DIFFERENT APPROACHES OF SELECTED SLOVAK MUNICIPALITIES TO THE INTRODUCTION OF COMPULSORY COLLECTION OF BIODEGRADABLE WASTE AND CHARGING OF A RELATED FEE: A CASE STUDY

ROZDIELNE PRÍSTUPY VYBRANÝCH SLOVENSKÝCH MUNICIPALÍT K ZAVEDENIU POVINNÉHO ZBERU BIOLOGICKY ROZLOŽITEĽNÉHO ODPADU A K VYRUBOVANIU SÚVISIACEHO POPLATKU: PRÍPADOVÁ ŠTÚDIA

Jana Lukáčová
Lenka Maličká

ABSTRACT

The article analyzes the current state of municipal waste management in the Slovak Republic, the differences in waste management and evaluation of its effectiveness in order to determine the impact of the municipal waste fee on the waste management of selected municipalities. The article presents a different view on the management of biological waste in selected municipalities of Slovakia, under the same legislative conditions, but with slightly different strategies for charging the fee for municipal waste. The article uses the comparative method of selected strategies, the conversion of municipal revenues per inhabitant of municipality or the area of the municipality and makes suggestions for improving economically efficient waste management of the analyzed municipalities.

Keywords: *municipal waste and small construction waste fee, budget, biodegradable communal waste, case study.*
JEL Classification: *H71*

ABSTRAKT

Článok analyzuje súčasný stav odpadového hospodárstva municipalít v SR, rozdielnosti ich odpadového hospodárstva a hodnotenie jeho efektívnosti za účelom identifikovania vplyvu poplatku za komunálne odpady na odpadové hospodárstvo vybraných municipalít. Článok predostiera rozličný pohľad na hospodárenie s biologickým odpadom vybraných samospráv Slovenska, pri rovnakých legislatívnych podmienkach, no mierne odlišnej stratégií vyrubovania poplatku za komunálne odpady s dôrazom na biologicky rozložiteľné odpady. Článok využíva porovnávaciu metódu zvolených stratégií, využíva prepočet príjmov samospráv na jedného obyvateľa obce či rozlohu obce a dáva návrhy k zlepšeniu ekonomicky efektívnej odpadovej hospodárnosti analyzovaných samospráv.

Klíčová slova: *poplatok za komunálne odpady a drobné stavebné odpady, rozpočet, biologicky rozložiteľný komunálny odpad, prípadová štúdia.*
JEL klasifikace: *H71*

INTRODUCTION

The only obligatory local fee that constitutes one of the sources of income of the budgets of Slovak municipalities is the fee for municipal waste and small construction waste. In addition to mixed municipal waste management activities in Slovakia, the fee is also charged for biodegradable municipal waste management, i.e. the waste from households, catering facilities and green waste from gardens.

Legislative regulation of the fee is given in Act No. 582/2004 Coll., on local taxes and local fees for municipal waste and small construction waste, and in Act No. 182/1993 Coll., on the ownership of flats and non-residential premises. The fee for municipal waste and small construction waste, including the fee for biodegradable waste, is the most significant tax revenue of municipalities from the category of taxes on specific services, i.e. from local taxes. Since 2016, there has been a trend in Slovakia of increasing fees for municipal waste caused by increasing costs of waste collection, sorting and storage, and efforts to minimize the amount of waste in landfills. It is assumed that in the long run

increasing fees have an impact on the decreasing volume of municipal waste and especially waste that can be composted, i.e. biodegradable waste.

According to Piotr P. Malecki, (2020), who, in the article *Development of fees for placing waste on landfill and their influence on the management of municipal waste*, addressed the impact of a radical increase in rates for landfilling of waste and for municipal waste management, and concluded that increasing the fees for municipal waste did not cause an immediate reduction in the flow of municipal waste in the municipalities of the Republic of Poland.

Same as municipalities in Slovakia, municipalities in the Republic of Poland have already accepted full responsibility for the collected municipal waste. Petryk et al. (2019) stated that the most efficient sorting of municipal waste in the Lubelskie area occurred when municipal waste fees were lower. According to them, the lower amount of the fee was a motivating factor for the sorting of municipal waste, including biodegradable waste.

