European Environment Agency

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Municipal waste management in Latvia

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February 2013

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Context
The Topic Centre has prepared this working paper for the European Environment Agency (EEA) under its 2012 work programme as a contribution to the EEA's work on waste implementation.

Contents

Highlights

Main points regarding MSW management in Latvia

- Around 90 % of MSW generated in Latvia is still being landfilled;
- Municipalities are responsible for MSW management in their administrative territories;
- Recycling of MSW has increased since 2002, mainly driven by material recycling, but the total recycling rate of MSW is still very low;
- If the trends of MSW recycling of the last ten years are projected into the future, it will require an extraordinary effort to fulfill the EU recycling target of 50% by 2020;
- There is one operational and nine planned MBT facilities in Latvia;
- There is no infrastructure for waste incineration in Latvia.

1 Introduction

1.1 Objective

Based on historical MSW data for Latvia and EU targets linked to MSW, the analysis undertaken includes:

- The historical performance on MSW management based on a set of indicators,
- Uncertainties that might explain differences between the countries' performance which are more linked to differences of what the reporting includes than differences in management performance,
- Relation of the indicators to the most important initiatives taken to improve MSW management in the country, and
- Assessment of the future possible trends and achieving of the future EU targets on MSW by 2020.

2 Latvia's MSW management performance

The waste sector was poorly developed at the beginning of the 1990s, although collection systems for MSW were in place, along with some recycling facilities (MEPRD, 2012). However, the collected waste was dumped in hundreds of uncontrolled sites which fell well short of EU environmental standards. The treatment of industrial and hazardous waste was also far from current EU standards, and water and soil contamination was prevalent (Baltic Environmental Forum, 2004).

The Ministry of Environment in Latvia had to start from zero: building up a legislative framework for waste handling; creating institutions and defining responsibilities; developing waste management strategies; setting targets for single waste streams and, at the same time; defining measures for the continuous improvement of the system (Baltic Environmental Forum, 2004).

Recognising waste management as a priority for environmental policy, various strategies and plans have been elaborated with the aim of developing an efficient waste management system complying with the European Community's and other relevant international waste management policies' principles and requirements (Baltic Environmental Forum, 2004).

Among the recent achievements in municipal waste management in Latvia are (BIPRO, 2012):

- Reduction of municipal waste generation between 2008 and 2010, which remains considerably low compared to the EU average (304 kg/year/inhabitant compared to around 487 kg);
- Increase in recycling rates (however the total recycling rate is still low);
- Restrictions regarding the disposal of municipal waste in landfills are in place;
- Good information on waste generation and treatment capacity;
- No infringement procedures or court cases concerning the WFD and the Landfill Directive;
- All landfills are compliant with the requirements of the Landfill Directive;
- Separate collection infrastructure and sustainable waste management is under development;
- Pilot projects on bio-waste treatment (collection and composting);
- Involvement of universities in the development of policy instruments and information exchange on sustainable waste management;

- Improvement of the solid household waste management in the Ventspils region (including the elimination of existing and potential pollution from 13 dump sites, which were closed and remediated, diversion of the recyclable material to the material market, updating the natural resource tax and a landfill waste registration system).

In 1998, the Cabinet of Ministers approved the Municipal Waste Management Strategy 1998 – 2010. The main objective of the strategy was to reduce the environmental impact of waste disposal, reduce the incidences of illegal dumping and disposal of wastes at dump sites, reduce the dump sites' environmental impacts, reduce waste generation and increase recycling and reuse of existing material. The strategy foresaw the establishment of a regional approach to waste management, with the construction of new regional municipal waste treatment facilities (landfill) and municipal waste management services (Latvia, 2005). The Waste Management Law was adopted in 2001, while the first National Waste Management Plan was adopted in 2002. In December 2005, the National Waste Management Plan 2006 – 2012 was approved. The purpose of this plan is to prevent waste generation and to promote recycling of waste.

According to estimations given in the National Waste Management Plan (Latvia, 2005), 600 000 to 700 000 tonnes of municipal waste is generated in Latvia per year. Furthermore, it was estimated that generation of municipal waste would have increased from 728 000 tonnes in 2005 to 838 000 tonnes in 2012. Around half of this amount was anticipated to be biodegradable municipal waste. It should be stressed that those estimations were given in 2005, and did not foresee the economic crisis that hit in 2008/2009. Therefore, the real amount of generated municipal waste for the period 2009 – 2012 is lower than the amount estimated by the National Waste Management Plan.

