

Municipal waste management



Estonia 

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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](#)

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<http://www.eea.europa.eu/publications/waste-prevention-in-europe-2015>

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Contents

Highlights.....	3
1 Introduction.....	4
1.1 Objective	4
2 Estonia’s municipal solid waste management performance	4
2.1 Municipal solid waste indicators	6
2.1.1 Municipal solid waste recycling from 2001 to 2014	6
2.1.2 Landfill of biodegradable municipal waste	8
2.1.3 Regional differences in municipal solid waste recycling from 2001 to 2013	9
2.1.4 Recycling and landfill taxes	9
2.1.5 Environmental benefits of better municipal solid waste management	11
2.2 Uncertainties in the reporting.....	12
2.3 Important initiatives taken to improve municipal solid waste management.....	12
2.4 Possible future trends.....	14

Highlights

- Estonia increased its recycling of municipal solid waste (MSW) from 5 % of that generated in 2001 to 31 % in 2014.
- Estonia does not include recycling of packaging waste in its reporting of regular MSW statistics.
- Estonia has significantly increased mechanical biological treatment (MBT) and incineration capacity during recent years.
- The 2020 target for biodegradable municipal waste sent to landfill was met in 2012. The main reason is the use of MBT and a diversion of garden waste from landfill to composting, incentivised by Estonia's landfill tax.
- The landfill tax has provided incentives to move waste treatment from landfill to material recycling and, more recently, to incineration.
- Cooperation on waste management between local government authorities is still weak and has not developed as planned.
- Changes in the methodology of regular MSW reporting to Eurostat are currently being discussed in Estonia.

1 Introduction

1.1 Objective

Based on historical municipal solid waste (MSW) data for Estonia, and EU targets linked to MSW in the Waste Framework Directive (WFD), the Landfill Directive and the Packaging Directive, 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 Estonia's municipal solid waste management performance

Estonia became an EU Member State in 2004. As part of the preparation for EU membership, the first national waste management plan (NWMP) for 2003–2007 focused on transposing EU waste legislation (EEA, 2009).

The Ministry of Environment is responsible for developing and implementing the NWMP and all other waste management policies. Under the Ministry there is an Environmental Board with six regional offices responsible for issuing permits (Estonia, 2012). Municipalities are in charge of organising the collection, transport and disposal of municipal waste (EEA, 2009; ETC/SCP, 2009).

Until 2007, Estonia had a three-tiered (national, county and municipal) waste management system. The 2007 amendment of the Waste Act changed the system to two tiers – national and local. This move aimed to give more responsibility to the municipalities and encourage them to pool their resources and strengthen their human and financial capacity for better waste management. For example, it is compulsory for municipalities to build on their management plans but they can now do so in coordination with other municipalities to form a regional plan. Upon preparation of a waste management plan, the provisions of the NWMP must be taken into account. (EEA, 2009; ETC/SCP, 2009)

According to paragraph 66 of the Local Government Organisation Act, the county governor exercises supervision and the National Audit Office inspects the activities of local governments, including municipal waste management. In addition, the Chancellor of Justice supervises the conformity of municipal and city legislation of general application with the Constitution and law of the Republic of Estonia. (Estonian Ministry of Environment, 2015)

Local waste management plans must set out (ETC/SCP, 2009):

- development of waste transport organised by a local government within its administrative territory;
- development of separate collection and sorting of waste, and corresponding deadlines for specific types of waste;
- financing of waste management.

The second Estonian NWMP was approved in 2008 and covers the period 2008–2013. For biodegradable municipal waste (BMW), the second NWMP gave general priority to separating biowaste from mixed MSW and suggested the separate collection of garden waste in cities and enhanced home composting in rural areas. It included targets for the reduction of biodegradable municipal waste sent to landfill.

The third Estonian NWMP was approved in 2014 and covers the period 2014–2020. The strategic objectives of the plan are based on the waste hierarchy with an emphasis on waste prevention and waste recycling or recovery. The main challenge identified is to increase recycling of biodegradable waste through greater treatment capacity and creating a nationwide collection and treatment network for biodegradable waste. Another focus is the collection point network for recyclables, which needs to be improved and the coverage increased. (BiPRO, 2014)

Approximately 95 % of the population is covered by a door-to-door waste collection service and 96 % of the municipalities have introduced a waste collection scheme including collection points or civic amenity sites. The collection and treatment service is provided only by private companies (BiPRO, 2014; Gibbs *et al.*, 2014a). The collection of recyclables and residual municipal waste is organised as follows:

- door-to-door collection takes residual waste from all households, paper from 75 % of households and bio-waste from 40 % of households;
- 95 % of collection points for recyclable materials take only packaging waste (paper and cardboard, glass and mixed packaging), while the remaining 5 % also take other recyclable materials (including textiles and non-packaging paper);
- civic amenity sites take bulky waste, tyres, garden waste, paper, metal scrap, waste electrical and electronic equipment (WEEE), hazardous waste, glass, and packaging waste, and some accept mixed waste, though it is very costly to deposit; civic amenity sites are especially important for the collection of WEEE and hazardous waste.

