Country fact sheet

Municipal waste management

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Hungary

October 2016

European Environment Agency
European Topic Centre on Waste and
Materials in a Green Economy

Context

This country profile was prepared within the EEA's work on municipal waste, resulting in the following outcomes:

- 32 country profiles (this document) – The country profiles were originally produced by the ETC/SCP and were published by the EEA in 2013. The ETC/WMGE updated them for the EEA under its 2015 and 2016 work programme.

- An EEA briefing on Municipal waste management across European countries

Acknowledgements

The ETC/WMGE and the EEA would like to thank the Hungarian Ministry of Agriculture for reviewing the profile and providing valuable inputs.

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Related country profiles

Country information on waste prevention programmes can be found at:
http://www.eea.europa.eu/publications/waste-prevention-in-europe-2015

For country profiles on material resource efficiency policies, please visit:
http://www.eea.europa.eu/publications/more-from-less/

Contents

Highlights

- Hungary's performance in terms of municipal waste (MSW) recycling has improved dramatically over the last decade, from 2 % in 2001 to 31 % in 2014. Over the same period MSW generation has decreased by 15 % and has been decoupled from economic growth.
- Since 2001, the Hungarian waste strategy has focused on building capacity and setting up schemes for separate collections, mainly for packaging waste.
- The First National Waste Management Plan 2003–2008 set targets on reducing biodegradable municipal waste (BMW) going to landfill in line with the EU Landfill Directive, and the first two interim targets have been met.
- A National Waste Management Agency (OHÜ) was established in 2011, since 1 Januar 2015 called National Waste Management Directorate of the National Inspectorate for Environment and Nature (OKTF-NHI). The OKTF-NHI acts as a national coordinator between collection companies and treatment plants.
- A landfill tax was implemented in 2013. The current tax level is EUR 18.9 per tonne of MSW landfilled and is expected to remain at this level until 2017.

1 Introduction

1.1 Objective

Based on historical municipal waste (MSW) data for Hungary, and EU targets linked to municipal waste (MSW) in the Waste Framework Directive (WFD), the Landfill and Packaging Waste Directives, the analysis undertaken includes:

- historical MSW management performance based on a set of indicators;
- uncertainties that might explain differences in country performance, which may relate more to variations in reporting methodology than to management performance;
- indicators relating to the country's most important initiatives for improving management of MSW;
- possible future trends.

2 Hungary's municipal waste management performance

Hungary entered the EU in 2004, and the national waste management policy priorities have been mainly driven by the EU waste legislation since the late 1990's. The legal basis for preparing the National Waste Management Plans (NWMP) was introduced in Hungarian legislation in 2000 with the Act on Waste Management. The NWMPs run for six years according to the legislation.

The competent authority for drafting NWMPs is the Ministry of Rural Development in cooperation with the National Waste Management Directorate of the National Inspectorate for Environment and Nature (OKTF-NHI) (before 2015 it was called National Waste Management Agency (OHÜ)), a non-profit organisation established by Law LXXXV of 2011 on the Environmental Product Fee (Hungarian Ministry of Agriculture, 2015). The main obligations of the Directorate are to contribute to waste reduction and to organise and manage the collection and recycling of those waste streams that fall under product-fee regulation in Hungary. The Directorate is also responsible for regional planning, certification of waste management operators and running campaigns.

The OKTF-NHI works to achieve higher proportions and quantities of separately collected municipal waste, and it gives financial support to public service providers, thereby contributing to the fulfilment of the national and EU targets. The OKTF-NHI receives state support for the promotion of selective waste management.

Other relevant bodies in municipal waste management include the National Inspectorate for Environment and Nature (OKTF), which has the role of regional administration as well as monitoring/inspection, together with the 11 environmental departments of government offices, and the National Institute for the Environment (NeKI) that prepares background studies for waste policy (Hungarian Ministry of Agriculture, 2015; BiPro, 2014).

The first National Waste Management Plan covered for the period 2003–2008, but the second NWMP was not officially accepted for the next planning period (2009–2014). The third NWMP 2014-2020, however, was adopted in 2013 but also includes figures and analysis for the period 2009–2014. In addition to the NWMP there are separate plans for 10 regions, implementing it. These is also prepared by the OKTF-NHI in collaboration with the regional stakeholders and authorities. The Hungarian parliament accepted the new Act on Waste in 2012 and it came into force on 1 January, 2013 (Hungarian Ministry of Agriculture, 2015; BiPro, 2014).

Furthermore, in line with the overall goals of the first NWMP, two strategy papers relevant to this assessment have been prepared: the Strategy for the Management of Biodegradable Waste in Municipal Solid Waste Management 2004–2016 and the Development Strategy for Municipal Solid Waste Management, 2007–2016. These documents serve as the basis of future developments for the treatment of MSW.

According to the Cardinal Law No. CLXXXIX of 2011 on Local Government and Act No. CLXXXV of 2012 on Waste, local municipalities are responsible for providing the public with waste collection services. Mostly, collections are carried out by public service companies, contracted by municipalities. Municipal waste from commercial sources can be managed either by the public services or by private companies (Hungarian Ministry of Agriculture, 2015).

Since 2012, municipal waste collection services can only be provided by non-profit and at least 50 % state or local municipality owned public service provider companies that are certified by the OHÜ/ OKTF-NHI. Classification of public waste management service providers is carried out by a new institution that was set up by the Act on Waste as of 1st January 2013.

The long-term goal is to establish a system of qualified waste management public service providers ensuring security of public waste management services as well as fostering continuous development of the quality of public services. The classification system assures that municipalities can choose the service provider that is most suitable for local needs and specificities. Classification regulations are set out by the Act No. CXXV on Classification of Public Service Providers of 2013 (Hungarian Ministry of Agriculture, 2015).

If municipalities are not able to fulfil their role in waste management, the government and the Disaster Management Authority provide assistance. The Disaster Management Authority designates a temporary public service provider, which then has the opportunity of applying for extra assistance beyond the temporary supply fee to cover its excessive costs from the Ministry of Agriculture (Hungarian Ministry of Agriculture, 2015).

