basis
Vinnytsia	collection; disposal	all	UAH/m^3
Poltava	collection; disposal	Citizens; budget organizations; others; multi-story buildings; houses	UAH/m^3; UAH/citizen on monthly basis
Uzhhorod	collection; disposal	house; multi-story buildings; houses	UAH/m^3; UAH/ton
Kherson	collection; disposal	all	UAH/ton
Nikopol	collection; disposal	All; multi-story buildings; houses	UAH/m^3
Cherkasy	collection; disposal	all; citizens; budget organizations; others	UAH/m^3; UAH/m3 per citizen annually; UAH/m3 per citizen on monthly basis
Donetsk	collection; disposal	citizens; budget organizations; others; all	UAH/m^3; UAH/ton
Lugansk	collection; disposal	citizens; budget organizations; others	UAH/m^3; UAH/ton
Lviv	collection & disposal	Citizens; budget organizations; others	UAH/ton
Odessa	collection; disposal	multi-story buildings; houses	UAH/citizen on monthly basis
Ivano-Frankivsk	collection; disposal	citizens; budget organizations; others	UAH/ton; UAH/citizen on monthly basis
Lutsk	collection; disposal	all; multi-story buildings; houses	UAH/m^3
Zhytomyr	collection; collection & disposal; disposal	all; multi-story buildings; houses	UAH/m^3; UAH/citizen on monthly basis
Chernihiv	collection; disposal	citizens	UAH/m3
Kropyvnytskyi	collection; disposal	all	UAH/ton
Mykolaiv	collection; disposal	All; citizens; budget organizations; others	UAH/m3
Sumy	collection; collection & disposal; disposal	multi-story buildings; houses; budget organizations; others	UAH/$m^{3;}$ UAH/citizen on monthly basis
Khmelnytskyi	collection; disposal	multi-story buildings; houses	UAH/m^3
Rivne	collection; disposal	all	UAH/m^3; UAH/ton
Ternopil	collection; disposal	all; multi-story buildings; houses	UAH/m^3; UAH/ton
Chernivtsi	collection; collection & disposal; disposal	all; multi-story buildings; houses	UAH/m^3; UAH/citizen on monthly basis

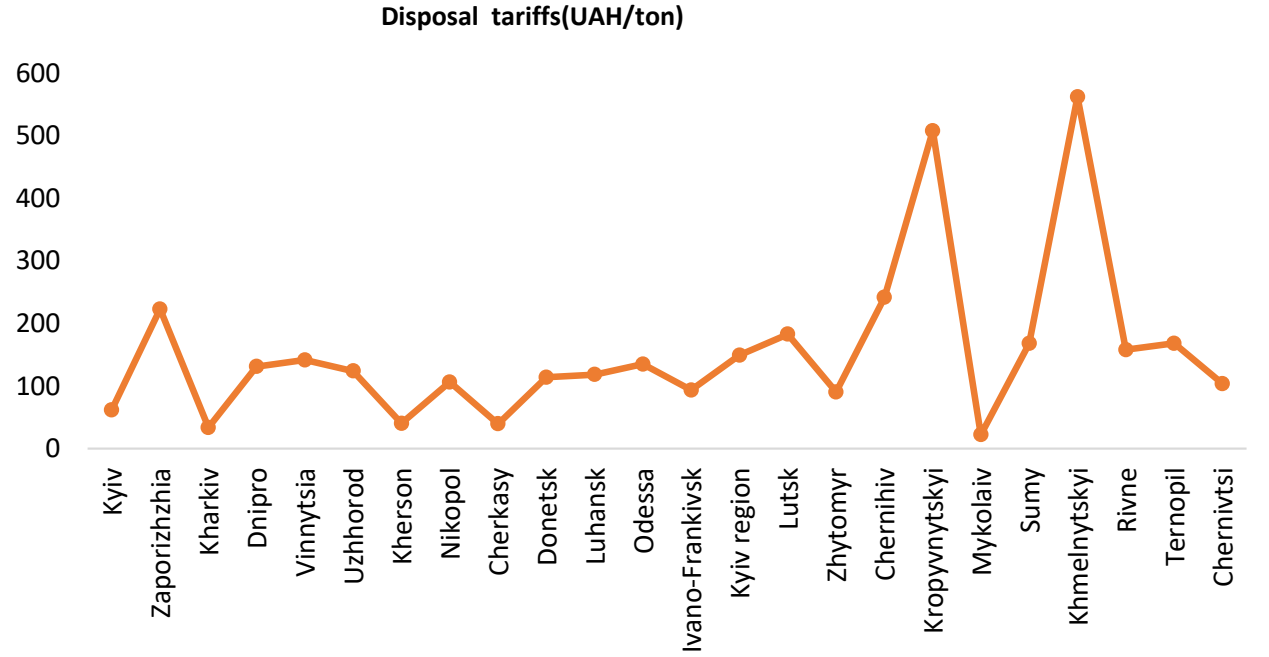
Source: Author's research.