The collection of packaging waste (not covered by the deposit-refund system) is organised by three producer responsibility organisations. Packaging waste is mostly collected directly from companies and retailers. Packaging waste from households is mainly collected through the collection point system. In addition there is a very well-functioning deposit-refund system for glass, plastic and aluminium beverage containers (organised by a deposit organisation). (BiPRO, 2014)

The generation of MSW in Estonia increased from 509 000 tonnes in 2001 to 602 000 tonnes in 2007; and then decreased to 470 000 tonnes in 2014. According to reporting to Eurostat, 78–88 % of generated waste was reported as treated¹ in the period 2001–2014 (Eurostat, 2016). According to the Estonian Ministry of Environment (2015), the difference between generated and treated waste is caused by temporary waste storage and a small amount of unknown treatment procedures, as well as loss in mass when waste undergoes mechanical biological treatment (MBT).

Estonia currently has two different datasets on municipal waste, and discussions are ongoing between the Ministry of the Environment and the Statistics Department of the Estonian Environmental Agency about changes in the regular reporting of MSW data to Eurostat (Estonian Ministry of the Environment, 2015). Such a revision of the country's waste statistical data might require an updating of the graphs and analysis in this paper.

¹ Treatment rates are dependent on several factors:

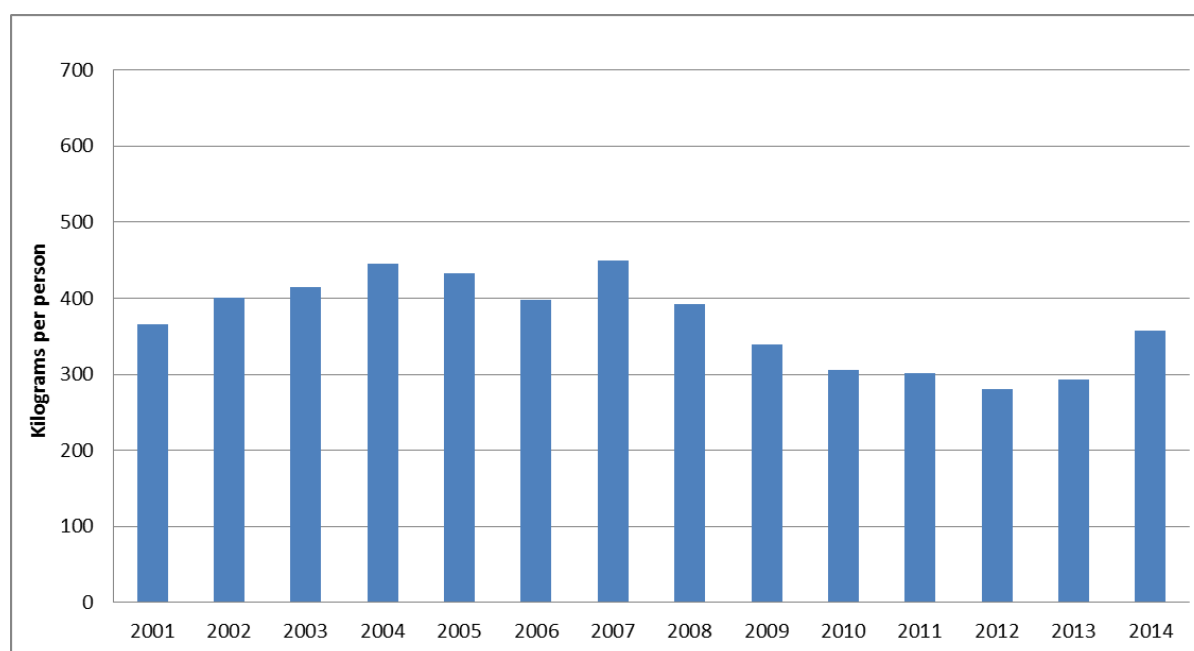
- waste undergoing MBT treatment undergoes a loss in mass, and as only final treatment amounts are to be reported to Eurostat, waste treatment rates might be lower than generation and collection rates;
- some countries estimate waste generation based on population (common where the collection coverage is less than 100 %), while treatment rates are based on actual waste amount statistics.

2.1 Municipal solid waste indicators

The following indicators illustrate the development of Estonian MSW management during 2001–2014. All percentage figures have been calculated as proportions of generated waste, not managed waste. Relating the indicators to managed amounts would generally result in higher rates for all waste management paths – this is also the case for Estonia.

Figure 2.0 shows the development of MSW generation per person in Estonia from 2001 to 2014. There was an increase in per person waste generation from 2001 to 2007 followed by a large decrease, and the level in 2014, 357 kilograms per person, was below the level in 2001. The decrease seems to be linked to the start of the economic crisis in 2008.

Figure 2.0 Estonia, municipal solid waste generation per person, 2001–2014



Source: Eurostat, 2016.