Morlok, et al. (2017) consider the "pay as you throw" (PAYT) system, i.e. the principle of charging fees for municipal waste on the principle of individuality, to be an effective way of dealing with waste management. Fees are charged to the inhabitants of municipalities according to the volume of produced waste. The results of a decades-long study have shown that in the German County of Aschaffenburg, the PAYT system has succeeded in meeting all the European Union's required targets for the recycling of municipal waste. In addition to the PAYT system, the implementation of other activities of municipalities that will support environmentally friendly management is important. However, the authors point out the increased need for the collection of biodegradable waste, i.e. the increased costs of exporting biodegradable waste, in the municipalities of countries in the warmer climate zone.

Alzamora and Barros (2020) evaluated the charging methodology, and the results of their study showed that less developed regions and thus less developed countries are more prone to charging a universal municipal waste fee. This method of charging the fee for municipal waste is also used in Slovak local municipalities. At the same time, the paper considers more developed countries to be more aware of waste management, which is confirmed by the more frequent use of the PAYT system.

The trend of increasing the fee for municipal waste is justified by Slovak municipalities mainly by increased costs due to complicated legislation in support of the effort for environmentally clean waste management in Slovakia. However, high fees do not always mean green management, which is evidenced by the high amount of municipal waste fees in Spain and the country's approach to waste management. The fee there is at the level of € 82.2 per capita per year. In their article, Puig-Ventosa and Sanz (2017) assessed that this average amount does not cover all the costs of municipalities and that despite the high fee, their management does not work on the principle of environmental friendliness. They consider the non-application of the "polluter pays" principle to be the biggest mistake in waste management in Spain.

According to Rovňák, Novotný and Bakoň (2020), the amount of the municipal waste fee is statistically related to the average wage and the unemployment rate. In their paper, the authors analyzed the relationship between selected economic and environmental indicators related to waste management in selected districts of Slovakia.

1 CHANGES IN WASTE MANAGEMENT IN SLOVAK MUNICIPALITIES

Until the European Union pressed for a change, Slovak self-governments avoided any kind of responsibility for waste until 2021. Despite the fact that Slovak municipalities have been obliged to sort biodegradable waste since 1 January 2016, some municipalities have not been obliged to sort this waste on the basis of an exemption from the obligation to sort biodegradable kitchen waste from households. The exception included, inter alia, the impossibility to cover the costs of biodegradable waste management despite the imposition of a local fee of a maximum of 50% of the statutory rate.

An exemption allowing municipalities not to process biological kitchen waste in the event of economic inefficiency has ceased to be in force since 1 January 2021, and Slovak municipalities were thus obliged to sort this waste and secure financial resources for this activity. Municipalities are thus obliged to ensure the sorting of kitchen biodegradable waste in the period from 1 January 2021 to 30 June 2021. For many municipalities, the only solution is to increase fees for municipal waste,

which will cover part of the increasing costs of collecting and processing this waste, or secure external collection of biodegradable waste, which means high additional costs for waste collection for municipalities. To finance these costs, municipalities can also apply for a contribution from the Environmental Fund. In addition to financing the purchase of collection bins and composters, the contribution is intended to provide funds for the purchase of handling equipment. In addition to the exemption due to economic inefficiency, there are also exemptions from the processing of this waste in Slovak legislation that concern the cities of Bratislava and Košice, where biodegradable municipal waste is incinerated in local incinerators. The exemption also includes biodegradable municipal waste composted in domestic composters and technical impossibility of collecting this type of waste in historical parts of towns or in sparsely populated areas. However, according to the Ministry of the Environment of the Slovak Republic, the abovementioned exemptions should not be in force until 2023.