The results of the waste collection tariffs analysis are illustrated in the graphs below.



Picture 1. Household waste collection tariffs in Ukraine

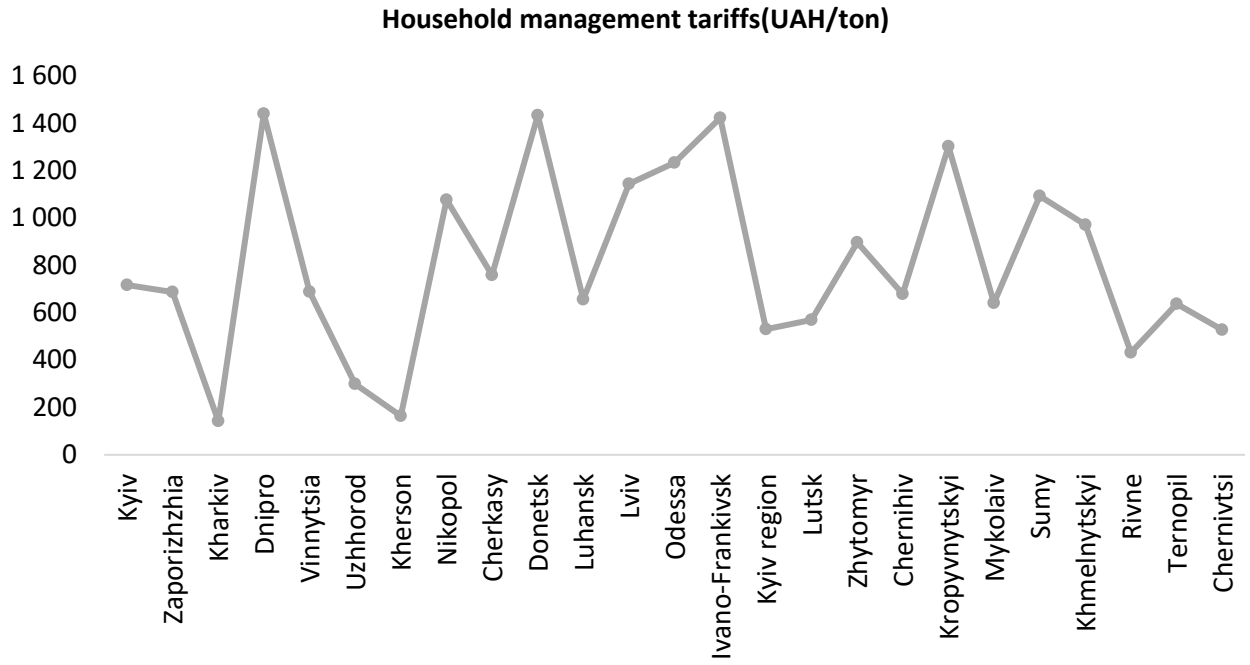
The graph shows that the highest collection tariff is 1,328 UAH/ton (€49.84/ton) and implemented in Ivano-Frankivsk, the second highest is 1,319 UAH/ton (€49.5/ton) and implemented in Donetsk, then comes the tariff, that is implemented in Dnipro of 1,308 UAH/ton (€49.1/ton). The lowest collection tariff is the one implemented in Kharkiv of 109 UAH/ton (€4.09/ton). While deriving the uniformed data, in was noticed that the highest tariffs are paid when "UAH/citizen on a monthly basis" measurement unit is used. It was also noticed that the household generation norm in Chernivtsi and Kharkiv are very high (2.682 m^3/year for multi-story buildings, and 2.769 m^3 for houses and 2.15 m^3/year accordingly). The results of the waste disposal tariffs analysis are illustrated in the graphs below.