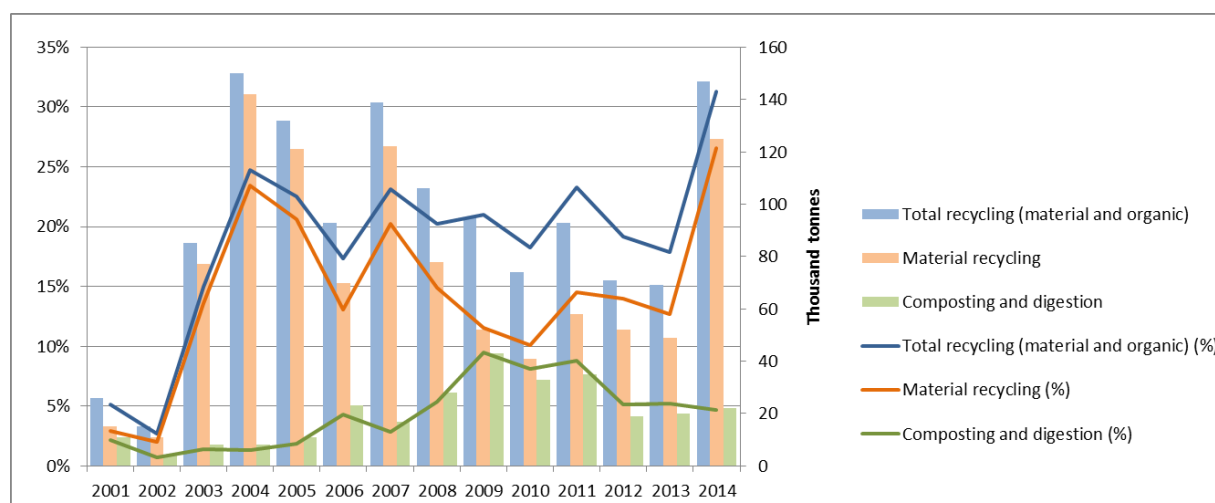
Until 2011 the majority of MSW in Estonia went to landfill, although there was a reduction from almost 80 % in 2001 to 6 % in 2011. In 2014 as little as 6.4 % of generated waste went to landfill (Eurostat, 2016). There will be no need for any new landfill facilities in the coming decades (BiPRO, 2014).

Municipal waste incineration was introduced in 2012, and since 2013 an incinerator in Iru with a capacity of 220 000 tonnes per year is fully operational. There is also one cement factory using refuse-derived fuel from municipal waste. (Estonian Ministry of the Environment, 2015)

2.1.1 Municipal solid waste recycling from 2001 to 2014

Figure 2.1 shows the development of total, material and organic (compost and other biological treatment) MSW recycling. The recycling rate is characterised by large fluctuations over the years. There was a steep increase from 18 % in 2013 to 31 % in 2014.

Figure 2.1 Estonia, recycling of municipal solid waste in Estonia, 2001–2014, per cent and tonnes



Source: Eurostat, 2016.

Figure 2.2 shows that some progress has been achieved but there is still much room for improvement in both material and organic recycling. The total increase in recycling is primarily linked to material recycling. Organic recycling rose between 2001 and 2009, but then decreased. The introduction of MBT facilities did not increase the recycling levels.

According to the Estonian authorities, the steep increase in the material recycling rate from 2002 to 2004 was in part caused by methodological problems. In these years a big sorting facility for mixed MSW in Tallinn came into use and recycling rates increased as a result. However, the sorting itself was considered a preliminary recovery operation prior to recycling, causing double counting when recycled and recovered amounts were being summarised. The Estonian authorities have since subtracted the pre-treated amounts from total recycled MSW and only registered the amounts sorted and actually recycled. The above-mentioned sorting facility has now ceased operating for economic reasons. (Estonia, 2012)

According to the Estonian Ministry of Environment some of the fluctuations in recycling rates in recent years can be explained by a reporting error. (Estonian Ministry of the Environment, 2015).

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 target². Estonia has chosen calculation method 2 (Gibbs *et al.*, 2014). According to this method, Estonia achieved recycling rates of 26.7 % in 2011, 26.8 % in 2012 and 31.2 % in 2013. The amount of waste generated

² 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).

was 366 346 tonnes in 2011, 338 878 tonnes in 2012 and 444 412 tonnes in 2013 (Estonian Ministry of the Environment, 2015). 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 has 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, including Estonia (EC, 2015).

Estonia will have to increase the recycling rate by 19 percentage points in the period 2013–2020 according to the chosen methodology, corresponding to 2.7 percentage points per year. Within the period 2001–2013, the country increased its recycling rate, calculated using data reported to Eurostat, method 4, by 1.1 percentage points per year.

While the results for the two methodologies are not comparable, these numbers give some indication that Estonia will have to increase its efforts in order to meet the target.

The high share of bio-waste in Estonia's mixed MSW means that a 50 % recycling rate will be difficult to achieve by 2020 without the use of bio-waste recycling (Estonia, 2012). According to the Estonian Ministry of Environment, achieving the target will largely depend on a willingness to introduce economic measures to facilitate separation at source (Estonia, 2012). In 2013 the Ministry of the Environment established national end-of-waste criteria for compost produced from bio-waste and preparations are ongoing for regulation on end-of-waste criteria for anaerobic treatment sludge to boost organic recycling (Estonian Ministry of the Environment, 2015).