Slovak municipalities have several options when charging of fees for municipal waste. One of them is the introduction of a fixed fee for municipal waste and small construction waste, which is charged to all residents of the municipality in the same amount without taking into account the volume of waste produced by one household or inhabitants of the municipality. A lot of local governments in Slovakia prefer this flat fee for municipal waste collection. A more innovative way of charging the fee is charging it on the basis of the quantitative collection of municipal waste controlled by tokens that the inhabitants of the municipality hang on the rubbish bins only when they want to have it emptied. This token is collected by waste collection workers and handed over to the municipality, which then records the frequency of the collected waste of the given household or inhabitant. This method is economically efficient thanks to the possibility to affect the frequency of waste collection according to the needs of the household. Citizens are thus able to regulate the amount of the fee charged on the basis of the frequency of collections. Some municipalities have improved their token collection with QR codes (Quick Response code) or RFID chips (Radio Frequency Identification chips = chips used to uniquely identify the object). In this type of municipal waste collection, municipalities often determine a minimum number of collections and thus obtain a certain amount of permanent income from the collection

of municipal waste. Slovak municipalities provide the possibility of regulating the fee for municipal waste also through the size of collection bins.

However, when using this method, municipalities do not have the possibility to influence the resulting fee to the same extent as in the case of token collection of municipal waste. The last practical option for Slovak self-governments is to charge a combined flat and quantitative fee. Slovak legislation determines the method of calculating the fee for the collection of municipal waste and small construction waste as the product of the waste collection frequency, the rate and the volume of the collection bin.

2 CASE STUDY 1: MUNICIPAL WASTE FEE IN SVIT MUNICIPALITY

The Slovak town of Svit, with a population of 7,754, is a small town in the Prešov Region, located in the northeast of Slovakia. Like all other Slovak towns, Svit charges a fee for municipal waste and small construction waste to residents, natural persons, legal persons and entrepreneurs. Since March 2021, the fee also includes fees in accordance with the biodegradable waste collection programme.

In 2020, the town managed to collect € 304,716.32 on the basis of a charged fee for municipal waste. In 2019, the amount of income from this fee was € 258,355.35. With this amount, the town fulfilled the budget plan for the local fee at 80.23%. Compared to 2018, the increase in the local tax in 2019 brought about a convergence of the set budgetary target by 8%. In the Closure of the Accounts for 2019, the town Svit states that one of the reasons for not meeting the target in fee collection is the unclear scope of the local fee, especially the number of bins, the number of collections and the control of registered taxpayers. At the same time, the town emphasized the problem with the transition from the DCOM (Data Centre of Municipalities and Cities) system of local fees and local government taxes to the KORWIN (Information System for Self-government) system. Svit also offers the possibility of storing large-volume waste in municipal collection yards. With the expansion of local municipalities' responsibilities, there is a need for higher revenues that can be spent on the implementation of biodegradable municipal waste management activities. In 2021, Svit charges a fee for municipal waste in the amount of € 30, which in recalculation represents the

daily cost in the amount of € 0.082. In the year 2020, the amount of the fee was set at € 27. The year-on-year increase was mainly due to the above-mentioned impact of the change in the law in the area of the obligation to sort biodegradable kitchen waste from households. The year-on-year increase thus represents an increase in the fee by € 0.25 per month.

Municipal waste is exported to a landfill in the town, which increased the storage fee by €

6.50 per tonne of municipal waste year-on-year. Svit annually produces more than 2,300 tonnes of municipal waste. This amount represents an increase in costs of € 15,000 in 2021. In addition to the costs of waste collection and storage, the town must, in connection with the costs of ensuring the treatment of municipal waste, also spend funds on employees, rolling stock, tolls, spare parts, depreciation and taxes. Svit declared that the increase in the municipal waste fee to € 30 includes, in addition to the collection and storage of municipal waste, the collection and storage of large-volume waste at the town's collection yards. In 2019, Svit recorded 638 fee debtors in connection with the collection of the municipal waste fee. The fee was not paid mainly by the inhabitants of the town that do not stay in its territory for a long time. Half of the amount of the mandatory fee in Svit was owed by 121 citizens.