According to the Act on Waste, the separate collection of paper, metal, plastic, glass and green waste is obligatory in Hungary – Public service operators have to devise the separate collection of several waste streams, and to arrange for their door-to-door collection. Waste collection points for municipal waste are only provided in densely populated areas where door-to-door services for the separate collection of municipal waste cannot be provided. The collection services are complemented by civic amenity sites, of which there are around 130 sites in Hungary (Hungarian Ministry of Agriculture, 2015; BiPRO, 2014; Gibbs *et al.*, 2014a)

Residual waste collection services typically charge by the bin. Since 2011, two bin sizes, with different charges, have been available to households in Budapest. In November 2015 the Act on Waste has been modified so that public service providers give citizens the opportunity to choose at least one receptacle not exceeding 80 litres, while one-person households can choose a receptacle not exceeding 60 litres (Hungarian Ministry of Agriculture, 2015), The costs of separate collections of recyclables are covered by extended producer responsibility (EPR) schemes and thus are free of charge to the consumer. (Gibbs *et al.*, 2014a).

Hungary's formal waste collection system covers around 99 % of the population (BiPro, 2014). The rest of the population, mainly in rural areas, are assumed to compost and/or burn their waste (Gibbs *et al.*, 2014a)

For decades, the dominant treatment of municipal waste in Hungary was landfilling. Before 1989, municipal waste management was not subject to extensive regulations and focused only on hazardous wastes and the collection of municipal waste from households. In the past, almost all municipalities operated one or more landfill sites, generally not constructed or equipped with modern waste

management technology. These sites were basically waste dumps operated by the local councils. By July 2009, all landfill that were not complying with the legislation were closed and nowadays there are around 70 active landfill sites in Hungary (BiPRO, 2014).

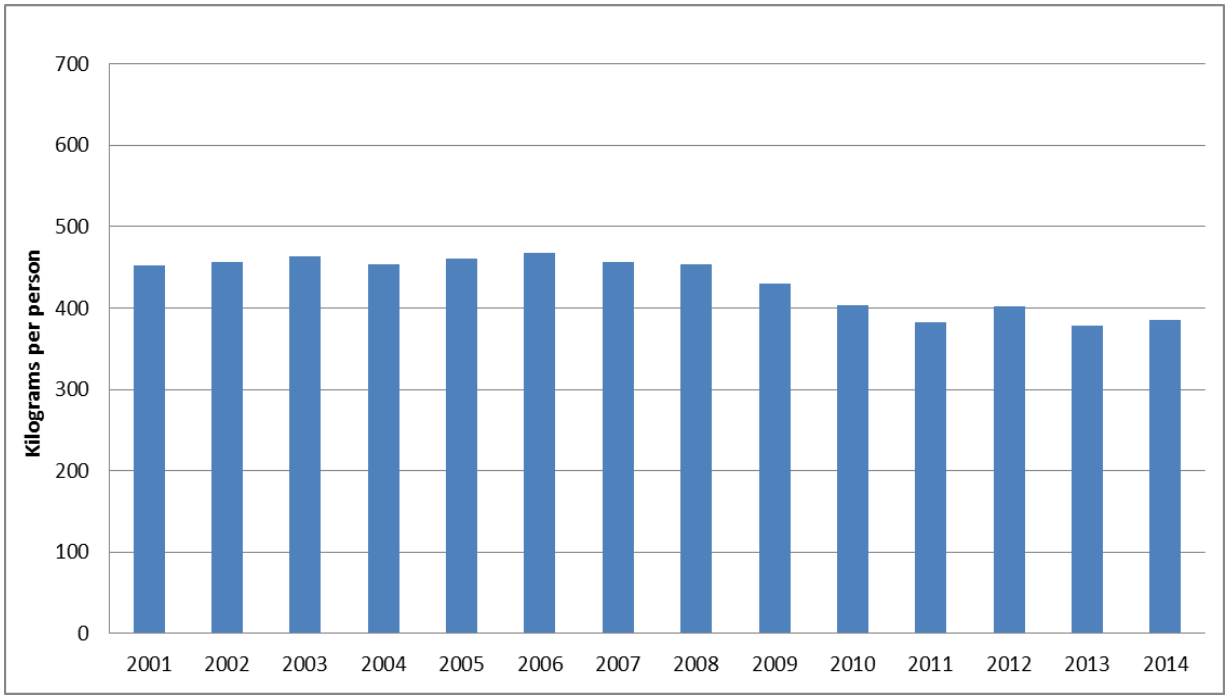
There is one waste-to-energy incineration plant for municipal waste in Budapest, with a capacity of 420 000 tonnes per year. Other treatment facilities for municipal waste include sorting plants with a capacity of 350 000 tonnes per year; recycling facilities with a capacity of 800 000 tonnes per year; biowaste treatment facilities with a capacity of 200 000 tonnes per year; and existing and under-construction mechanical biological treatment (MBT) with a capacity of 750 000 tonnes per year (BiPro, 2014). Since 2010 all generated municipal waste is reportedly treated (Eurostat, 2016).

2.1 Municipal waste indicators

The following indicators illustrate the development of the Hungarian MSW management in 2001–2014. All percentage figures have been calculated by relating the waste managed to the generated amount – not the treated amount. Relating it to the total managed amount of MSW would generally result in higher rates for all waste management paths – this is the case also for Hungary until 2009.

Figure 2.0 shows the development of MSW generation per person in Hungary from 2001 to 2014. Since 2001 MSW generation per capita has decreased by 15 %, from 452 kilograms per person in 2001 to 385 kilograms in 2014. Seventy-three per cent of the municipal waste reportedly originates from households (Hungarian Central Statistical Office, 2014).

Figure 2.0 Hungary, municipal waste generation per person, 2001–2014



Source: Eurostat, 2016

It must be noted that the general data availability and quality for municipal waste before 2004 is considered to be poor. Before the new Waste Management Information System (HIR) was launched in 2004, the only available data were based on estimates and non-continuous data collection, and are

not considered to be precise by experts in Hungary (ETC/SCP, 2008). Data from 2004 onwards are, however, more accurate and reliable.

Despite the change in the data collection methodology, the overall trend in MSW generation does not seem to be broken and there has been a decoupling between the increase in gross domestic product (GDP) and the amount of MSW generated over this time period.