2.1.2 Landfill of biodegradable municipal waste

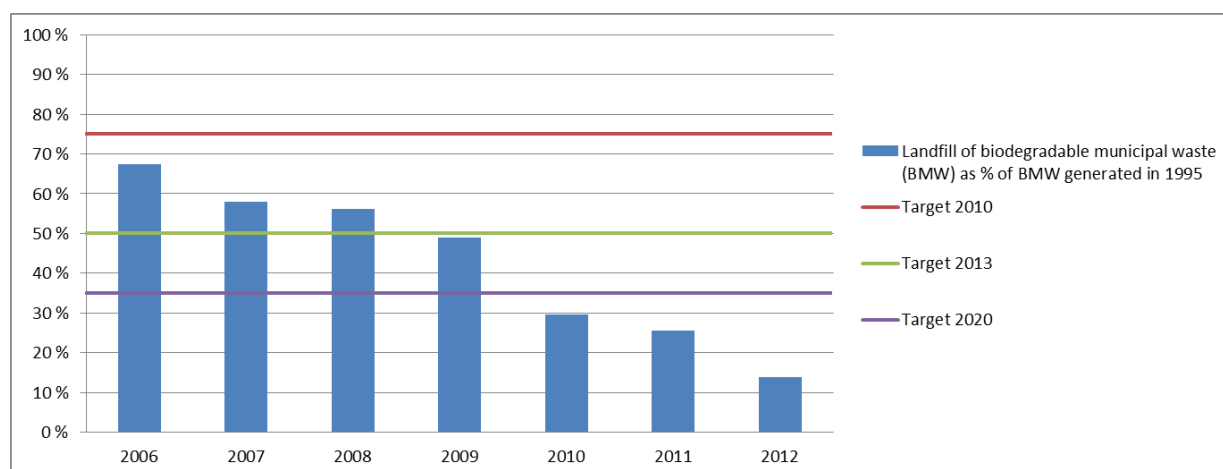
It is a general requirement of the EU Landfill Directive that all Member States reduce the amount of BMW sent to landfill by a specific percentage by 2006, 2009 and 2016. However, Estonia has been given a four-year derogation period. Targets relate to the amount of BMW generated in 1995, when Estonia generated 317 000 tonnes.

The 2004 NWMP set targets for diverting BMW from landfill and the 2004 Waste Act introduced a ban on depositing untreated waste, including municipal waste, in landfill. However, this only applied to landfills in counties that had an established facility for treating municipal waste before 1 January 2008 (EEA, 2009).

The second (2008) NWMP defined a strategy for reducing BMW landfill. According to this NWMP as well as the Waste Act, biodegradable municipal waste must not exceed 45 % by weight of total MSW landfill from 2010, 30 % from 2013 and 20 % from 2020 (ETC/SCP, 2009; Estonia, 2007). These limits differ from the EU Landfill Directive targets because they relate to MSW landfill amounts and not to the amount of BMW generated in 1995. However, in practice, the targets seem to be stricter than those in the Landfill Directive, unless there is a huge increase in total MSW landfill in the future.

Estonia has reported its BMW landfill to the European Commission for the years 2006–2012. In 2006, it amounted to 214 000 tonnes; equivalent to 68 % of the amount generated in 1995. It then decreased steadily to 44 000 tonnes (14 %) in 2012.

Figure 2.2 Estonia, landfill of biodegradable municipal waste, 2006–2012, % of biodegradable municipal waste generated in 1995



Source: EC, forthcoming; EC, 2014.

Note: the target dates take account of the 4-year derogation period.

Figure 2.3 shows a steady reduction in the percentage of BMW sent to landfill in Estonia. Estonia had already fulfilled the Landfill Directive's requirement to reduce BMW landfill to 75 %, relative to 1995, by 2006, way before the 2010 deadline. The 50 % requirement to be fulfilled in 2013 was already achieved in 2009 and the 35 % target for 2020 was fulfilled in 2012.

Estonia's own target of BMW landfill not exceeding 45 % by weight of total MSW landfill from 2010 onwards (ETC/SCP, 2009) has not been reached. The BMW landfill share only decreased from 57 % in 2006 to 50 % in 2012 (Eurostat, 2016; EC, 2014).

The reduction in BMW landfill appears to be mainly linked to increasing use of MBT, which began on a small scale in 2007. Estonia now has four operating MBT plants with a total theoretical capacity of 300 000 tonnes, whereas centralised composting capacity is limited (Estonia, 2012; Moora, 2012).

Another explanation for the reduction in BMW landfill is that the 1995 figure for generated BMW included a lot of collected garden waste. Today, the landfill gate fee, including the landfill tax, is about EUR 50 per tonne, so most garden waste is no longer sent to landfill but home-composted or composted in parks. In both cases the generation and recycling of this waste is not reported (Estonia, 2012). There are 40 composting facilities in Estonia, mostly for treating garden waste and sewage sludge (BiPRO, 2014).