Based on the data from the Statistical Office of the Slovak Republic, last published national census from 2016 (7,754 inhabitants of the town of Svit), in 2020 the income of the town of Svit per capita was € 39.30. In 2019, per capita income was € 33.32 and in 2018 it was € 28.05.

Taking into account the area of the municipality (4,506 km^2) according to the Statistical Office of the Slovak Republic, in 2020, the municipality's income from the municipal waste fee per square meter was € 67.62. In 2019, the income per square meter was € 57.34 and in 2018 the income reached € 48.27 per square meter.

3 CASE STUDY 2: MUNICIPAL WASTE FEE IN ĽUBOTICE MUNICIPALITY

In the previous part, the waste management in the town of Svit was described and it was established that the town charges a total fee for municipal waste regardless of domestic composting of the biodegradable waste by local inhabitants.

In the village of Ľubotice, the village mayor and the deputies did not choose a regular collection of biodegradable waste but offered the residents the option of home composting or depositing municipal waste in biodegradable waste collection bins provided by Kosit or Espik Group (waste collection companies). The municipality of Ľubotice (a village located near Prešov) charges a municipal waste fee of € 15 to natural persons for one calendar year starting from 2021. Ľubotice is a municipality in eastern Slovakia with approximately half the population of Svit (3,392), which is half the amount of the fee charged for municipal waste in Svit. The collection of waste in the municipality is provided by the municipality through the Technical Services of the Town Prešov (TSmP). If we take into account the collection of biodegradable waste, which the municipality offers through the abovementioned companies, in addition to the € 15 fee for municipal waste collection in 2021 (until 2020 the fee was € 10), the inhabitants of the village pay a fee for collection of this waste in the amount of € 520 + VAT to Kosit (240 l bin, 26 collections per year and the price includes the rental of a collection bin) or € 720 + VAT to Espik Group (120 l bin, 12 collections) once a year. The Espik Group also offers the removal of a small amount of biological waste from households in the form of 10 litre buckets fifty-three times a year (1 collection = € 3), which represents € 156 per year. The municipality does not offer organized collection of biodegradable municipal waste, but when using domestic composting, the inhabitants of the municipality were asked to sign a Composting Agreement, in which the locals could voluntarily choose home composting to minimize the amount of municipal waste exported from the municipality. In the past, the municipality also donated bins for garden composting of biological waste to the inhabitants of the municipality.

The municipality of Ľubotice, like the town Svit, chose the strategy of ”fixed yearly fees”, i.e. the management of fixed annual fees for the collection and processing of municipal waste, but it did not include the collection and processing of biodegradable waste. It can be stated that the municipality took the decision on the basis of low financial efficiency of biological waste collection, high incidence of houses in the municipality, where residents have the opportunity to use home composting. In addition, residents have the opportunity to export garden waste

and small construction waste every week directly to the collection yard of the municipality, situated on its outskirts, which is extremely busy during its days of operation.

Based on the number of inhabitants based on statistical data of the Statistical Office of the Slovak Republic (3,392) and based on the published revenues from the municipal waste fee, in 2020, the revenues of the municipality of Ľubotice per capita amounted to € 21.73. In 2019, per capita income was € 20.56 and in 2018 it was € 19.69. The results of the recalculation showed a year-on-year increase in the revenue from the municipal waste fee per capita, which represented on average a year-on-year increase of 4.27%. In connection with the area of the municipality (Ľubotice - 8.32 km^2), in 2020, the income from the fee for municipal waste and small construction waste in terms of one square meter represented an income € 86. In 2019, the income per square meter was € 8.38 and in 2018 it was € 8.03.

4 COMPARISON OF FEES FOR MUNICIPAL WASTE, INCLUDING THE FEE FOR THE COLLECTION OF BIODEGRADABLE WASTE

Table 1 shows the amount of revenues from the fee for municipal waste and small construction waste of the two analyzed municipalities, based on publicly available data in the Closure of the Accounts of Municipalities. The Closure of the Accounts of the town of Svit also contained revenues from this local fee divided according to the type of taxpayer, namely natural and legal persons. The municipality of Ľubotice did not state this division in their Closure of the Accounts.

