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FINANCIAL IMPACTS OF THE CENTRALIZATION OF THE HUNGARIAN WASTE MANAGEMENT PUBLIC SERVICE BETWEEN 2016 AND 2020

ABSTRACT

Hungarian government centralized the municipal waste management sector by creating a state-owned company, NHKV in 2016. It hasn't only coordinated the developments but took the invoicing right away from those businesses that implemented the waste collection and treatment tasks. Some of them still provide waste management services for the citizens, some other however stopped because of insufficient financing. The present paper investigates what were the reasons of the centralization and what are its results from a financial perspective.

INTRODUCTION

Municipal waste management in Hungary was fragmented, due to the historical and political background: in the early 90's, the waste management sector missed expertise and capital as well. Municipalities tried to solve the problem in various ways: they signed contracts with private businesses to provide waste management service, or created for-profit joint venture companies with large international companies (Lyonnaise des Eaux, Compagnie Générale des Eaux, RWE, A.S.A, etc.). Some small or medium size cities created companies for their own. When the accession to the EU resulted in more stringent environmental legislation, large associations were created counting 50 to 300 municipalities that applied for EU funding of their infrastructure investment projects. The new infrastructure was operated by non-profit companies, owned by the municipalities themselves, until 2016.

FINANCIAL SITUATION BEFORE 2016

Financial problems encountered during the operation of the waste management public service system before 2016:

- Public service fees were not uniform and were not determined in a uniform system. Within the area of one municipal association, the annual public service fee for one property ranged between HUF 5,000 and HUF 30,000 for the same public service.
- Sustainable operation was jeopardized by the absence of provisions and amortization coverage.
- Due to the high number of public service providers (173 on 01.01.2016 and 107 on 01.01.2017), the fragmentation of their operative area, uneconomical collection systems and uneconomical plant sizes are very common. Collection cannot be realized at minimum cost level if operated with routes that cross each other, that have protrusions and island units and with long-distance transport without transfer stations.

- The losses and overdue debts of public service providers accumulated from before 01 April 2016 have led to troubled financing and hence hamper development processes. In the absence of developments, there is a risk that losses and overdue debts will be regenerated.
- Overdue debts became large, and smaller companies struggled with inefficient debt collection.
- The majority of public service providers were not self-sufficient.

CHANGES IN THE REGULATION OF THE PUBLIC SERVICE SYSTEM

In order to change and solve the above-outlined situation, on 15 December 2015 the Parliament passed Act CCXXI of 2015, which created the statutory conditions for the radical transformation of the system. The aim was the creation of a public service system operating under government coordination and financing. In order to achieve the objectives, the Act ends the duality, which existed to date thanks to the division of labor between the state and local governments and clearly delineates which waste management responsibilities are to be performed by the state and which tasks by local governments.

Local government tasks related to the organization of waste management:

- specification of the detailed regulation of waste management public service at the local level;
- nomination of the waste management public service provider;
- conclusion of the public service contract;
- provision of all data and information in connection with the public service contract which are necessary for exercise of NHKV, the coordinator organization's powers.

The state is responsible for creating Government Decrees to establish a framework for the operation of the Hungarian waste management system. Several government decrees regulate:

- waste management public service, selection of the public service provider, the data to be supplied by the public service provider, the waste management public service fee;
- generation, use, accounting and recording of a provision, environmental insurance and collateral by producers;
- payment of the waste landfill charge;
- registration and licensing of waste management activities, waste-related records and data supply obligations;
- preparation, territorial scope of waste management plans and prevention programs, content elements of the plans;
- prevention and treatment of biodegradable waste generation and classification of compost produced from bio-waste;
- establishment and operation of the various waste management facilities;
- appointment of the Coordinator Organization, specification of its detailed tasks related to coordination and resource management, data management;
- specification of the data supply obligation of the public service provider, the municipal local government and the owner of the waste management facility.[1]

Aiming at organizing waste management tasks on national level, the state established an institutional system acting under a new set of conditions and a new division of labor. On 01 April 2016 a new institution of government coordination, the National Waste Management Coordination and Asset Management Company started operating. The service fee ensuring quarterly settlement of the public service activity performed by the public service providers and the institution of the opinion concerning compliance required by 01 October 2016, in line

with the principles outlined in the National Waste Management Public Service Plan (referred to as NWMPSP in this paper) exercised a significant effect on the integration of public service providers. [2]

The financial duties of NHKV as a coordinator organization are the following [3]:

- it collects the public service fee and pay to the public service providers the service fee established by the Minister responsible for determining the waste management public service fee;
- it manages the liabilities generated within the framework of public service.

RESULTS OF THE CENTRALIZATION PROCESS

Financing of the public service system

The financing of the system is based on two pillars, a primary and a supplementary financing. These are presented in the following sections.