2.1.1 Municipal waste recycling, 2001–2014

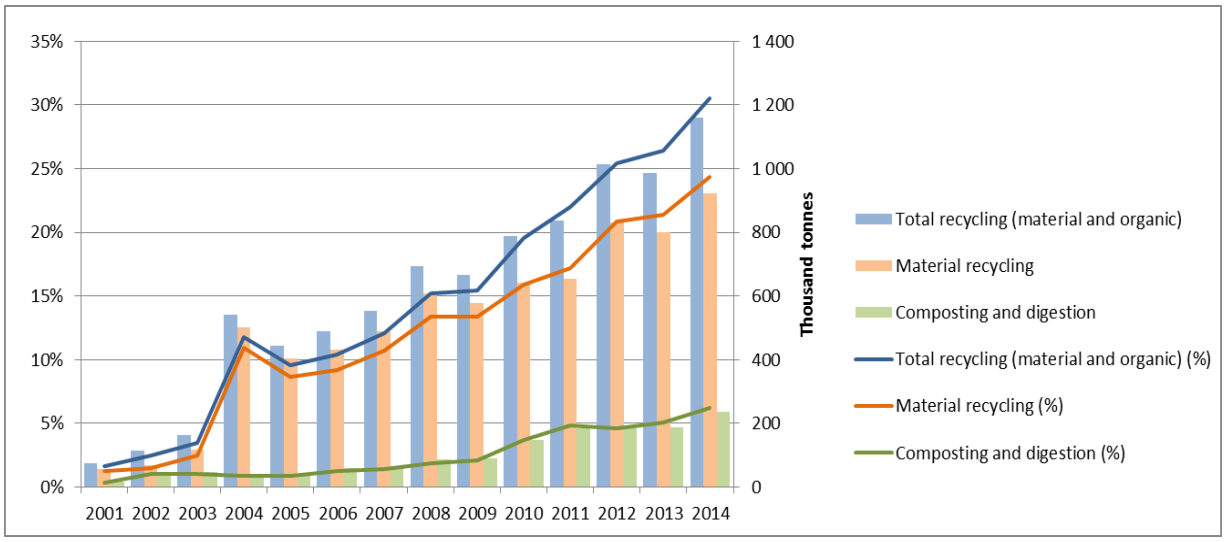
In a technical expert study on MSW in 2006, it was estimated that in Hungary MSW contains around 9.9 % paper, 14.1 % plastics, 3.8 % glass and 3.5 % metal, and around 31.2 % of the MSW is biodegradable. The study also provided a basis for standard MSZ 21976-1 on MSW inspection and sampling, also for standard MSZ 21976-2 on MSW inspection, preparation of samples and the determination of material composition by selection of material types. Until 2013 these standards were the basis for determination of waste composition. From 2013, waste landfill operators report the composition of municipal waste in the framework of yearly data reporting, enabling more accurate data to be available (Hungarian Ministry of Agriculture, 2015).

Figure 2.1 shows the development of total, material and organic (compost and other biological treatment) MSW recycling. The country's performance in terms of municipal waste recycling has improved dramatically over the last decade from 1.6 % in 2001 to 31 % in 2014. The majority, 24 percentage points, was material recycling including metal, glass, plastic, paper and cardboard, while composting and other biological treatment together accounted for only about 6 percentage points of the 31 %.

Since 2007 the amounts of recycled waste include the waste exported for recycling, ranging from 25 % to 53 % of recycled waste depending on year (Eurostat, 2015b). The landfilled share of municipal waste decreased to 57 % in 2014 (Eurostat, 2016).

While considerable progress in material recycling has already been achieved, the advancement of organic recycling has been weaker. However, in the recent years composting of municipal waste has increased from 183 000 tonnes in 2012 to 236 000 tonnes in 2014 (Eurostat, 2016).

Figure 2.1 Hungary, recycling of municipal waste, 2001–2014, per cent and tonnes



Source: Eurostat, 2016

The incentives behind the positive development over the last ten years include the initiation of separate packaging collections in 2001 as well as the ban on landfill untreated municipal waste in 2002 (Section 2.3). The peak in recycling rates in 2004 can be partially explained by the change in the data collection method when the Waste Management Information System was introduced.

The EU's 2008 WFD includes a target for certain fractions of MSW: 'by 2020, the preparing for re-use and the recycling of waste materials such as at least paper, metal, plastic and glass from households and possibly from other origins as far as these waste streams are similar to waste from households shall be increased to a minimum of overall 50 % by weight'. EU Member States may choose between four different methodologies to calculate compliance with the target[1].

Hungary has chosen calculation method 2 (Gibbs *et al.*, 2014a) and has reported a recycling rate of 39.8 % according to this methodology. The recycling rates shown in this paper correspond to method 4, the only method for which time series data exist. In 2015, the European Commission proposed new targets for municipal waste of 60 % recycling and preparing for reuse by 2025 and 65 % by 2030, based on only one calculation method, and with the option of time derogations for some countries (EC, 2015b).

2.1.2 Landfill of biodegradable municipal waste

It is a general requirement of the EU Landfill Directive that all Member States have to reduce the amount of biodegradable municipal waste (BMW) landfilled by a certain percentage by 2006, 2009 and 2016. The targets are related to the amount of BMW generated in 1995 – 2.3 million tonnes of BMW in Hungary.

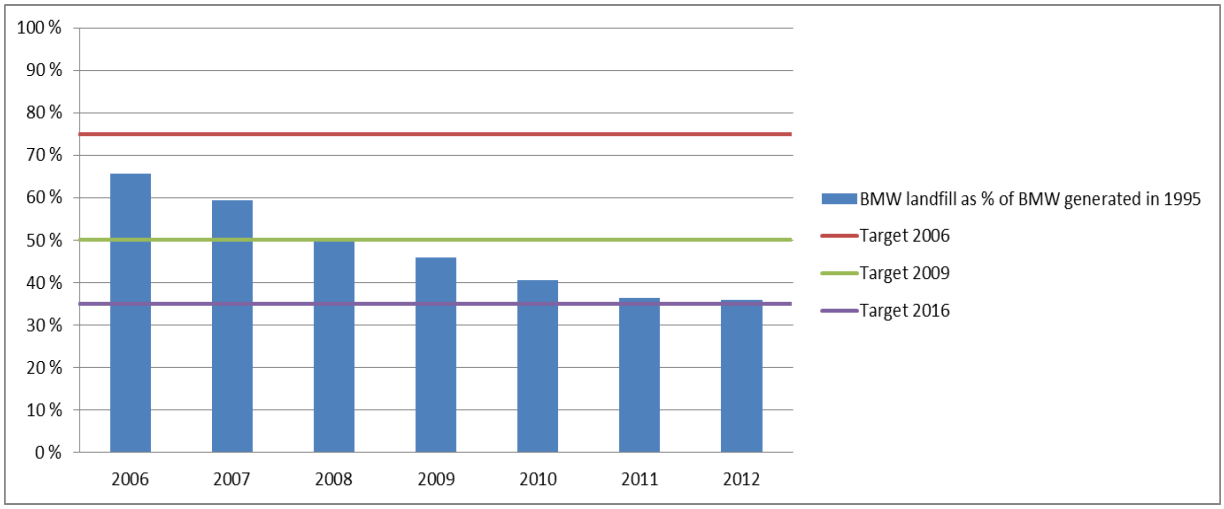
Hungary has no derogation period to achieve the targets and when the Landfill Directive was introduced into the national legislation, this set the following interim reduction targets: 75 % by 2004, 50 % by 2007 and 35 % by 2014, relative to the amount produced in 1995. Thus, the Hungarian targets were originally set two years ahead of the Landfill Directive targets (ETC/SCP, 2008). However a modification, in light of the developments achieved up to 2007, was made in the Act on Waste Management in 2007, so as from January 2008 the latter two targets have been set for 2009 and 2016 in accordance with the Landfill Directive. Hungary has reported the amount of BMW landfilled to the EC for the years 2006, 2009, 2010, 2011 and 2012 (EC, 2014).

