

Vér Cs. – Dolgosné Dr. Kovács A.

*University of Pécs, Faculty of Engineering and Information Technology, Institute of Smart Technology and Engineering, Department of Environmental Engineering*

## **CHANGES IN THE LEGAL FRAMEWORK OF THE HUNGARIAN WASTE MANAGEMENT PUBLIC SERVICE SYSTEM AND THEIR ORGANIZATIONAL CONSEQUENCES AFTER 2015**

### **ABSTRACT**

Municipalities were the only responsible bodies regarding municipal solid waste management for long decades. The harmonization of national legislation right after the accession to the European Union resulted in much stricter technical and logistic obligations than ever before, which encouraged municipalities to joint their efforts aiming at creating the required infrastructure. Waste management regions were created arbitrary, from both geographic and technical point of view. The lack of central guidance on technical and logistic aspects resulted in a very heterogeneous landscape in the country. The present paper investigates why and how the recent changes in the legal framework reshaped the municipal solid waste management in Hungary.

### **INTRODUCTION**

#### **Operation of the public service system until 2015**

Treatment of wastes generated by the population was the responsibility of local governments earlier. They regulate this activity in local ordinances. 30 years ago, about 2,667 waste landfills that were not specially engineered operated throughout the country.



*Figure 1.*

*Landfill survey: 2,667 waste landfills in different conditions (2002.) [1]*

The public service related to each of these was performed by a local government institution or company. Transport and placement of waste took place in an unregulated, disorganized, largely fragmented manner, thereby creating an environmental hazard.

Due to the observation of, and compliance with the stricter rules, which led to a demand for expertise, infrastructure and capital, adequate performance of this task economically was only possible with the collaboration of several municipalities. In the period between 1990-2010, for profitability, cost effectiveness and business considerations, public service providers endeavored to win public service in as many municipalities as possible and to build the required waste treatment infrastructure. Long term environmental objectives and the needs of the population were often neglected compared with short term economic interests. Service area boundaries were often defined based on political considerations. The waste of certain municipalities – instead of the nearest insulated waste landfill – was deposited into uninsulated landfills that could be as far as 100 kms away just because that was a cheaper solution, even though it meant an environmental risk.

Following the turn of the millennium, the harmonization of laws resulting from Hungary's accession to the European Union in 2004, environmental and waste-related legislation grew even stricter. Developments in waste treatment infrastructure conforming to EU requirements were realized within the framework of European Union subsidy programs (ISPA, KA, KEOP). The local governments and in many cases the existing associations started the establishment of a joint waste management system model. They turned to the Managing Authority with recommendations and subsidy requests that included joint waste treatment infrastructure which they had worked out in detail. Sanitary waste landfills, collection systems with collection island, material recovery (waste sorting) facilities and civic amenity sites (waste yards) were established. Thanks to the ever-stricter statutory requirements, the number of waste landfills decreased from year to year. Selective collection appeared in an increasing number of municipalities. Waste management showed signs of development.