Primary financing of the collection and pre-processing

After 01.04.2016, the public service provider was not entitled to issue an invoice to consumers and to collect the public service charge. NHKV collects the public service fee. The coordinator organization pays a service fee to the public service provider from the incoming revenues to cover its justified costs. The detailed rules of the payment are laid down in the Decree 13/2016 (V.24.) NFM. [4]

The fee paid to the public service provider by the coordinator organization based on the regular data supply of the former pursuant to the request of the coordinator organization, calculated from the data supply, the quantity of waste management public service tasks and the quality of work processes performed, as amended by the correction factors. The legislation determines a standard fee that is the fee base established in a decree, which is due for the minimum public service content prescribed for the various public service areas in the National Waste Management Public Service Plan. The service fee is based on this standard fee. The standard fee can be corrected in a positive direction by not more than 70% or by 60% in a negative direction based on the correction factors stipulated in the decree. The corrected standard fee is the amount payable per unit for performance of the waste management public service, in accordance with the conditions stipulated in the NWMPSP.

The determination of the net service fee applicable to the service performed in a certain calendar quarter is as follows: the multiple of the corrected standard fee and the quantity of the quarterly service expressed in liters is decreased by the revenues generated at the public service provider from the sale of co-products (secondary raw materials, residue derived fuel, stc). The service fee includes the amortization linked to asset management. Lack of minimum reserves leads to sanctions and a withdrawal of fees.

The general formula for the service fee calculation

The general formula for the service fee calculation is as follows [4]:

$$\left[\left(S + \sum_{i=1}^{9} K_{Poz,i} - \sum_{i=1}^{10} K_{Neg,i}\right) \times N \times M\right] - \sum_{i=1}^{5} C_i$$

S: standard fee [HUF/liter]

$K_{Poz,i}$: positive correction factor [HUF/liter]

$K_{Neg,i}$ negative correction factor [HUF/liter]

M: emptied quantity [liter*]

* The litre amount is determined in respect of a certain public service area based on the liter amount serving as the basis of the public service fee.

N: population density factor

Ci: lump sum deduction [HUF]

The general formula of negative and positive correction [4]:

$$K_{X,i} = \sum_{j=1}^{n} A_{j,i} \text{ x } E_i \text{ x } L$$

$A_{j,i}$: The proportion derived from required performance

E_i: Value of correction [HUF/liter]

L: Population factor

The standard fee in 2016 and 2017 in all public service areas: S=HUF 2.737 / liter. This includes the collecting and transporting of mixed municipal waste at a required frequency prescribed by law, the collecting and transporting of green waste (according to the minimum requirements of the NWMPSP), the collecting and transporting of selectively collected packaging waste according to the minimum requirements of the NWMPSP and the collection of bulky waste.

The standard fee provides cover for the operational costs of the equipment, machines, tools and facilities used for performance of the public service tasks described (including the costs of pre-processing performed in the interest of material recovery). It covers the disposal costs of pre-processed, unrecoverable residual waste, which includes the landfill charge, as well as the costs of operation of customer service desks and representations. The costs arising from the performance of other tasks conforming to the NWMPSP that were included in the public service contract and local government decree in force on 1 April 2016 in respect of that public service area qualify as justified and refundable as are costs related to the maintenance, reconstruction, renovation, replacement or eventual development of the assets required for performance of the public service which are owned, managed or operated by the public service provider. It covers the justified costs of the closure, recultivation, aftercare and monitoring of the waste management facility operated by the public service provider, affected by the performance of environmental obligations and waste management public services.

Positive correction factor

The Coordinator Organization applies a positive correction factor if a certain public service duty, included in the calculation of the standard fee, is exceeded. The value of the specific positive correction can be defined in HUF/liter in respect of the individual property users based on the quality and quantity parameters of the public service system, with the amount of the correction factors included in Table 1.

Table 1.

Description of positive correction factors and the value of correction [4]

No.	HUF/liter	Description of positive correction factor
1.	0.042	Provision of service above the minimally required by the NWMPSP in the collection of green waste.
2.	0.208	Agreeing to perform excess service above the minimally required by the NWMPSP in the collection of separated packaging waste.
3.	0.083	Provision of service at a higher standard than that minimally required by the NWMPSP in the collection of bulky waste.
4.	0.186	Pre-processing of collected and transported wastes is performed above the minimum technical, quantity and quality requirements set by the NWMPSP.
5.	0.755	Selection of the recyclable material fraction of municipal mixed waste by mechanical, optical treatment for at least 20% of input waste.
6.	0.472	Performance of pre-processing for the purpose of energy recovery for direct recovery (until post-shredding) in the case of at least 30% of waste received for treatment.
7.	0.125	Biological stabilization of mixed waste as a proportion of deposited waste.
8.	0.019	Recovery and production performed by the public service provider itself beyond the rates minimally required by the NWMPSP.
9.	0.2	Provision of collection bins (bags) free of charge to real property users for door-to-door collection of mixed waste.