[1] Commission Decision 2011/753/EU allows countries to choose between four different calculation methods to report compliance with this target. Member States have the option of considering four alternative waste streams and fractions:

1. paper, metal, plastic and glass household waste;
2. paper, metal, plastic, glass household waste and other single types of household waste or of similar waste from other origins;
3. household waste;
4. municipal waste (the method used in this document).

Hungary has made rapid progress towards diversion of BMW from landfill (Figure 2.2). Interim targets set for 2006 and 2009 by the Landfill Directive were met with reductions to 66 % in 2006 and 46 % in 2009, mainly due to a dramatic increase in material recovery, MBT and an improved separate paper, including packaging paper, collection system.

Figure 2.2 Landfill of biodegradable municipal waste in Hungary, 2006–2012, % of biodegradable municipal waste generated in 1995

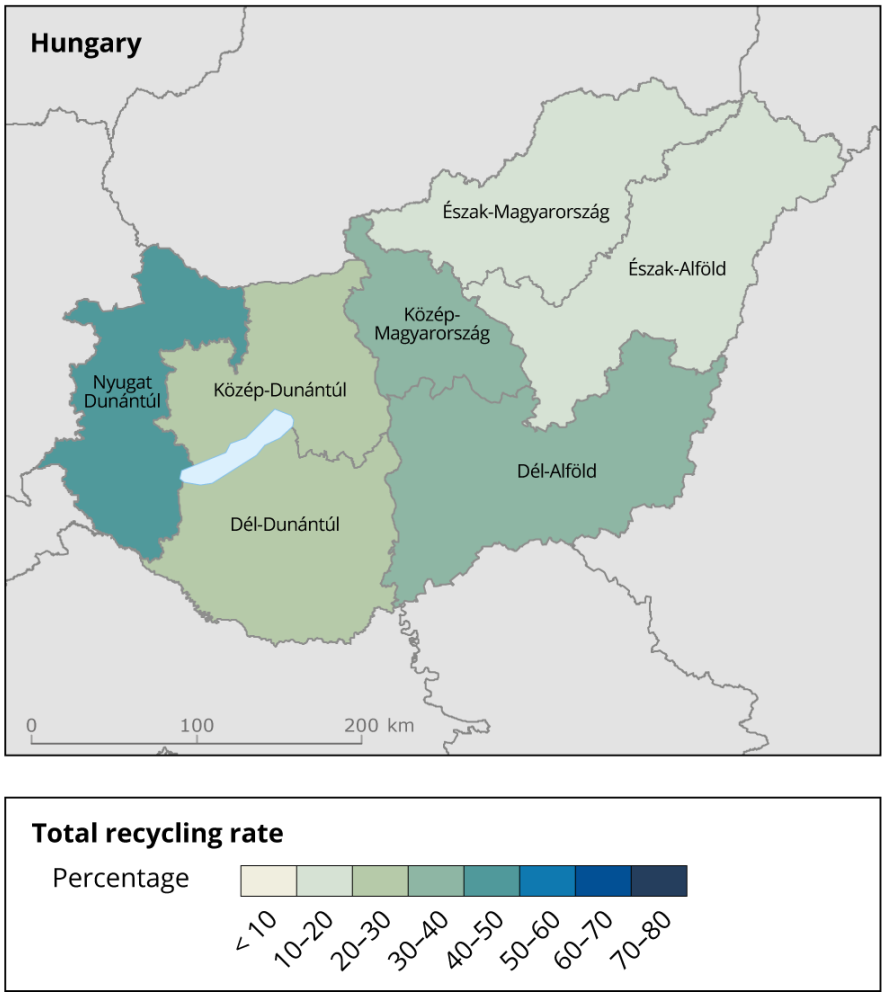


Source: EC, 2015a.

2.1.3 Regional differences of municipal waste recycling, 2001–2013

For Hungary regional data has been reported to Eurostat from 2008 onwards. The geographic location of the regions is illustrated in Map 2.1, which shows regional differences in the MSW recycling for 2013, the latest year with available regional data, related to total recycling.

Map 2.1 Hungary, regional differences in municipal waste recycling, 2013



Source: Eurostat, 2015a.

The population of most regions is around 1.0–1.5 million, while it is higher in the central region around Budapest in the Central Hungary (Közép-Magyarország) region, which has 3.0 million people out of the country's 10.0 million total. Other parts of the country have lower population density, making transportation costs a more significant factor of waste management. The annual MSW generation in Közép-Magyarország is around 1.3 million tonnes representing about one third of the municipal waste generated in the country, whereas the other six regions generate a more or less similar amount of municipal waste generation.