Tab. 1» Revenues of the municipality of Svit and the municipality of Ľubotice from fees for municipal waste and small construction waste

Year	Revenue of the town of Svit from the fee for municipal waste and small construction waste (in Euros)	Revenue of the town of Svit from the fee for municipal waste and small construction waste from natural persons (in Euros)	Revenue of the town of Svit from the fee for municipal waste and small construction waste from legal entities (in Euros)	Revenue of the village of Ľubotice from the fee for municipal waste and small construction waste (in Euros)
2020	304,716.32	177,724.98	126,991.34	73,694.39
2019	258,355.35	145,880.74	112474.61	69,744.66
2018	217,479.59	121,547.72	95,931.87	66,802.25
2017	224,357.01	122,398.24	101,958.77	65,012.72

Source: Closure of the Accounts of the municipality of Svit (2017–2020), Closure of the Accounts of the municipality of Ľubotice (2017–2020)

Based on the analysis of selected municipalities in Slovakia and their individual methods of dealing with processing of biodegradable waste and the subsequent levying of a fee for municipal waste, it has been revealed that one important factor in the method of determining the fee is the availability of domestic composting sites. Unlike people living in cities and in densely populated settlements, the inhabitants of Slovakia living in villages in the countryside or in houses built around cities are in favour of organized local collection of biodegradable waste. We assessed the Composting Agreement of the municipality of Ľubotice as highly effective as it obliges citizens to a rational management of biological waste and defines the fee for violating this agreement. The municipality is a model municipality in waste separation, which is confirmed by a certificate issued by the Organization of Producer Responsibility for Packaging, which declared that in 2020 Ľubotice contributed to the improvement of the environment totalling 158,030 kilograms of sorted waste, which equals

to 43.12 kilograms of sorted waste per inhabitant. On the other hand, automatic charging of a fee for municipal waste in the town of Svit turned out to be less environmentally efficient. as it did not sufficiently inform people about the aim of the legislative change designed to reduce the amount of waste in Slovak municipalities. The town of Svit has increased the fee for municipal waste, but the three Euro increase is negligible compared to the fee of several hundred Euros for the removal of biodegradable waste imposed by the village of Ľubotice, which will be charged on the residents who do not have the possibility of home composting.

Despite the smaller population in Ľubotice, the municipality has chosen a strategy closer to the PAYT model, i.e. only those who cannot process biological waste in at home pay for the collection, separation, processing and disposal of biodegradable waste. In fact, only such producers of this type of waste who cannot dispose of it independently and ecologically have to pay for biological waste. Municipalities do not incur additional costs for the collection of biodegradable waste and citizens have a choice of two options, one of which requires almost no financial investment nor regular fees. The inhabitants of the town of Svit will pay an increased fee for municipal waste even if their biodegradable waste production is practically zero or they use domestic composting.

Table 2 shows the total amount of fees for municipal waste in the two analyzed municipalities (for natural persons) in case of using of domestic composting of biodegradable waste and also in case of using municipal or town services offering biodegradable waste collections using its own company or a private company.

Tab. 2»: Summary of fees for municipal waste and small construction waste of municipality the of Svit and the municipality of Ľubotice

TOWN	Municipal waste fee 2021 for NP (person	Fee for biodegradable waste 2021 for NP (person / year)	Total municipal waste fee 2021 for NP (person / year)
Municipal waste fee in Ľubotice (use of domestic composting)	€ 30 + € 0.034 / kg euro for small construction waste (paid at the collection yard)	€ 0	€ 30 (+ fees for small construction waste)
Municipal waste fee in Svit (use of biodegradable waste collection of the town)	€ 30 + € 0.034 / kg euro for small construction waste (paid at the collection yard)	€ 0	€ 30 (+ fees for small construction waste)
Municipal waste fee in Ľubotice (use of domestic composting)	€ 15 + € 0.025 / kg for small construction waste (paid at the collection yard)	€ 0	€ 15 (+ fees for small construction waste)
Municipal waste fee in Ľubotice (collection of biodegradable waste organized by the municipality = private companies)	€ 15 + € 0.025 / kg for small construction waste (paid at the collection yard)	€ 520 + VAT / year (includes collection bin rental) or € 720 + VAT / year or € 156 + VAT / year	€ 639 / € 879 / € 202,2 (+ fees for small construction waste)