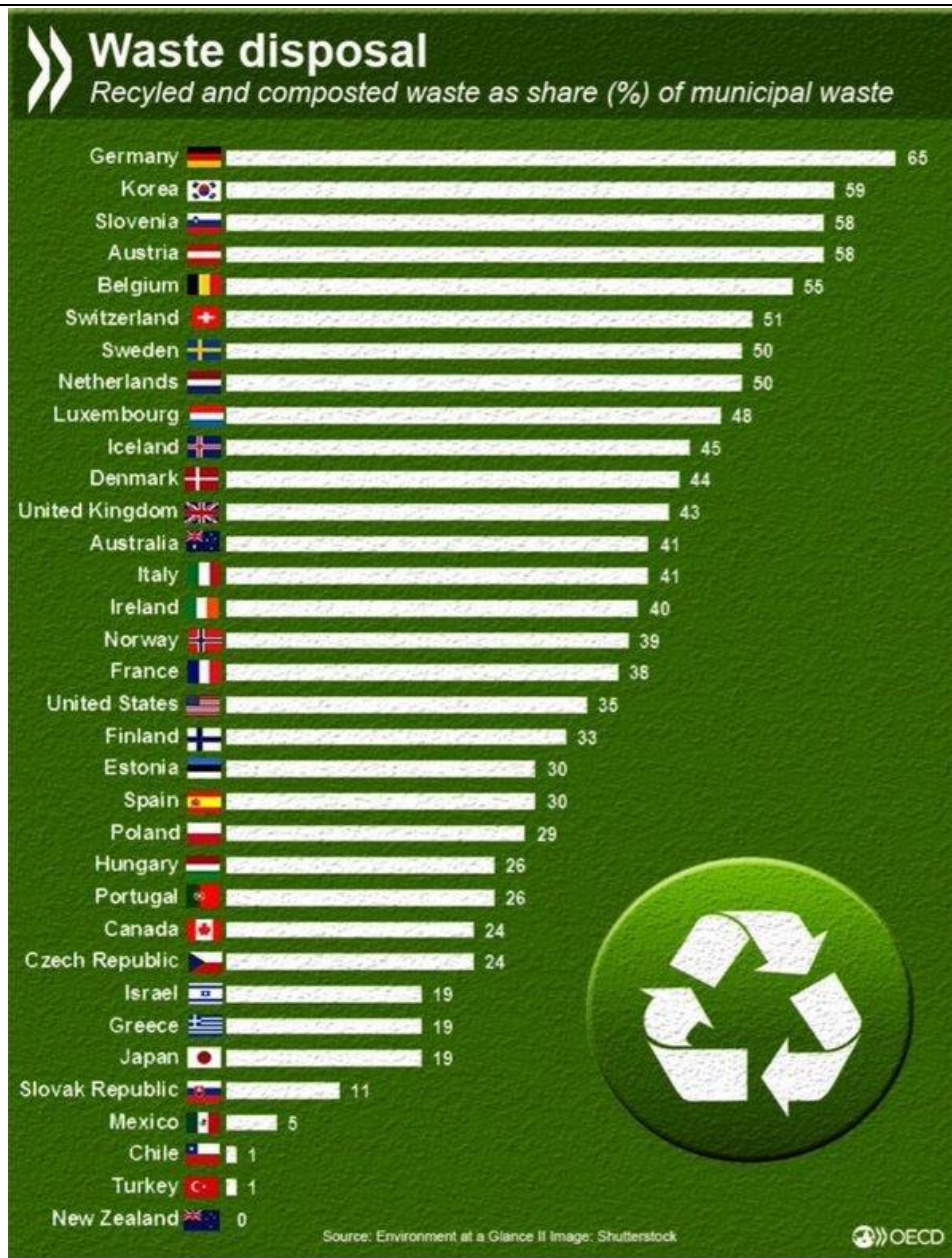
For environmental purposes, 2009 brought about progress in terms of the implementation of soil and water protection measures. After 19 June 2009 only those waste landfills were allowed to operate that complied with the stringent requirements set forth in Ministry of Environment and Water Decree 20/2006 (IV.5.), which is based on Directive 99/31 (EU). Waste landfills without artificial insulation had to be closed down.

## **THE DAWN OF THE CENTRALIZATION**

The establishment and operation of collection systems was not sufficiently motivated by the resource allocation method of the environmental tax on commodities, aimed at subsidizing selective waste collection. The selective waste collection systems established using subsidies and operated by the public service providers constantly struggled with financial hardship.

Government measures taken in 2013 further aggravated the financial situation of public service activities with the introduction of the landfill tax payment obligation and by draining revenues through the central “utility price cut” measures. Waste management public service activity became loss-making for the majority of companies.

Collection systems - based on their performance to date - were unable to achieve outstanding success in terms of separate collection and recovery rates. According to a survey, Hungary ranked 23<sup>rd</sup> of the 35 examined (mostly European) OECD countries in terms of waste recovery, as shown in Figure 2.