Picture 2. Household waste disposal tariffs in Ukraine

The highest disposal tariff is 562 UAH/ton (€21.09/ton) in Khmelnytsk, the second highest is 508 UAH/ton (€19.07/ton) in Kropyvnytskyi. When both peak values are excluded, the calculated average household waste disposal tariff in Ukraine is 120 UAH/ton (€4.5/ton).

By combining both sets of data, and adding the combined tariff in Lviv, the below graph with the household waste management tariff is concluded:



Picture 3. Household waste management tariffs in Ukraine

After excluding the three highest tariffs in Dnipro, Donetsk and Ivano- Frankivsk, the calculated average household waste management tariff is 719 UAH/ton (€26.98/ton). The household waste management tariffs in Odessa, Kropyvnytskyi, and Nikopol are far below this average (582 UAH/ton, 513 UAH/ton, and 513 UAH/ton accordingly). The adequacy of this tariff can be evaluated in the European context thus, it is decided to compare the absolute value of the household waste management tariff in Ukraine and three advanced European countries, and the share of the annual household waste management payment of the total annual income in these four countries, the annual income per ca pita in Ukraine as of 2019 was extracted from the official database [9]. The same numbers related were concluded for Germany and Switzerland based on own research, and in the Netherlands based on own latest publication [10]. The results are provided in table 4

Table 4. The comparison of the household waste management tariffs share of the annual income in Ukraine and advanced European countries.

Country	Share
Ukraine	0.29% (€7.08/year)
Germany	0.43% (€215.09/year)
Switzerland	0.84% (€301.26/year)
Netherlands	1.04 % - 4.65 % (€128.22/year - €157.12/year)

Source: [9]; [10]; author's research.

The table clearly shows that the household waste management cost forms much bigger share in the advanced European countries waste generators' income than in Ukraine. Even when we exclude the Netherlands, the share of this cost in Ukraine is 67.4% of one in Germany, and only 34.5% of that in Switzerland. In absolute values, the situation is even more challenging as the annual household waste management cost to the waste generator in Ukraine is almost 30 times less

than in Germany and more than 42 times less than in Switzerland.

Conclusion

The waste minimization and recycling rates in Ukraine fall far behind those in the advanced European countries. The detailed analysis showed that landfill alternatives are holding very week position in the household waste mass flow balance, less than 1% of the generated waste is diverted away from landfills. The food waste recycling specifically is almost zero. There are some positive indicators when it comes to the recovery of recyclable items from the waste in specific cities but, these examples do not impose real change in the total picture. The structure of the waste recycling in Ukraine is embracing mixed waste sorting facilities, which have to deal with wet and contaminated household waste to sort out low quality SRM, the result is low infrastructure efficiency that shows in the statistical analysis, and poor financial return due to the low quality of the reclaimed material. The European countries, on the opposite, have chosen to segregate the clean recyclable material and the food waste at the source, which have led to high recycling rates and much better waste management infrastructure efficiency. Finally, the waste management infrastructure requires significant investments that are hard to justify unless they are compensated by the tariffs. When comparing the tariffs in Ukraine and the other leading countries in Europe, it becomes evident that they are extremely low to be able to push the investments in household waste management forward. The ultimate solution to the household waste accumulation in the landfills in Ukraine is to start with the implementation of fair tariffs, that cover all the waste life cycle cost, the roll out of source segregation of the household waste components which would improve the efficiency of the recycling processes and finally, the deployment of strict control of the household waste flow.