Source: General binding regulation of the municipality of Svit on the management of municipal waste and small construction waste in the municipality of Svit no. 3/2021, General binding regulation of the municipality of Ľubotice no. 5/2020 on local taxes and fees for municipal waste and small construction waste

Residents of the town of Svit with permanent or temporary residence in the town or persons authorized to use the building are charged a fee for municipal waste in the amount of

€ 30 per year in case of using domestic composting and also in case of using domestic composting of biodegradable waste. The town does not charge any

additional fees to inhabitants for the processing of biodegradable waste. Based on the population of the town of Svit, the municipality of Ľubotice has approximately the same level of the fee for municipal waste and small construction waste. However, the municipality's fee does not include the fee for the collection and processing of biodegradable waste, which is rather unfortunate for the inhabitants of the village and results in extremely high additional costs of € 639,879 or € 202.2, which in case of a family of four equals € 159.75, € 219.77 and € 50.55 per household member per year.

In Table 3 we have summarized the year-on-year changes in the income of the analyzed municipalities from the municipal waste fee (%). The result of the management of the town of Svit in 2020 shows that the amount of income from municipal waste per capita was almost

€ 40, which exceeded the actual value of € 30. It is important to note that the total amount of income also includes income from legal entities and entrepreneurs who have higher rates, specified in the General Binding Regulation of the Town of Svit on local taxes and fees in the town of Svit.

Tab. 3» Year-on-year changes in income from municipal waste and small construction waste of the municipality of Svit and the municipality of Ľubotice

Year	Year-on-year changes in income from municipal waste in the town of Svit (%)	Year-on-year changes in income from municipal waste in the village of Ľubotice (%)
2020/2019	17,94	5,66
2019/2018	18,80	4,40
2018/2017	-3,07	2,75
2017	224,357.01	122,398.24

Source: Own processing

The analysis shows that the higher increase in revenues in recent years is achieved by the town of Svit, which was preceded by a smaller year-on-year decline in revenues in 2018 compared to 2017. The increase in income from municipal

waste has been recorded in recent years also in the municipality of Ľubotice, but at a much lower level, which was mainly caused by its long-term fixed amount of the fee for municipal waste and small construction waste. The slight increase in income in recent years is driven mainly by the increased number of residents with permanent residence in the municipality due to its excellent location near one of the largest cities in Slovakia. The year-on-year increase in income in recent years contributes to a budget surplus in the two analyzed municipalities. It is possible to assume that after the increase in fees for municipal waste and small construction waste in both municipalities, their income will continue to increase year-on-year.

5 PROPOSALS TO INCREASE THE EFFICIENCY OF WASTE MANAGEMENT

The fundamental rule of waste management is the prevention of waste generation, not only in connection with environmental protection, waste reduction, but also in connection with the goal of reducing the costs of municipalities and their inhabitants for waste collection, processing and storage. The well-known hierarchies of waste management consider the prevention of its generation to be the most important step in the methods of waste management. Both analyzed municipalities make almost no effort and do not carry out sufficient activities in order to teach the inhabitants of the municipality how to prevent the generation of excessive waste. Both municipalities organize community actions to collect waste in their territory, but these actions focus on the collection of the existing waste. Municipalities should focus their community actions more on waste prevention, not only among adults, but also in educational events or programmes for children in kindergartens and schools. In addition to educational assets, waste prevention can also be carried out by providing community benefits to those who seek to minimize waste in their households. Community benefits may include local tax relief, the provision of collection bins, the provision of household bio-composting aids, discounts on tickets for cultural events organized by municipalities or other benefits provided in accordance with the activities of municipalities in their territory. However, the motivation to reduce the volume of waste should not be bonuses in the form of typical gift items, which again potentially generate waste in municipalities.