*Figure 2.*

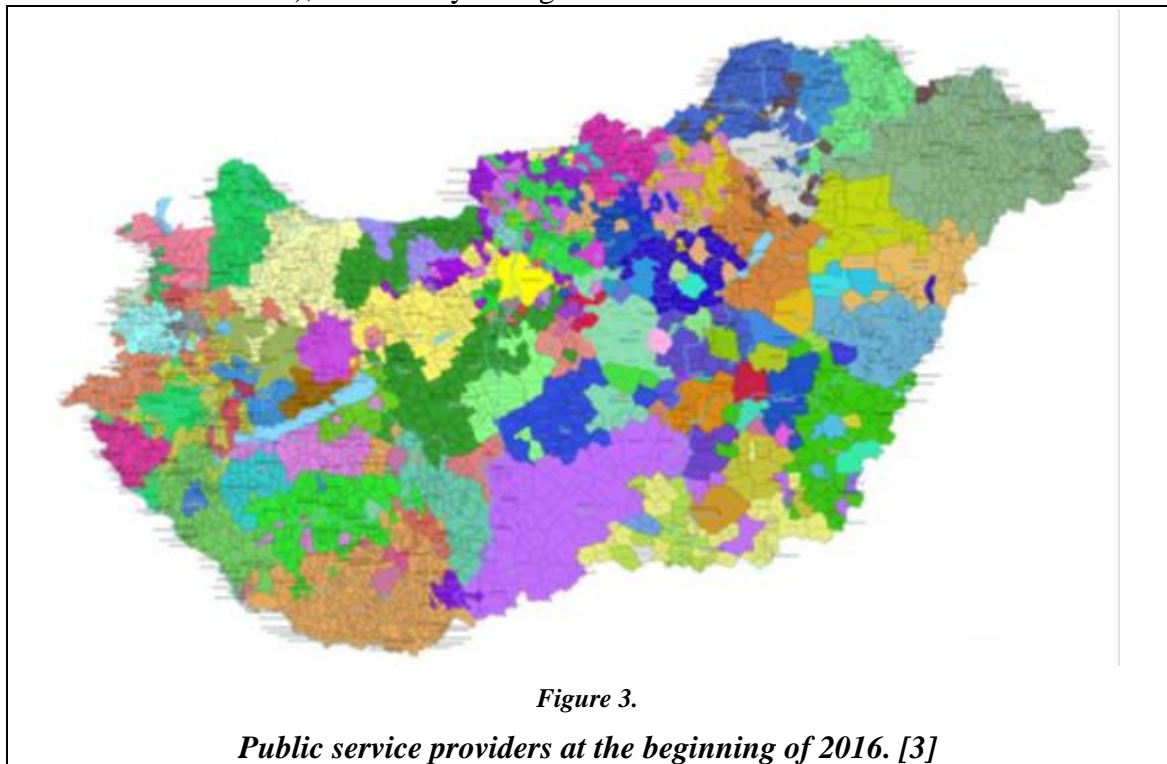
*Recovery rates in some OECD countries (2016) [2]*

### **Problems of the public service system operating in 2015**

Major problems encountered during the operation of the waste management public service system in 2015:

- The waste management assets established within the last 15 years from EU funds are not evenly distributed; as a result they struggle with availability and efficiency problems due to unexploited capacities. It is difficult or impossible to operate facilities efficiently.
- The level of development of the large regions, the standard and content of waste management public service is extremely varied. Developments lack coordination in several places. Parallel, unutilized capacities have been built in close geographic vicinity.

- The boundaries of the local government associations creating the large systems do not conform to the boundaries of the public service providers. Indentations and protrusions in the areas all cause problems in operation and in the rate of utilization and replenishment obligations.
- Obligations arising from European Union subsidies are often not or only partially met. The vehicles and equipment obtained from EU funds are not included in any records and are often not even in use. The breaches of obligations carry significant financial risk.
- The data records and data supply of public service providers is not uniform and are often difficult to compare with each other. It is difficult to compile a realistic representation of the sector.
- Due to the high number of public service providers (173 on 01.01.2016 and 107 on 01.01.2017), the country is fragmented:



## MULTI-LEVEL INTEGRATION PROCESS

### **Integration processes generated by market conditions in the earlier period**

In past decades, lower intensity integration happened in the establishment, organization and development of public service systems. These are presented in the three following chapters.

#### *Integration at the level of public service providers*

A few years ago, waste treatment public service had to be provided under competitive market conditions. Market mechanisms had a significant effect on the players of the sector. Several companies – as proven right later on – sought to gain a competitive advantage through growth and the establishment of a dynamically expanding system of companies. A widely applied practice was the creation of a public service company jointly held by the local

government and private entities. The systems of companies thus created were characterized by a rational division of labor founded on professionalism. The division of labor among companies – that utilized the resources and capacities very efficiently in terms of geography and professionalism – ensured a significant competitive advantage. In those public service areas that became strongly loss-making as a result of the statutory amendments in 2013, the effect of the market's organization power turned around for a while. Some companies tried to improve their financial situation by transferring their loss-making areas.