2.1.3 Regional differences in municipal solid waste recycling, 2001–2013

No regional data for recycling has been reported to Eurostat by Estonia.

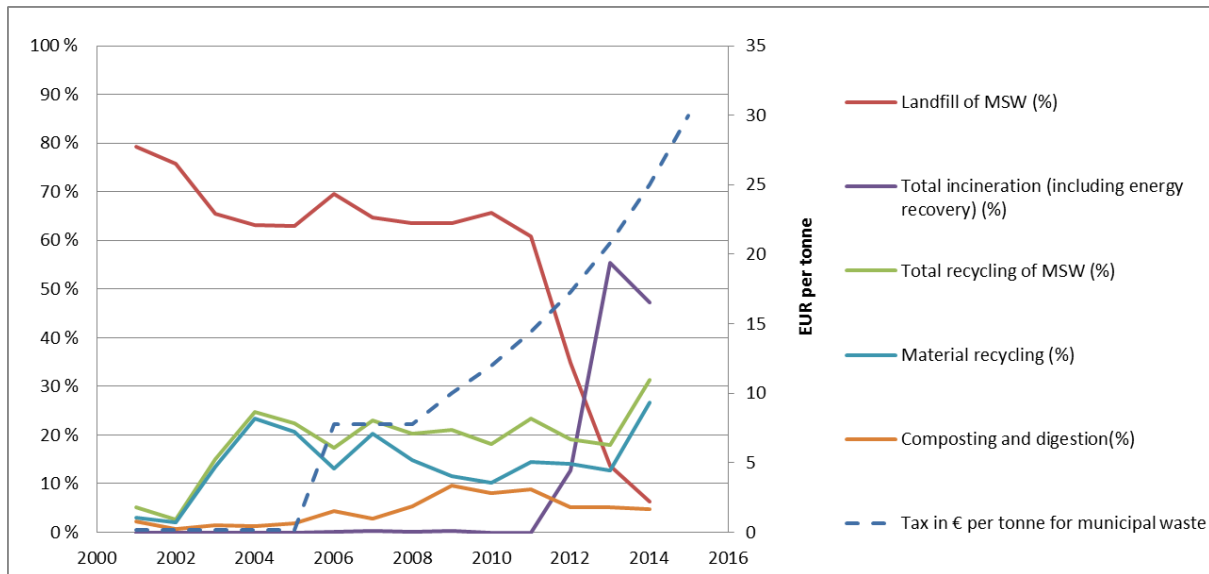
2.1.4 Recycling and landfill taxes

A landfill tax was established in Estonia in the first half of 1990. All waste is subject to the tax, though the rate depends on the type of waste (ETC/SCP, 2012). Furthermore, in some cases the Environmental Charges Act establishes increased rates for environmental charges. Charges increase if waste is sent to landfill in quantities above a certain level. If limits are exceeded, then every tonne over the limit will incur a charge ranging from five to 500 times more than the standard fee, depending on the category (hazardousness) of the waste. The mechanism dates back to the era of the USSR (1989), when illegal (unlicensed) disposal was commonplace and the increased rate was a

penalty rather than tax. The present law retains some features from this time. The increased rates must also be paid in cases where waste is put in landfills that do not meet the Landfill Directive's requirements. (Estonia, 2012)

The landfill tax for municipal waste increased from EUR 0.10–0.20 per tonne in 1996 to EUR 7.8 per tonne in 2006, EUR 10 in 2009 and EUR 12 in 2010, and then increased by 20 % per year to EUR 30 per tonne by 2015 (ETC/SCP, 2012). The tax is complemented by a ban on landfill of untreated waste (EEA, 2009).

Figure 2.3 Estonia, landfill tax and municipal solid waste management in Estonia, 2001–2014 and EUR per tonne



Source: Eurostat, 2016; ETC/SCP, 2012.

Figure 2.3 shows that there is a correlation between raising the landfill tax and a drop in the amount of MSW sent to landfill, with a slight delay. The drop is significant, especially with the introduction of incineration in 2012. The high landfill tax has also resulted in a decrease in landfill of garden waste, much of which is now home-composted or composted in parks, and goes unreported (Estonia, 2012).

However, as mentioned above, the landfill tax has provided incentives for MBT (pretreatment), which – in addition to generating refuse-derived fuel for incineration – also leads to a small amount of recycling, primarily of metals. This amount does not appear to be registered as recycled MSW. The Estonian authorities are currently discussing the reporting methodology for waste undergoing MBT.