Upon review of the factors described in the above table we can establish that the larger positive correction rate can be achieved by an adequate level of selective collection, proper pre-processing of wastes, pre-processing done in the interest of energy recovery and by adequate separation of the mixed fraction in the interest of material recovery. Investment into extremely costly technology is required for achieving the excess performance levels. The establishment of such a system requires capital, larger quantity of waste to be processed, a larger service area, i.e. a larger number of households serviced. The larger companies were able to meet these criteria easier, while the smaller companies could not fulfil them or depended on the larger companies in their performance.

The positive correction factors of the fee formula place the larger companies at an advantage in terms of financing and further aggravate the position of smaller companies that – due to their size – operate with higher relative costs and lower efficiency anyway.

Negative correction factor

Where the public service provider underperforms, the Coordinating body applies a negative correction. The value of the specific negative correction is defined in HUF/liter in respect of the individual property users based on the quality and quantity parameters of the public service system, pursuant to Table 2.

Table 2.

Description of negative correction factors and the value of correction [4]

No.	HUF/liter	Description of negative correction factor
1.	0.499	Mixed collection does not take place with the frequency specified by law.
2.	0.042	Inadequate performance of green waste collection
3.	0.208	Underperformance of the collection of packaging waste as compared with the minimum requirement specified in the NWMPSP.
4.	0.083	Underperformance of the collection of bulky waste as compared with the minimum requirement specified in the NWMPSP.
5.	0.001	90% of collection and transport is not performed in its own operation.
6.	0.186	Pre-processing of collected and transported wastes is not performed at the minimum technical, quantity and quality requirements set by the NWMPSP.
7.	0.001	90% of pre-processing is not performed in its own operation.
8.	0.001	90% of disposal is not performed in its own operation.
9.	0.465	Disposal or deposit in landfills of waste above the quantity defined in the NWMPSP
10.	0.026	Incomplete or inadequate customer service, percentage of non-performance.

Upon review of the factors described in the table, we can establish that an adequately efficient selective packaging waste collection system, proper pre-processing of wastes, adequate diversion of waste from landfills can avoid the larger negative correction rate, and pre-processing performed for the purpose of energy recovery. Investment into extremely capital-intensive technology is required for achieving the required performance levels.

Population factor

The population factor further enhances the effect of the positive and negative correction factors. The resident equivalent belonging to the service area of the public service provider determines a multiplier number. The rate of the positive and negative factor also changes according to the rate of the multiplier.

Table 3 below shows us that the positive multiplier factors aid the larger public service providers more and the smaller ones less, and that negative multiplier factors encumber the larger companies less, while they place a greater burden on smaller companies.

Table 3.

Population factors [4]

No.	**The aggregate population of the public service area covered by the public service provider [persons]***			Population factor (L) positive correction	Population factor (L) negative correction
1.	0	-	10,000	0.7	1.3
2.	10,001	-	25,000	0.8	1.2
3.	25,001	-	50,000	0.9	1.1
4.	50,001	-	75,000	1	1

5.	75,001	-	100,000	1.05	0.9
6.	100,001	-	125,000	1.1	0.9
7.	125,001	-	150,000	1.15	0.9
8.	150,001	-	175,000	1.2	0.9
9.	175,001	-	200,000	1.25	0.9
10.	200,001	-	300,000	1.3	0.8
11.	300,001	-	400,000	1.35	0.8
12.	400,001	-	500,000	1.4	0.8
13.	500,001	-	750,000	1.5	0.7
14.	750,001	-	1,500,000	1.6	0.7
15.	1,500,001	-		1.7	0.7

With the creation of the fee formula, the integration intention of the government concerning public service providers is obvious. Larger companies that operate higher level infrastructure and with a larger public service area are able to achieve higher revenues in spite of the fact that according to their higher relative cost indicators they are able to operate at lower costs.

The operation of minor companies becomes increasingly cumbersome and eventually impossible, with larger companies taking over their tasks. The process moves toward the integration of public service areas.