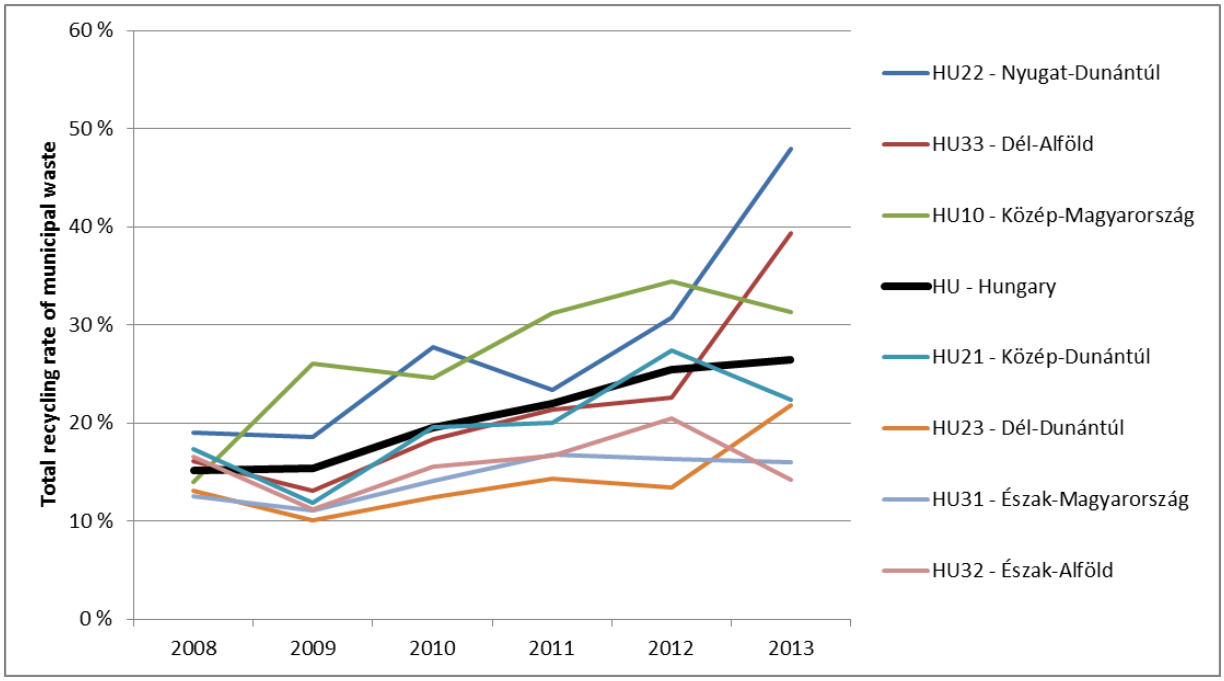
Közép-Magyarország is also by far the most economically developed region of the country: its GDP per capita is 61 % that of the EU average, while the six other regions generated between 22 % (Észak-Magyarország) and 38 % (Nyugat-Dunántúl) of the EU average according to 2012 Eurostat data. The Közép-Magyarország region is also where the country's only municipal waste incinerator is operating. The Budapest MSW incinerator has an annual capacity of 420 000 tonnes and approximately 52 % of the waste generated in Budapest is incinerated.

The total regional recycling rates ranged from 14 % to 48 % of generated MSW in 2013. The most populated region, Közép-Magyarország, shows somewhat higher recycling rates compared to the national level. For most regions the trend in recycling is increasing in accordance with the national

development but the Észak-Alföld and Észak-Magyarország regions seem to be more or less stagnating at around 15 %. The disparities can be explained by some differences in separate collections.

Figure 2.3 shows regional differences in MSW recycling for the period 2008–2013 related to total recycling – the sum of material and organic recycling – based on data reported to Eurostat.

Figure 2.3 Hungary, regional differences in recycling of municipal waste, 2008–2013

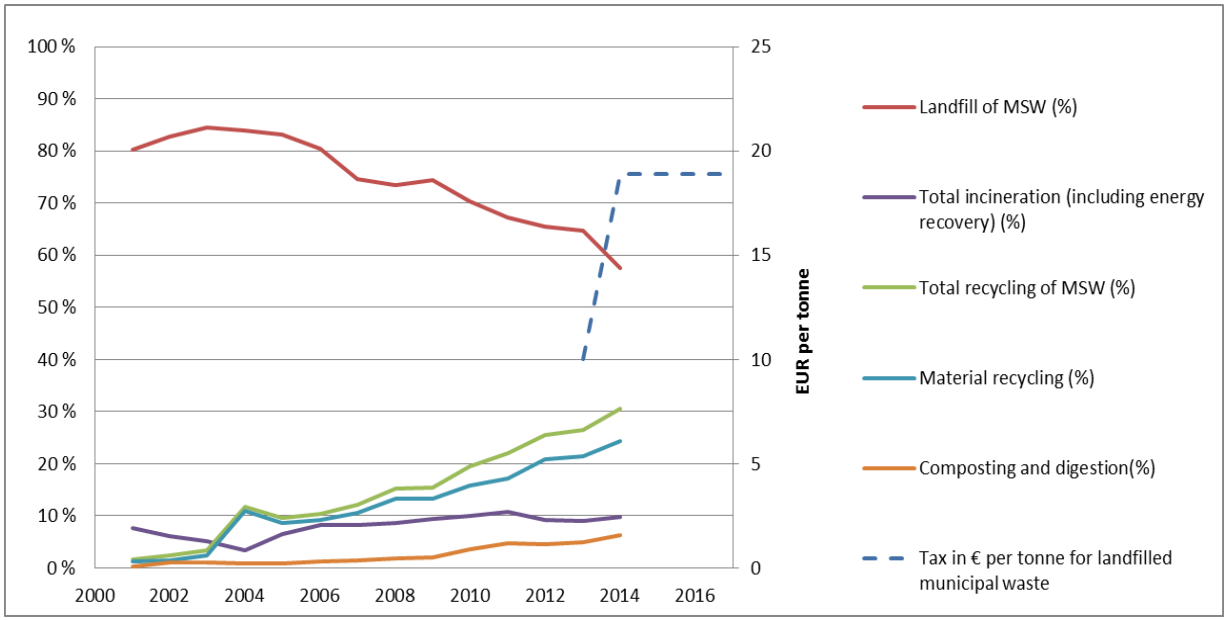


Source: Eurostat, 2015a

2.1.4 Recycling and landfill taxes

A tax of EUR 10 per tonne on the landfill of waste was introduced in Hungary in 2013 to encourage the diversion of waste landfill (Gibbs *et al.*, 2014a). In 2014 the tax for municipal waste, including pre-processed municipal waste, was increased to EUR 18.9 per tonne by the Act on Waste, and it will remain at this level in 2015–2017.(Hungarian Ministry of Agriculture, 2015). Figure 2.4 shows the development of landfill tax together with different waste management options.