Much of the tax revenue has been used for the construction of new landfill sites. For the municipalities – which receive 75 % of the collected tax as a refund towards the municipal budget – the fact that MBT prior to landfill and incineration is becoming more common has resulted in reduced revenues, and there is currently no alternative financing system in place. Fortunately, this has not led to the promotion of landfill, partly because environmental awareness is better, but also because citizens are very sensitive on the subject of taxes, and landfill would raise the cost of municipal waste management. (Estonian Ministry of Environment, 2015; ETC/SCP, 2012; Eek, 2011)

According to the Estonian Ministry of Environment there has been sufficient money available for investment in recycling facilities partly because of funding from the EU Cohesion Fund. However, there have not been enough good projects to support. Furthermore, the level of recycling does not depend directly on national recycling capacity. As a small country, Estonia will always find it difficult to reach

100 % domestic recycling, which would always be a huge economic challenge. The main barrier to recycling has been soft supervision of the existing targets and lack of enforcement. (Estonia, 2012)

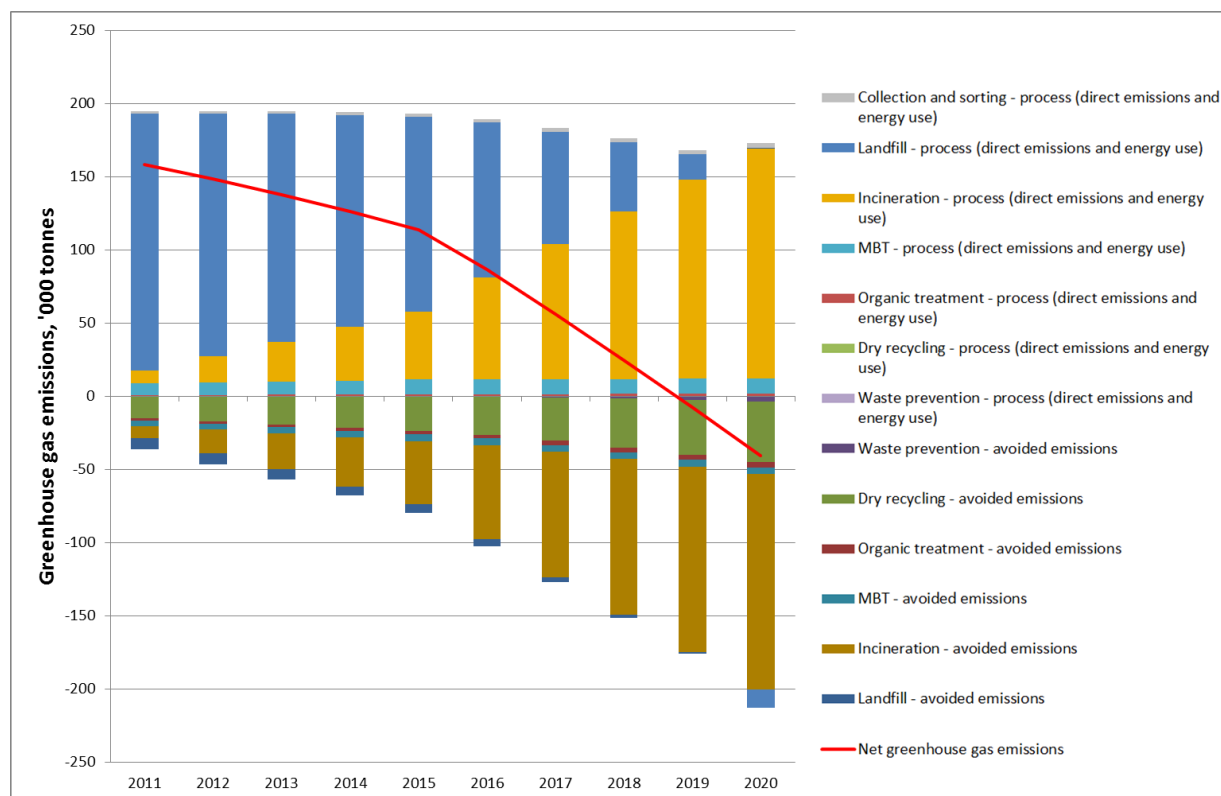
2.1.5 Environmental benefits of better municipal solid waste management

Figure 2.4 shows a scenario for the development of greenhouse gas emissions from MSW management in Estonia. The scenario assumes a 2.8 % average yearly increase in municipal waste generation for the years 2011–2020, and that the EU legislation for municipal waste is 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 with the generation of energy from waste management processes. The more detailed methodology is described in Gibbs *et al.* (2014b). The level of emissions depends on the amount of waste generated and the treatment it undergoes each year.

Figure 2.4 shows direct emissions, avoided emissions and net emissions resulting from the management of MSW. All the emissions (positive values) represent 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; and incineration and landfill.

For avoided emissions (negative values), the calculations integrate the benefits associated with energy recovery and material recycling of paper, glass, metals, plastics, textiles and wood, and bio-treatment of food and garden waste from MSW (Gibbs *et al.*, 2014c).

Figure 2.4 Estonia, scenario for greenhouse gas emissions from municipal solid 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 scenario with full policy implementation, net greenhouse gas emissions from the treatment of municipal waste in Estonia are expected to decrease slowly during 2011–2020. In the first years of the scenario direct emissions related to municipal waste management are caused almost exclusively by landfill, while the benefits of recycling are relatively low.