### ***Integration at the local government level***

Organization of waste treatment public service is a mandatory local government task. Under the tightening conditions, the tasks requiring ever-larger investments, even with the involvement of public service providers that were backed by private funding, justified the use of the largest possible scale of EU subsidies for developments, since the profit-oriented public service providers and public service systems sought development opportunities that would spare them some capital. In order to apply for the subsidies local government associations had to be created and large regional systems had to be planned. Propelled by the subsidies, an integrative process started at the local government level. Unfortunately, in many cases these were organized based on political considerations. The area boundaries, the technical content of the completed infrastructure and the obligations arising from the subsidies generated professional and operational problems in subsequent operation.

### ***Integration at the national level***

Under market conditions, the enforcement of a complex of interests (state, local government and social), as well as achieving the environmental and efficiency objectives that were becoming more important on the long run, proved to be difficult. The problems that arose pointed out the need for government coordination.

Based on previous years' experience it grew obvious that a central player able to perform coordination tasks at the national level was missing from the structure of the waste management institutional system to coordinate the current waste management market players and the execution of tasks arising from various EU and domestic obligations listed earlier, and in particular EU-subsidized projects, to harmonize development demands, create optimum economic (cost-effective) conditions both in terms of investment and operation costs.

The absence of such an organization is all the more apparent because the waste problem affects the players of both the business and the public sectors alike and thereby appears as the inverse of all economic processes.[4]

In the case of public service coordination, due to centralized control and organizational concentration it is easier to carry out the rationalization reform objectives, the integrations and realignments that would have been necessary in the last 20 years but met with significant local resistance. A more uniform, consistent and transparent output could be expected from the centralized and stricter regulation of services and organizations.[5]

On 15 December 2015 Parliament passed Act CCXXI of 2015, which created the statutory conditions for the radical transformation of the system. The change points toward the creation of a public service system operating under government coordination and financing. Pursuant to Section 32/A of Act CLXXXV of 2012, in 2016, the state established a coordinator organization to perform the state's waste management public duties by creating Government Decree 69/2016 (III.31). The coordinator organization was registered by the Court of Registration in January 2016 by the name of **NHKV National Waste Management Coordination and Asset Management Closed Company Limited by Shares** (short name: NHKV Zrt.). The Coordinator Organization was registered by the Court of Registration in January 2016.

The primary duty of NHKV Zrt. is to establish and develop the territorially optimized and uniformly standardized system of waste management public service in Hungary with the creation of a financing system that is sustainable on the long run at a break-even level.

The objectives to be achieved by the Coordinator Organization were determined in conformity with the government expectations:

- uniform, nonprofit, break-even public service system, with the participation of the Coordinator Organization, the local governments, the public service providers and the users of the service;
- maintaining the achievements of the utility price cuts;
- full performance of the recovery objectives set by the European Union;
- organization and ensuring of territorially optimized public service, organization of cooperation occurring within development projects;
- by improving the security of supply, provision of a uniform, high standard service to the population, widespread expansion an efficient operation of a separated (selective) door-to-door waste collection system.

The duties of NHKV Zrt. as a Coordinator Organization are the following[6]:

- definition of the national objectives of waste management;
- definition of the direction of waste management development;
- coordination between local governments and regions;
- preparation of the National Waste Management Public Service Plan (NWMPS), which, among others, determines the optimal territorial boundaries of public service and the minimum public service duties to be performed in a given area;
- assessment of the development of the waste management public service system element to meet the National Waste Management Public Service Plan;
- definition of optimal use of infrastructure resources in the interests of meeting the objectives and development endeavors of waste management at the national level;
- management of the assets entrusted to it voluntarily by local governments and local government associations;
- 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;
- management of the liabilities generated within the framework of public service.
- assessment of the activity of a given public service provider if it conforms to the requirements specified in the NWMPS and issues an opinion thereof (hereinafter the “conformity opinion”).

The conformity opinion is a powerful coercive instrument in the hands of the NHKV. The declaration of conformity of public service providers that did not get a public service role in the integration process was revoked. Examples for the reasons behind revocation are:

- not meeting the separate collection rates specified in the NWMPS, or
- non-compliance with collection frequency, or
- failure to pre-process communal waste.

This measure ends one of the basic conditions of lawful operation within six months, as well as the right to secure financing of the activity, i.e. to earn the service fee.