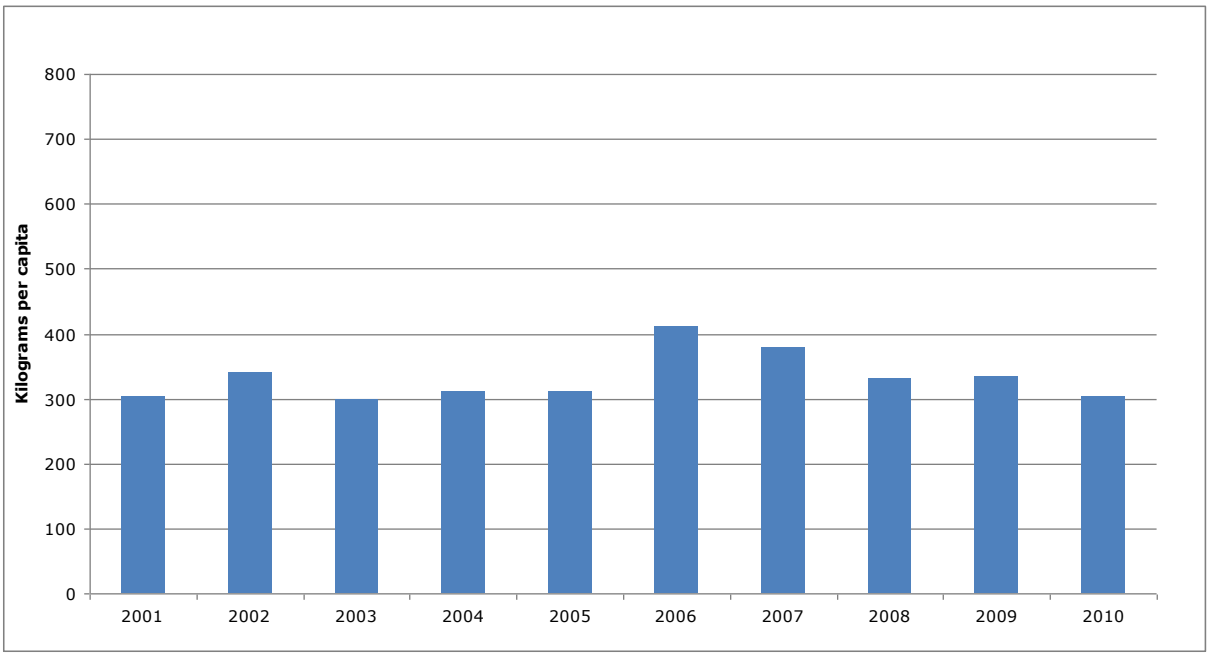
In Latvia, policy planning regarding waste management is carried out at national and regional level. The National Waste Management Plan for 2006–2012 and regional waste management plans have been implemented, and almost all local governments have issued binding regulations (Latvia, 2009). The new National Waste Management plan for the period 2013–2020 is being drafted by relevant institutions, and is expected to be completed by the end of 2012.

2.1 MSW Indicators

Figure 2.0 shows the development of MSW generation per capita in Latvia from 2001 to 2010. After a period of stabilisation, MSW generation reached a maximum in 2006, followed by a slight but constant decrease thereafter.

According to official data, there was a big increase of amount of collected municipal waste in 2006 (generated MSW is estimated based on amounts of collected waste). In years 2008, 2009 and 2010 there was a big decrease in the Latvian economy, which may be taken as a logical explanation for decreasing of MSW generation.(LEGMC, 2013)

Figure 2.0 MSW generation per capita in Latvia



Source: Eurostat, 2012. The data for the year 2001 is estimated. There is a break in the time series from 2002 onwards, due to the use of a new data source.

The majority (around 90 %) of MSW generated in Latvia is still landfilled.

Since 1998, the number of waste dump-sites in Latvia for municipal waste/household waste has decreased from 558 (77 % of which were smaller than 2 hectares) to 99 sites in 2006. Due to the financial aid granted by the Cohesion Fund and European Regional Development Fund 270 dump-sites have been closed and land-recovered (Latvia, 2009).

Local governments are responsible for household waste management in their administrative territories. According to the Waste Management Law, local governments organise the management of household waste, including hazardous waste produced by households, in compliance with the state and regional waste management plans within their administrative territories.