Figure 2.4 Hungary, landfill tax and municipal waste management in Hungary, 2001–2016, per cent



Source: Eurostat, 2016; Hungarian Ministry of Agriculture, 2015

As the tax came into force recently, it is not yet possible to assess its effectiveness in enhancing recycling or landfill diversion of municipal waste. Material recycling has been increasing in Hungary since the early 2000's, while the percentage of municipal waste landfilled has simultaneously decreased. The reason for the drop in incineration in 2004 is the reconstruction of the largest incinerator (Eurostat, 2015b).

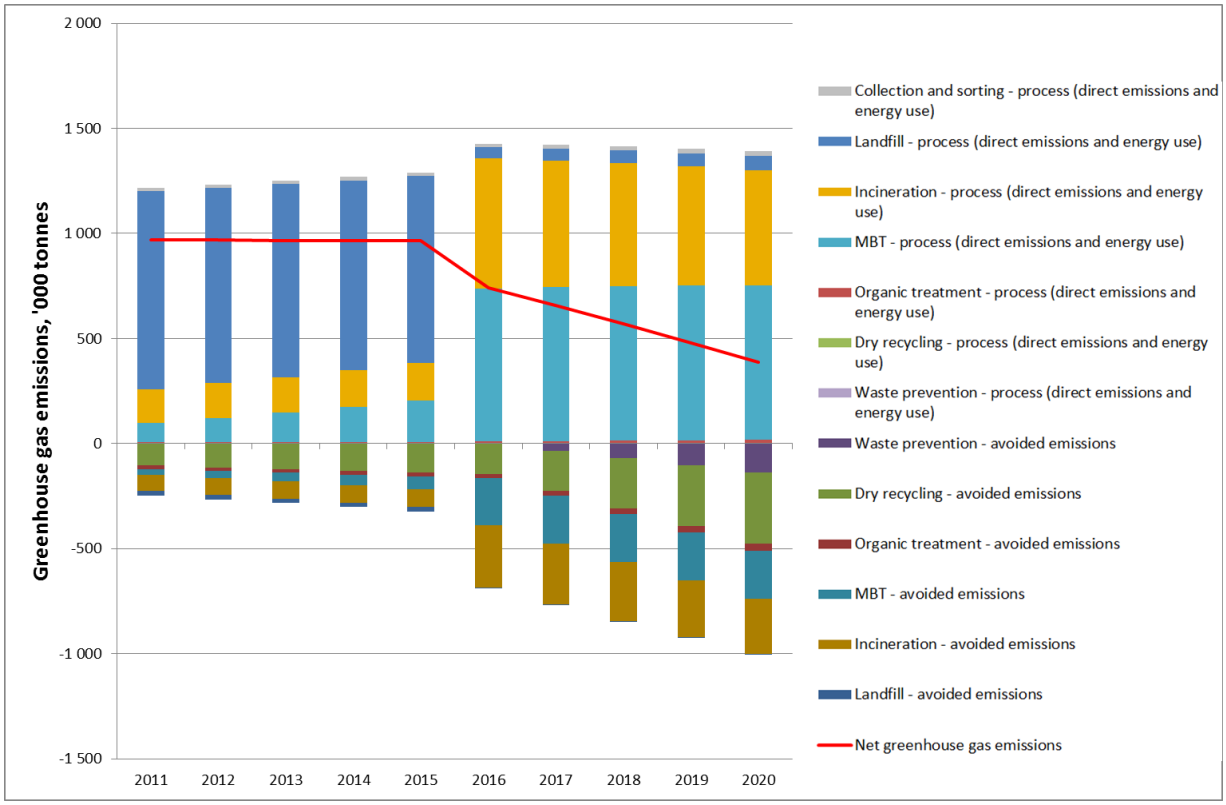
2.1.5 Environmental benefits of better municipal waste management

Figure 2.5 shows a scenario for the development of greenhouse gas emissions from MSW management in Hungary. The scenario assumes an average yearly increase rate of 1.3 % for municipal waste generation in 2011–2015 and 0.74 % for 2015–2020. The scenario also assumes that the EU targets for municipal waste are fully implemented. The calculation of emissions is based on data and assumptions contained in the European Reference Model on Municipal Waste Generation and Management. The approach taken in the model is rooted in life-cycle thinking, in that it considers not only direct emissions but also avoided emissions associated with the recycling of materials and the generation of energy by waste management processes. The more detailed methodology is described in Gibbs *et al.* (2014b). The level of greenhouse gas emissions depends on the amount of waste generated and the treatment it undergoes each year.

Figure 2.5 shows the direct emissions, the avoided emissions and the net emissions from MSW management. All the greenhouse gas emissions (positive values) represent the direct operating emissions for each waste management option. The phases of the waste management chain covered include waste prevention; material recycling; composting and anaerobic digestion; MBT and related technologies; collection and sorting; incineration and landfilling.

For the avoided emissions (negative values), the calculations integrate the benefits associated with the recovery of energy and material recycling of paper, glass, metals, plastics, textiles and wood, and bio-treatment of food and garden waste. The modelled scenario assumes full implementation of the existing EU targets on municipal waste management (Gibbs *et al.*, 2014c).

Figure 2.5 Hungary, scenario for greenhouse gas emissions from municipal waste management, 2011–2020



Source: ETC/WMGE, calculation based on the European Reference Model on Waste.

Note: Results presented in this figure should not be used for the compilation of greenhouse gas reporting for the Intergovernmental Panel on Climate Change (IPCC) national inventory report, or be compared with IPCC figures, as the methodology employed here relies on life cycle thinking and, by definition, differs substantially from the IPCC methodology. MBT means mechanical-biological treatment.

Based on the modelled scenario with full policy implementation, the net greenhouse gas emissions from the treatment of municipal waste in Hungary are expected to stagnate in the period 2011–2016 and then decrease in 2016–2020. In the first modelled years of the scenario, direct greenhouse gas emissions related to municipal waste management are caused almost exclusively by landfilling, while the benefits of recycling are relatively low. The change from 2015 to 2016 in the modelled results is due to the target year 2016 for meeting the 35 % landfill diversion target for BMW; the modelling assumes that the waste is mainly diverted to MBT and incineration.