Greenhouse gas emissions from landfill are caused by the breakdown of organic wastes accumulated over past decades. In the model, which calculates landfill impacts over a 100-year period, the longer-term emissions from any given waste are attributed to the year in which that waste is deposited (Gibbs *et al.*, 2014b). Therefore, the positive effect of diverting BMW from landfill shows in the figures as an immediate reduction in greenhouse gas emissions from landfill. According to the model, towards 2020, an increasing share of the direct emissions from waste management in Estonia will come from 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 reported MSW recycling ;
- 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.

The definition of municipal waste used in Estonia follows the EU definition (as in Commission Decision 2011/753/EU); however, Estonia does not include the codes 15 01 (packaging) from the European List of Waste in its MSW reporting (Gibbs *et al.*, 2014a). This has been confirmed by the Estonian Ministry of the Environment (2015). Consequently, MSW recycling rates are systematically underestimated in the MSW data reported to Eurostat. Including part of the recycled packaging as MSW could potentially increase Estonia's recycling rate for MSW.

Estonia has recently set up MBT plants with a total theoretical capacity of approximately 300 000 tonnes. The full use of this capacity is not realistic, however, and BiPRO (2014) reports a capacity of 240 000 tonnes. In addition, it is unclear how these MBT plants will be utilised in the future due to the new incineration plant coming into operation in 2013, as a surplus of MBT capacity might occur (Estonia, 2012). Waste treated by MBT in 2012 was included in material recycling data reported to Eurostat, whereas in 2013 it was reported under 'other recovery'. The Estonian authorities are currently discussing the issue and plan to send corrected data to Eurostat. (Estonian Ministry of the Environment, 2015)

2.3 Important initiatives taken to improve municipal solid waste management

Waste management was much affected by a rather radical shift towards privatisation when Estonia switched to a market-based economy in the 1990s. The former public waste management sector underwent near-complete privatisation. The municipalities took responsibility for organising the collection of MSW and defining how the waste should be treated, but the collection was undertaken by private companies engaged by tender. The advantage of this process was that it harnessed rapid investment in collection equipment and management. The disadvantages were that it was difficult to steer waste management towards recovery or to check whether households were connected to a collection scheme, and the municipalities' incentive to be involved in waste management became more

limited. Since 2000, there has been continuous pressure to bring the municipalities back to waste management in order to achieve better results (Eek, 2011).

Estonia introduced a pollution charge for municipal waste disposal in 1990. The tax was low compared to other European landfill tax rates, but increased considerably over the years, reaching a level of EUR 30 per tonne by 2015 (ETC/SCP, 2012). Together with the ban on sending untreated waste to landfill, the tax provided incentives for diverting waste away from landfill.

The first NWMP covering 2002–2007 had as a main goal the harmonisation of national waste management with EU legislation, and the transposition and implementation of EU waste handling principles (ETC/SCP, 2009). Furthermore, there was a central focus on closing the old landfill sites and building new ones. Moreover, it included proposals for networks of regional landfills and municipal cooperation structures. Incineration was considered too expensive, even with financial EU support available (Eek, 2011).

The focus on closing old landfill sites and building new ones has been a success. Estonia had 221 landfills towards the end of the 1990s. Today it has five for non-hazardous waste (Estonia, 2011) and capacity is enough for the current landfill level. However, since landfill will drop further in the coming years, more capacity will be available than needed, so there has been some over-investment (Eek, 2011).

The first NWMP also set targets for the diversion of BMW from landfill, and the Waste Act (2004) introduced a ban on sending untreated waste to landfill, including MSW (EEA, 2009).

The second NWMP covering the period 2008–2012 included, as mentioned in Section 2.1.3, ambitious targets for reducing BMW and MSW sent to landfill (ETC/SCP, 2009).

An obligatory deposit on both refillable and non-refillable beverage packaging was passed by parliament in 2004 and came into force in 2005. The return percentages are very high depending on type of material, i.e. larger than 85 % for all beverage packaging (Eunomia, 2011). The system has been particularly effective in recovering beverage packaging waste (Moora, 2012).

Some progress has been made in improving cooperation between the public and private sectors regarding MSW management. Local authorities in Estonia have much less control over the development of waste management systems than in other EU Member States. Few municipalities in Estonia have joined waste management cooperation structures, and the waste management market is to a great extent controlled by the private sector. There are also problems regarding ownership of the waste and intense commercial competition between private waste management companies (Moora, 2012).

The two earlier NWMPs have focused on improving the cooperation of local governments in the field of waste management, but this cooperation is still weak and has not developed as planned. There are counties where there are no cooperation structures whatsoever. In others, while such cooperation structures have been launched, their contribution as a whole is imperceptible (Estonia, 2011).