## **RESULTS OF THE CHANGES**

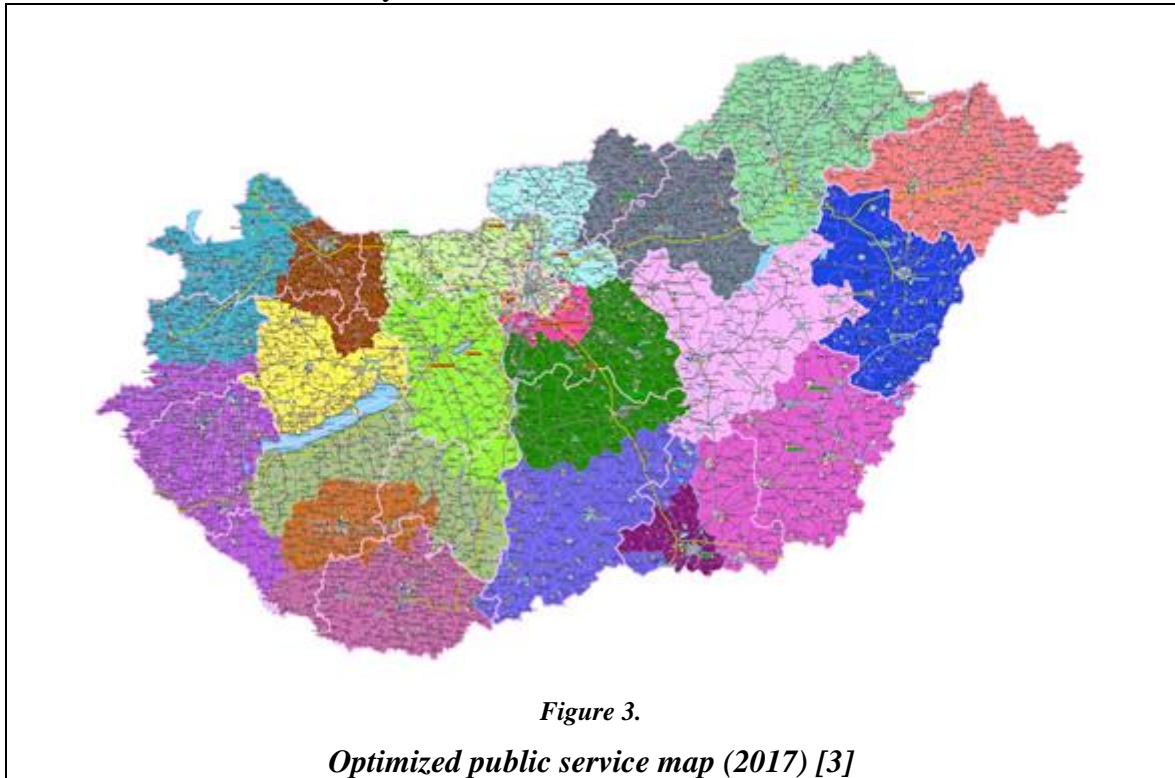
### **Major factors in the establishment of optimum public service regions**

The optimal territorial boundaries of public service supply can be established based on a processing of the data supplied by the public service providers and the data and information

collected from authorities. The existing waste management infrastructure, knowledge of the related obligations and considering the geographic, geologic and hydrologic, as well as transport capabilities of nature and society, optimum boundaries can be designated based on the following factors:

- When establishing collection and transport districts, the currently operating and non-operating infrastructure created from EU funds and other resources (public service providers, private companies) must be considered, as well as the opportunities for development thereof and the fact that the majority of the country's population lives in larger towns and their direct vicinity. In the interest of maintaining the operation costs and sustainability of the systems, essentially the districts (waste management regions) should be established around these.
- When determining the collection zones and transport zones, in view of the European Union's directives and obligations related to separate collection and recycling rates, the zones should provide a possibility in the future to extend and improve separate waste collection, in terms of both quantity and economics.
- One-phased waste collection and transport should be pursued, in which the transport distance within the collection district should not exceed 50 km. Where that is not viable, two-phased collection and transport logistics should be applied using a transfer station and covering a distance of no more than 120 km.[7]
- There should be no rupture in the public service area covered by one public service provider and public service providers should not be forced to pass through each other's areas during collection and transport. This requires that a facility directly ensuring waste treatment after collection and transport be located within the given public service area.
- When establishing public service districts, the largest possible districts should be established in view of the "proximity principle" and "economies of scale". The economic laws underpinning the fee formula also compel the enforcement of these principles.
- The public service district established should ensure the adequate servicing of the existing waste treatment facility - the system element operated by the public service provider - and the supply of the adequate quantities of waste required for efficient operation.
- The quantity and composition of waste generated by certain municipalities may vary depending on the number of inhabitants, population density, economic development or level of tourist attraction. The costs of collection and transport may vary significantly. A service area of adequate size is capable of integrating or balancing these effects.
- With future developments, the waste treatment infrastructure associated with the new waste management region being created should be capable of meeting long term waste management expectations.
- Professional guiding principles should be accentuated in the integration process as compared with politically determined and other guiding principles.
- The new system being created should consider the fulfillment of the obligations undertaken in the European Union subsidy contracts, the planned material streams and utilization obligations. Essentially this means none other than consideration of the geographic boundaries of the associations awarded the subsidies. If the association boundaries hinder the creation of optimized districts, the possibility of certain local governments exiting must be examined. In the majority of cases this goes hand in hand with joining another association. In both cases prudent action is necessary as non-compliance with the utilization obligations set forth in the subsidy contracts may