REFERENCES

1. State Statistics Service of Ukraine. Multi-sectoral statistical information / Regional statistics. Retrieved from: http://www.ukrstat.gov.ua.
2. Household waste in Ukraine for 2021. Retrieved from: https://www.minregion.gov.ua/napryamki-diyalnosti/zhkh/terretory/stan-sfery-povodzhennya-z-pobutovymy-vidhodamy-v-ukrayini-za-2021-rik/.
3. EUROSTAT, Municipal waste by waste management operations. Retrieved from: https://ec.europa.eu/eurostat/databrowser/view/ENV_WASMUN__custom_3414158/default/table?lang=en
4. Ministry of Development of Communities and Territories of Ukraine. Improvement of territories, State of the field of household waste management in Ukraine for 2021. Retrieved from: https://www.minregion.gov.ua/wp-content/uploads/2021/06/rozdil-2 -2020_oblasti.pdf.
5. Rijkswaterstaat, Kenniscentrum Circulaire Economie. Retrieved from: https://www.afvalcirculair.nl/onderwerpen/monitoring-cijfers/afvalcijfers/afvalcijfers/afvalstoffenheffing-2019/.
6. Federal Office for the Environment, Forests and Landscape (OFEFP). Directive on Funding the disposal of urban waste according to the principle of causality. Retrieved from: https://www.bafu.admin.ch/bafu/fr/home/themes/dechets/publications-etudes/publications/financement-elimination-dechets-urbains.html.
7. Faris. N, Lieberz. S. (2019). Changes to Germany's Packaging Laws – An Exporter's Guide. USDA Foreign Agricultural Service, GAIN Report (Germany), GM19030, 2-5. Retrieved from: https://www.lexology.com/library/detail.aspx?g=f461e38d-0d2a-4fc7-8cad-b28492944385.
8. The official exchange rate of the hryvnia against foreign currencies. Retrieved from: https://bank.gov.ua/ua/markets/exchangerate-chart?startDate=01.01.2020&endDate=01.02.2020.
9. Incomes of the population by regions of Ukraine. Retrieved from: https://ukrstat.gov.ua/operativ/operativ2008/gdn/dvn_ric/dvn_ric_u/dn_reg2013_u.html.
10. Elrabaya, D., & Marchenko, V. (2022). The influence of organizational and economic methods of household waste management on the volumes and structure of its formation: the experience of the netherlands. *Eastern-European Journal of Enterprise Technologies,* 3 (13 (117)), 50. doi: https://doi.org/10.15587/1729-4061.2022.259721.

СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ

1. Державна служба статистики України. Багатогалузева статистична інформація / Регіональна статистика. URL: http://www.ukrstat.gov.ua.
2. Побутовими відходами в Україні за 2021 рік. https://www.minregion.gov.ua/napryamki-diyalnosti/zhkh/terretory/stan-sfery-povodzhennya-z-pobutovymy-vidhodamy-v-ukrayini-za-2021-rik/.
3. EUROSTAT, Municipal waste by waste management operations. https://ec.europa.eu/eurostat/databrowser/view/ENV_WASMUN__custom_3414158/default/table?lang=en.
4. Міністерство розвитку громад та територій України. Благоустрій територій. Стан сфери поводження з побутовими відходами в Україні за 2021 рік. https://www.minregion.gov.ua/wp-content/uploads/2021/06/rozdil-2 -2020_oblasti.pdf.
5. Rijkswaterstaat, Kenniscentrum Circulaire Economie. https://www.afvalcirculair.nl/onderwerpen/monitoring-cijfers/afvalcijfers/afvalcijfers/afvalstoffenheffing-2019/.
6. Office fédéral de l'environnement,des forêts et du paysage (OFEFP). Directive Financement de l'élimination des déchets urbainsselon le principe de causalité. https://www.bafu.admin.ch/bafu/fr/home/themes/dechets/publications-etudes/publications/financement-elimination-dechets-urbains.html.
7. Faris. N, Lieberz. S. (2019). Changes to Germany's Packaging Laws – An Exporter's Guide. USDA Foreign Agricultural Service, GAIN Report (Germany), GM19030, 2-5. URL: https://www.lexology.com/library/detail.aspx?g=f461e38d-0d2a-4fc7-8cad-b28492944385.
8. Офіційний курс гривні щодо іноземних валют. https://bank.gov.ua/ua/markets/exchangerate-chart?startDate=01.01.2020&endDate=01.02.2020.
9. Доходи населення по регіонах України. https://ukrstat.gov.ua/operativ/operativ2008/gdn/dvn_ric/dvn_ric_u/dn_reg2013_u.html.
10. Elrabaya, D., Marchenko, V. (2022). The influence of organizational and economic methods of household waste management on the volumes and structure of its formation: the experience of the netherlands. Eastern-European *Journal of Enterprise Technologies*, 3 (13 (117)), p.50. doi: https://doi.org/10.15587/1729-4061.2022.259721.

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ТАРИФ НА ПОВОДЖЕННЯ ПОБУТОВИМИ ВІДХОДАМИ В УКРАЇНІ ТА ЙОГО ВПЛИВ НА ПОКАЗНИКИ ПОВОДЖЕННЯ ВІДХОДАМИ

Анотація

Вступ. У статті проаналізовано ефективність поводження з побутовими відходами в Україні та узагальнено висновки. Результати порівнюються з результатами в Європейському Союзі та виділяються основні відмінності. Розглянуто гіпотезу про те, що тарифи на поводження з відходами є недостатніми для стимулювання змін і досягнення бажаних цільових показників утилізації та переробки відходів, і зроблені висновки.

Мета. Метою дослідження є аналіз зв'язку між поганими результатами поводження з побутовими відходами та організаційними та фінансовими аспектами в Україні. Еталонними показниками для порівняння є офіційні звітні дані поводження з побутовими відходами та результати власних досліджень у передових країнах Європи.

Метод. У дослідженні аналізуються всі наявні офіційні дані щодо обсягів утворення побутових відходів в містах України та методів утилізації, які застосовуються для запобігання їх накопиченню на звалищах. Крім того, у цій статті досліджуються методи формування тарифів на поводження з відходами в різних регіонах України та, нарешті, робиться висновок про середню вартість поводження з побутовими відходами за тонну. Нарешті, частка витрат на поводження з побутовими відходами в річному доході на душу населення в Україні порівнюється з таким же співвідношенням у трьох передових європейських країнах: Німеччині; Швейцарія і; Нідерланди.

Результати. Дослідження проаналізувало масовий потік побутових відходів в Україні та виявило, що понад 99% їх потрапляє на звалища, тоді як в Європейському Союзі цей показник становить менше 25%. Подальші аналізи були проведені, щоб зрозуміти ефективність закоханості встановлених побутових відходів, і результати показали, що вона незадовільна (менше 25%). У заключній частині дослідження тарифи в Україні порівнювалися з тарифами в Німеччині, Швейцарії та Нідерландах, і було зроблено висновок, що тарифи в Україні є надто низькими, щоб виправдати встановлення належної інфраструктури та створення достатньої кількості потужностей для сортування та переробки.

Ключові слова: побутові відходи; тарифи; коефіцієнт переробки; полігон; поводження з відходами.

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