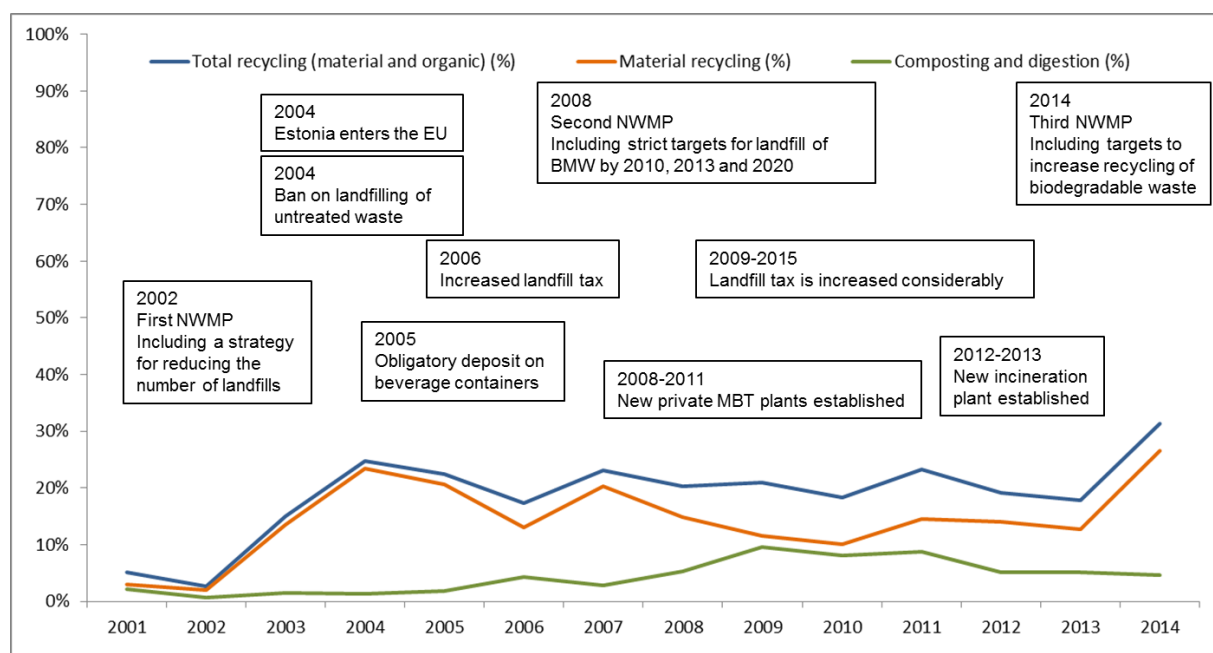
The third Estonian NWMP targets waste prevention and waste recycling or recovery. The objective is to increase recycling of biodegradable waste and improve the collection point network for recyclables (BiPRO, 2014).

Extended producer responsibility (EPR) is an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle. In practice, EPR implies that producers take over the responsibility for collecting or taking back used goods for sorting and treatment. Estonia has EPR systems for batteries, WEEE, packaging, end-of-life vehicles, waste tyres and waste agricultural plastic.

- There are two producer responsibility organisations for collection of batteries (BiPRO, 2014).

- There are three producer responsibility organisations for collection of WEEE: MTÜ EES-Ringlus (117 collection points), MTÜ Eesti Elektroonikaromu (90 collection points), Ekogaisma Eesti OÜ (collection of light bulbs at 131 collection points) (BiPRO, 2014).
- There is no distinction between industrial and commercial rather than household packaging waste. There is a deposit refund system for beverage packaging organised by a deposit organisation. For other packaging waste the system is organised by three producer responsibility organisations. The container collection network for households is not well developed: the number of collection points is too small, and it is not possible to collect all types of packaging waste at each collection point. (BiPRO, 2014)

Figure 2.5 Estonia, recycling of municipal solid waste in and important policy initiatives, 2001–2014



Source: Eurostat, 2016

2.4 Possible future trends

Estonia does not fulfil the criteria stated in Article 11 (3) of the EU WFD to obtain a derogation period for meeting the 2020 target of 50 % MSW recycling. Therefore, as indicated (Section 2.1.1), if Estonia is to meet the target by 2020 using the chosen calculation method (method 2) of Commission Decision 2011/753/EU, it would be necessary to achieve a very high annual increase in recycling from 2013 to 2020. It is possible that part of the increase can be fulfilled by including some of the recycled packaging waste from MSW sources more systematically in reported recycled MSW (Section 2.2).

Good results have been achieved in diverting BMW from landfill and instead sending it for pre-treatment. This has been achieved through a combination of planning, legislative and economic incentives. The necessary investment in new landfill sites and MBT plants has been made, supported by Nordic countries and later EU funds (Eek, 2011), and one incinerator with a significant capacity began operating in 2012–2013. However, there is a high risk that the success in diverting waste from landfill to primarily energy recovery will have a negative impact on separated MSW collection and recycling schemes, putting Estonia at risk of not meeting the 50 % MSW recycling target.

It is estimated that recycling in Estonia could increase by nearly 100 000 tonnes. There is high potential, especially for bio-waste recycling, and therefore the development of separation at source is crucial. Waste streams covered by EPR can also contribute to increasing recycling of waste streams linked to MSW (Eek, 2011).

Under all circumstances, the necessary increase in recycling will require a major effort on the part of the Estonian government and local authorities, and good cooperation between the public and private sectors if sufficient separate collection schemes and treatment capacity are to be secured. The positive experience gained from planning and implementing the diversion of MSW and BMW from landfill must be transferred to increasing MSW recycling.

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