Greenhouse gas emissions from landfills are caused by the breakdown of organic wastes accumulated in landfills over the past decades. In the model, however, the landfill impacts are calculated over a 100-year period, with the total impact over this period being attributed to the year in which the waste is deposited (Gibbs *et al.*, 2014b). Therefore, the positive effect of diverting BMW from landfills can be immediately observed in the results as reduced greenhouse gas emissions from landfilling. According to the model, an increasing share of the direct emissions of waste management in Hungary will originate from MBT operations and incineration.

2.2 Uncertainties in the reporting

Some uncertainties or differences in how countries report MSW recycling can result in different recycling levels. This applies, for example, to the following issues:

- the extent of packaging waste from households and similar packaging from other sources included or not included in the MSW recycling reported;
- the definition of municipal waste used by the country, such as the inclusion or exclusion of home composting;
- the methodology used to report the inputs and outputs of MBT and sorting plants.

Hungary includes recycled packaging waste when reporting the amounts of municipal waste recycled (Hungarian Central Statistical Office, 2014).

Hungary started building several MBT plants after 2000 to reduce the amount of combustible waste and MSW going to landfill, and in the expectation that the outputs from MBT will be used for co-incineration, in, for example, existing power plants as also outlined in the relevant strategy documents on MSW treatment. In reality, however, many MBT plants face a shortage in demand for the refuse-derived fuel (RDF) produced. According to the Hungarian Ministry of Agriculture (2015) the outputs of MBT are reported as landfilled. The outputs of waste sorting plants are reported as landfilled, recycled or composted.

The reporting requirements for waste data were changed as of 1 January 2015. In the new system, data reporting has to be done according to the following steps:
1. updating of data on the customer and waste management site of the basic environmental database;
2. submission and updating of authorisation;
3. notification and update of data reporting requirement;
4. data reporting annually/quarterly, depending on the activity in question.

Waste producers have reporting obligations by site if the annual amount of waste generated exceeds 200 kilograms hazardous waste, 2 000 kilograms of non-hazardous waste and 5 000 kilograms for non-hazardous construction and demolition waste. Public service providers have to meet reporting obligations for the waste they collected (Hungarian Ministry of Agriculture, 2015).

The reported data are stored and managed electronically in the Single Waste Management Information System (EHIR) and verified by a four level control system. Validation of data in EHIR is partly automatically done by the General Form Filling in Programme (ÁNYK) and by further controls incorporated in the system. The new system supports the administrator in data check functions. Professional verification and adoption of data is done by an expert at the territorially competent authority. If the authority finds the submitted data professionally inappropriate, they electronically send the data and a list of errors back to the party with the reporting obligation, who then corrects them. If the submitted data are correct, the authority accepts and loads them to the central database. The aim of examining the data quality is to avoid numerical and waste management mistakes (Hungarian Ministry of Agriculture, 2015).

2.3 Important initiatives taken to improve municipal waste management

For decades, the dominant treatment of municipal waste in Hungary was landfilling. The MSW management policies in the late 1990s and after 2000 are due to the efforts made mainly in order to incorporate EU regulations and objectives in waste management. A ban on landfilling untreated waste was implemented in 2002. The purpose of this key legal measure is to achieve a proper ratio and composition of the waste landfilled, to be in compliance with the Landfill Directive and to divert waste streams from landfill to incineration or recovery. In all types of landfill, the disposal of hazardous waste streams including waste tyres, shredded rubber has been banned since 2003, and there has been a partial ban on organic wastes in line with the interim targets for BMW, which has also resulted in the development of MBT and composting capacities.

The Act CLXXXV of 2012 on Waste ensures the implementation of the regulations set out in the WFD. The aim of introducing the Landfill Tax in 2013 was to reduce the landfill rate and to increase the recovery rate of reusable fractions by making landfilling more costly (Hungarian Ministry of Agriculture, 2015).

Another key measure to divert municipal waste from landfills and meet the targets of the Packaging Waste Directive was the introduction of separate waste collection systems throughout the country. A general campaign was launched in 2001 to gradually extend the network of free separate waste collection systems in public places. The purpose of the instrument was to dramatically increase the rate of recycling by making it easier to sort waste materials and more accessible for the public. The implementation of separate collection under the umbrella of extended producer responsibility (EPR) schemes – the Green Dot for packaging waste – resulted in increased separate collection of plastics, especially polyethylene terephthalate (PET), paper, glass and aluminium waste. In 2010, there were approximately 5 000 public separate collection facilities that collect 485 000 tonnes a year. Approximately 57 % of the population had access to these facilities and an additional 5-6 % had door-to-door separate collections.

The first NWMP was valid for the period of 2003–2008, but the second NWMP was never officially accepted for the next planning period (2009–2014). The third, for 2014–2020, however, was adopted in 2013 but also contains an analysis of the period 2009–2013 (Hungarian Ministry of Agriculture, 2015; BiPRO, 2014).

Already during the period of the first NWMP, a Strategy for the Management of Biodegradable Waste in Municipal Solid Waste Management (2004–2016) and a Development Strategy for Municipal Solid Waste Management (2007-2016) were prepared in advance to serve as the basis of future developments for municipal waste and BMW.

A National Biowaste Programme (2005–2008) to promote the diversion of BMW from landfill was launched in 2005. The order of priority was to reduce landfilling of BMW by improving green waste recycling, to encourage the separate collection of biowaste, and to raise awareness of and increase home composting, as well as building composting capacity. The separate collection of green waste became obligatory in Hungary from 1st January 2015, although some public service providers, however, had begun collecting green waste separately before then (Hungarian Ministry of Agriculture, 2015).

The general aims of the third NWMP (2014-2020) are to prevent waste, increase recycling, minimise landfilling of recoverable waste, and to a larger extent to consider waste as a resource. In order to reach these aims, separate collections of paper, plastics, glass and metal from households were introduced by 2015 and the system will be gradually extended to 50 % of households by 2022. A deposit scheme for beverage packaging will be initiated and extended producer responsibility schemes will be applied for more waste streams. The National Waste Prevention Programme is included as a part of the NWMP (BiPro, 2014).

The national legislation provides the framework for the nationwide introduction of pay-as-you-throw (PAYT) systems for municipal waste, but the organisation and maintenance of the public service of municipal waste is the responsibility of the local authorities. With the exception of a few municipalities, currently there is no widespread practical implementation of PAYT.