The best compromise between the requirements for low fees for waste collection and storage and the need for sufficient revenues for municipalities and cities would be the introduction of detailed monitoring of waste volumes, not only of total municipal waste, but also of plastics, paper, glass and composite materials or bio-waste. Municipalities should not be interested only in the volume of stored waste that they deposit in landfills, but also in the volume of total waste produced by the inhabitants of the municipality, including biological waste that is not exported from the municipality, but is deposited in the gardens of the inhabitants of municipalities. Following a detailed analysis of the amount of individual types of waste, it would also be appropriate to introduce the abovementioned PAYT system and the related charging of a fee for the collection and storage of waste according to the amount of waste produced. For municipalities, this would represent increased costs for monitoring volumes, but with the benefit of better satisfaction of residents due to a fairer collection of waste fees and a detailed analysis of the state of waste management in the municipality or city. Neither of the analyzed municipalities uses this system yet, but with a possible reassessment and expansion of the current system of biological waste collection in the municipality of Ľubotice, its introduction is very realistic.

Another significant problem related to waste management efficiency is the non-optimized waste collection in smaller Slovak municipalities. The most common problem is either too frequent or excessively infrequent waste collection. Frequent waste collection causes increased costs for cities and municipalities, which could be used, for example, for prevention programmes for communities living in the municipality. This type of waste management results in lower motivation to reduce household waste, which ultimately means an increased amount of household waste, an increased amount of waste that the municipality needs to landfill, increased costs and finally the need to increase the fee for collection and treatment of waste deposited by the population. In the village of Ľubotice, municipal waste is collected in two weeks intervals. Following the example of other municipalities, this frequency of waste collection could be extended by a few more days, as the inhabitants of the municipality have committed to sorting biodegradable waste in domestic composters for biodegradable waste or to collect biodegradable waste by external companies, which helps to reduce the volume

compared to previous years. In this case, however, it is necessary to address the ideal frequency of municipal waste collection, as even too infrequent waste collection is not effective. In the case of long intervals between individual collections, the quality of hygiene in the municipality could deteriorate or even illegal landfills could be created, not just for municipal waste. Precisely for this reason, it is ideal to re-evaluate the frequency of waste collection individually after several years, because municipalities face changes in waste management, which need to be implemented in all areas of waste management.

CONCLUSION

Despite the same method of charging the fee for municipal waste and small construction waste, the analyzed municipalities chose different approach to the collection of biodegradable waste and to the charging of the fee for its collection. The legislative obligation to collect it provides them with space for an individual solution of this obligation, which helps to ensure that municipalities do not incur losses due to the additional high costs of biodegradable waste collection.

The town of Svit has confronted its inhabitants with a situation in which they do not have to deal with domestic composting or the organization of the collection of biodegradable waste by private companies. However, the town has to face increased costs and fees in landfills, including costs related to biodegradable waste.

The solution to the high additional costs of the inhabitants of Ľubotice who are unable to compost biodegradable waste at home could be the introduction of biodegradable waste collection in the form of PAYT in agreement with private companies that offer municipalities the possibility of biodegradable waste collection. The currently offered method involves collection by external companies and it also includes the collection of biodegradable waste in smaller volumes, but still does not take into account and does not support the reduction of biodegradable waste production. The analyzed municipalities also confirm the assumptions of Alzamor and Barroso (2020), who claim that the charging of a universal fee for municipal waste is proof of less developed regions. On the contrary, more developed countries and regions are trying to deal with waste management using the PAYT method.

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Ing. Jana Lukáčová
Technical University of Košice, Faculty of Economics, Department of Finance
Němcovej 32, 040 01 Košice, Slovakia
Email: jana.lukacova@tuke.sk

doc. Ing. Lenka Maličká, PhD.
Technical University of Košice, Faculty of Economics, Department of Finance
Němcovej 32, 040 01 Košice, Slovakia
Email: lenka.malicka@tuke.sk