lead to reimbursement of the subsidies. While the projects are underway, exit of association members is subject to the consent of the Managing Authority and an amendment of the subsidy contract.



The conference of the Public Sanitation Association organized in Siófok on 23 November 2016 can be considered as a milestone in the acceleration of the integration processes. The boundaries of the 21 public service areas defined and optimized by the NHKV Zrt. were published at this forum. The ideal public service provider size was defined at the forum as 300,000-500,000 persons. In addition to the boundaries, the optimum regional public service infrastructures were also outlined in detail at the conference.

#### **Impacts on the waste management association led by Pécs city**

The boundaries of the region around Pécs covered the public service area of the BLOKOM company group, supplemented by the Mohács, Bonyhád and Komló collection district. As a result of the integration process, the number of municipalities involved reached 319, with a total population of 423,165 inhabitants. This figure falls exactly in the optimum range above. The quantity of waste collected and treated within the framework of public service reached 150,000 tons in 2018.[8] By operating the Waste Treatment Centre in Kökény (10 km from Pécs), the self-sufficiency principle is also met. This plant is the final destination of collection and transport processes. Its location near the center of the operating area creates a favorable position, with the operation of the 7 ideally located transfer stations, for keeping shipment at low cost levels. Thanks to the technology of the Centre, only 40% of the wastes of the region are landfilled after bio-stabilization. The co-products generated (refuse-derived fuel, secondary raw materials, compost) contribute to meet the circular economy goals.

#### **CONCLUSION**

The municipal solid waste management system in Hungary, including the infrastructure and the involved organizations, was far from being at its optimum in the last decade. Science



and experience based coordination was the most important missing element that could have helped the municipality associations to plan their regional infrastructures between 2004 and 2015. The government's centralization initiative brought some improvements in the geographical distribution, but it hasn't stop at coordination level. The fact that a state-owned company collects money from citizens and pays the dozens of service providers in a complicated manner means that direct intervention dominates coordination, from a control theory point of view. The system doesn't seem to meet its optimum state neither today, since it's rumored that new changes, even possible privatizations are planned on collection and treatment level.

## ACKNOWLEDGEMENT

Our work was carried out as part of the project "Sustainable Raw Material Management Thematic Network— RING 2017" EFOP-3.6.2-16-2017-00010 within the Program SZECHENYI2020, supported by the European Union, co-financed by the European Social Fund.

## REFERENCES

1. **Hilda Farkas** PhD. Experiences of closing down waste landfills
2. [www.dontwasteit.hu/2016/03/06 /ujrahasznositasban-nemetorszag-az-elen/](http://www.dontwasteit.hu/2016/03/06/ujrahasznositasban-nemetorszag-az-elen/) (last visited: 16.11.2020)
3. **Zsolt András Hajnal**: New factors in technical and professional expectations (Lecture, Siófok 23 Nov 2016)
4. **Tibor Kiss**: Efficiency and systems approach in municipal solid waste management Thesis (2008)
5. **Ilona Pálné Kovács, István Finta**: Legal regulation and professional policy environment of local government public services, 2013.
6. Act CLXXXV of 2012, Section 32/A (1)
7. National Waste Management Public Service Plan 2017.
8. Controlling database of BIODKOM Nonprofit Kft. and Dél-Kom Nonprofit Kft.