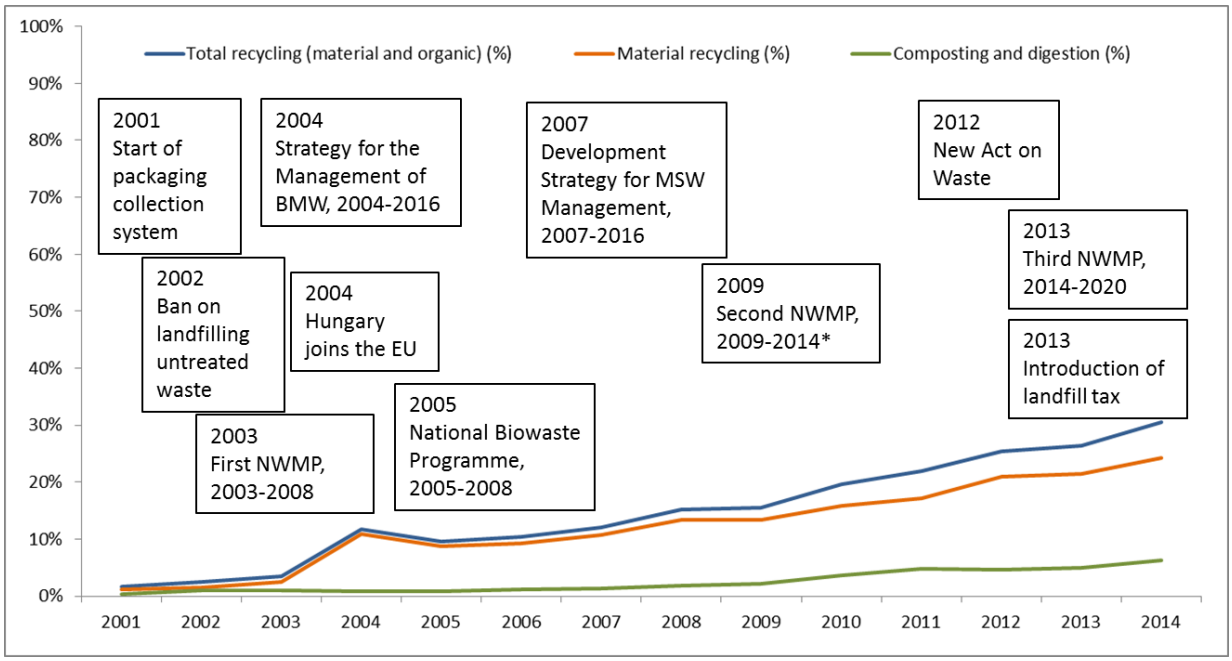
The only municipal waste incinerator in the country was built in the late-1970s in Budapest. Modernisation of the facility was carried out between 2003 and 2005 in view of legal requirements and in line with the technical standards set by the EU Waste Incineration Directive. While it was being modernised between December 2002 and December 2005, most of the municipal waste generated in Budapest was taken to landfills. Since then, this single incinerator with energy recovery

has been operating with an increased capacity of 420 000 tonnes per year. This is around 52 % of the municipal waste generated in Budapest.

On 1 September 2011 a National Waste Management Agency (Országos Hulladékgazdálkodási Ügynökség, OHÜ) was established. From January 2015 the agency became the National Waste Management Directorate of the National Inspectorate for Environment and Nature OKTF-NHI. The agency is a national coordinator, which mediates and organises the collection and recovery of waste and is also responsible for preparing the National Collection and Utilization Plan. The OKTF-NHI organises the selective collection system which is going to be financed from new environmental product fees to be paid on certain products by the producer or importer. Product fees have been used in Hungary, with several revisions and changes, since 1996. From January 2017 municipal waste collection activities will be undertaken by a new state controlled company called Nemzeti Hulladékgazdálkodási Koordináló és Vagyonkezelő Zrt. (NHKV) The aim of the new system is to make the selective collection more effective, reflective and available (expansive).

Some wide-ranging programmes have been introduced in the field of waste management, including awareness raising, the presentation and promotion of new techniques and tools for preventing waste generation, as well as for the reuse of waste. Civil-society organisations (NGOs) and the OKFT-NHI are also involved in these programmes.

Figure 2.6 Hungary, recycling of municipal waste in and important policy initiatives, 2001–2014



* Note: The 2nd National Waste Management plan 2009–2014 was not officially adopted.

2.4 Possible future trends

Material recovery is an approach widely accepted by the public in Hungary, and the population seems to cooperate in terms of using the existing free public waste collection facilities for packaging. The next aim is to better utilise this positive public attitude through separation at source which is planned to be implemented in most areas of the country.

The third NWMP (2014–2020) estimates that municipal waste generation in Hungary will gradually increase by 50 000 tonnes per year and will thus increase from 4.1 million tonnes in 2014 to

4.4 million tonnes in 2020. New sorting capacity of 160 000 tonnes per year became available in 2015, and bio-waste treatment capacity of 220 000 tonnes per year; three reuse centres and five new landfills with a capacity 2.7 million cubic metres are planned. A network of reuse centres is planned and three centres are expected to be operational by 2022. Additionally, 250 000–350 0000 tonnes per year of home composting is needed for the treatment for biodegradable municipal waste to complement facility-based treatment. (BiPRO, 2014)

Although the interim targets of the Landfill Directive for 2006 and 2009 have been met, the country may face some challenges in terms of meeting the 2016 reduction target of less than 35 % and to further improve recycling, especially organic recycling. The improvements in the diversion of waste from landfills is hindered by the fact that the market for compost from mixed MSW is poor, partially due to strict technical standards on compost and the general public's aversion to waste-derived compost. Several landfill sites with composting installations are in operation, but they are struggling to find markets for their products. Capacity usage is very low at only around 50 %. Only a fraction of the compost is sold on the private market.

To intensify the utilisation of bio-waste the third NWMP proposes measures to improve the acceptance and use of compost in agriculture and to develop quality standards for compost. Promotion of home composting and the development of sorting plants are further tools to enhance bio-waste recycling. A ban to landfill non-stabilised biodegradable waste is under consideration (BiPRO, 2014).

Currently there is only one municipal waste incinerator with energy recovery in operation in Hungary. The Hungarian Waste Act permits waste incineration or waste co-incineration if the incineration or co-incineration is directed to electrical and thermal energy production or cement, brick, tile, other construction materials and ceramic manufacturing. In addition, only non-recyclable materials are allowed to be incinerated.

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