Supplementary financing

The duties of the National Waste Management Directorate of the National Inspectorate for Environment and Nature (OKTF NHI) are determined by Section 20 of Act LXXXV of 2011 on Environmental Protection Product Charges. The main duty of the OKTF NHI is to partially finance the collection and recovery of domestic wastes, in connection with which it also performs social awareness and industrial development tasks. The aim of the main duty is to ensure fulfilment of European Union obligations, i.e. minimum recycling levels. The aim of increasing the recovery rate, as well as the complex development of the Hungarian waste management system with a value-generating approach requires a planning at the national level that ensures that no unreasonably excessive capacities are established thereby also creating secure and reliable conditions of operation. The financial cover for these tasks is created by the revenues from the environmental tax on commodities, defined by the Act on Environmental Tax on Commodities, the budget of which was HUF 63,389 million in 2015. In 2015, the Government approved HUF 12,747.2 million for the OKTF NHI to perform its waste management duties.

The essence of the financing model of OKTF NHI is that, considering the conditions defined in the Act on Environmental Tax on Commodities wherein partial financing is a central element as well as the social awareness raising explicitly defined in the same Act (minimum 7% of costs). These two elements covered the sources ensured from the budget at the launch of the legal predecessor National Waste Management Agency Nonprofit Co. At the same time, based on the factual data of the activities carried out over the year, industrial development objectives are executed from the resources that remain as the residual value of the financing related to the above two tasks and the Government may grant funds for this purpose directly pursuant to Section 20(1) d) and h) of the Act on Environmental Tax on Commodities. OKTF NHI provides partial financing on the one hand through direct contracts (in the case of public service providers where the public procurement procedure cannot be repeated because the public service provider won the activity through public procurement or an in-house contract) and on the other hand through public procurement procedures to market

players. The former means about one third of partial financing the services, while the latter constitutes about two-thirds. As the resources provided to the OKTF NHI are limited from above and cannot be exceeded, therefore, in the establishment of the contractual relationships within the framework of partial financing the acquired service quantities (e.g. the amount and value of collected PET bottles) were also limited from above. In the case of public service providers, it is possible to exceed the undertakings included in the contract and the OKTF NHI makes use of this, however, this is not a possibility in public procurement procedures. In the case of the latter, we cannot speak of this based on the rules of public procurement either, as there is no cover for excess performance in the planning phase. Therefore, in particular during the launch phase, a significant residual value is accumulated because market players are unable or unwilling to provide the requested services in a certain part of the public procurement procedures announced. Currently this residue forms the source of the industrial development tasks to be performed by the OKTF NHI. OKTF NHI spends the sum of available resources - with the approval of the Development Committee - for the realization of the objectives determined by it, primarily via the subsidies provided by the directorate and secondarily based on necessity and expediency factors and in individual cases via public procurement procedures. OKTF NHI provides the funds within a financial framework and defines the contents of public procurement procedures and the funds granted for them on an individual basis. In order to promote the entry into the market of the subsidies the OKTF NHI created the Development Subsidy Program (hereinafter the OKTF-NHI-FPR).

The development objectives established in the OKTF NHI-FPR and the NWMP (National Waste Management Plan) form a single unit thereby ensuring that the development objectives targeted by the OKTF NHI meet the expectations of the NWMP and, accordingly the WMDC (Waste Management Development Concept). [1], [6]

Financial impacts on the waste management company of Pécs city

The number of people serviced by BIOKOM company group during 2018 was 420,000. The public service provider size multiplier of the fee formula increases the positive correction factor by 40%, while the negative correction factor is reduced by 20%. For comparison, the multiplier raising the positive correction was 25%; the one decreasing the negative was 10% in the year 2016. As a result of the integration process, the annual averages of the unit fees evolved in the following manner: HUF 2.75 / liter in 2016, HUF 3.12 / liter in 2017 and HUF 3.25 / liter in 2018. [5]

NHKV becomes the owner of the co-products generated during the waste treatment processes, thus, it takes care about their sales.

CONCLUSION

As a result of the rising of the unit fee (linked to better correction factors in the fee formula), the public service provider receives larger sales revenue for equivalent activity. Higher sales revenue enables further developments aiming to increasing the separation efficiency of the treatment facilities (MBT plant and other recovery units), as well as to provide extra services.

Possible extra services:

- expansion of door-to-door selective waste collection, increase emptying frequency;
- development of the glass waste collection system;
- increase frequency of bulk waste collection;

- expansion of door-to-door collection of green waste, increase emptying frequency;
- increase of number of occasions for Christmas tree collection;
- organization of communications campaigns in the interest of increasing the efficiency of the system;
- organization of storage bin cleaning;
- replacement of worn selective collection bins placed on public area.

Even though the centralization can led to financial advantages in case of a very limited number of businesses, the whole system isn't sustainable from a financial point of view. As a state-owned company, NKHV has to stick to the public fee decrease ambitions of the government, it is clear that the operation lacks of adequate financing if public fees paid by citizens are based on 8 to 10 year earlier market prices. Since direct incomes are insufficient for NHKV to pay the public service companies, additional funds are requested each year, charging the expenditure side of the state budget.

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