Moreover, there are binding regulations which regulate the following:

- The management of household waste within administrative territories;
- The division of the administrative territories into household waste management zones;
- Fulfilling the requirements for collection, transport, re-loading and storage of waste;
- The management of waste management payment procedures;
- The organisation of separate waste collection within the respective administrative territories (Latvia, 2009).

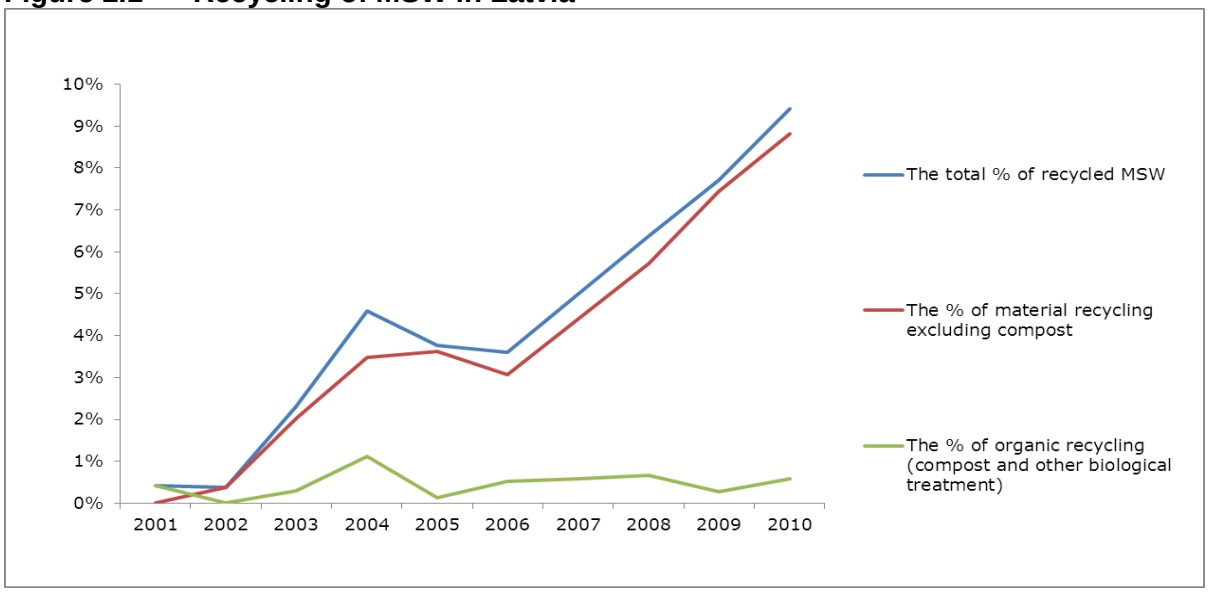
Municipalities also have responsibility for the procurement of MSW management services. The division of the municipal administrative territories into household waste management zones allows a municipality to have two or more waste management companies collect waste in the respective administrative territory (MEPRD, 2012).

It is planned to increase the connection rate of inhabitants to a waste collection system from about 60 % in 2005 to 90 % in 2013. At present, 80 % of the urban population are connected to the collection system (BIPRO, 2012).

2.1.1 The recycling of MSW from 2001 to 2010

Figure 2.1 shows the development of recycling of MSW in Latvia in terms of the total recycling level, material recycling and organic recycling (compost and other biological treatment). The figure illustrates a positive trend in the recycling of MSW since 2002. After experiencing a slight drop[1] in 2005 and 2006, the rate of MSW recycling has increased steadily ever since. The percentage of total recycled MSW (material recycling and organic recycling) increased from 2 % in 2003 to 9 % in 2010. In absolute terms, the increase in amount was from 16 000 tonnes in 2003 to 64 000 tonnes in 2010.

Figure 2.1 Recycling of MSW in Latvia



Source: Eurostat, 2012. The percentages are calculated as % of generated MSW.

The total increase of recycling is almost entirely due to an increase in material recycling, which has increased from 2 % (14 000 tonnes in absolute terms) in 2003 to 9 % (60 000 tonnes) in 2010.

In the same period, there has been an almost negligible increase in organic recycling, reaching a peak of 1 % (8 000 tonnes) in 2004, fluctuating below 1 % thereafter.

There is room for further improving both material, and in particular, organic recycling.

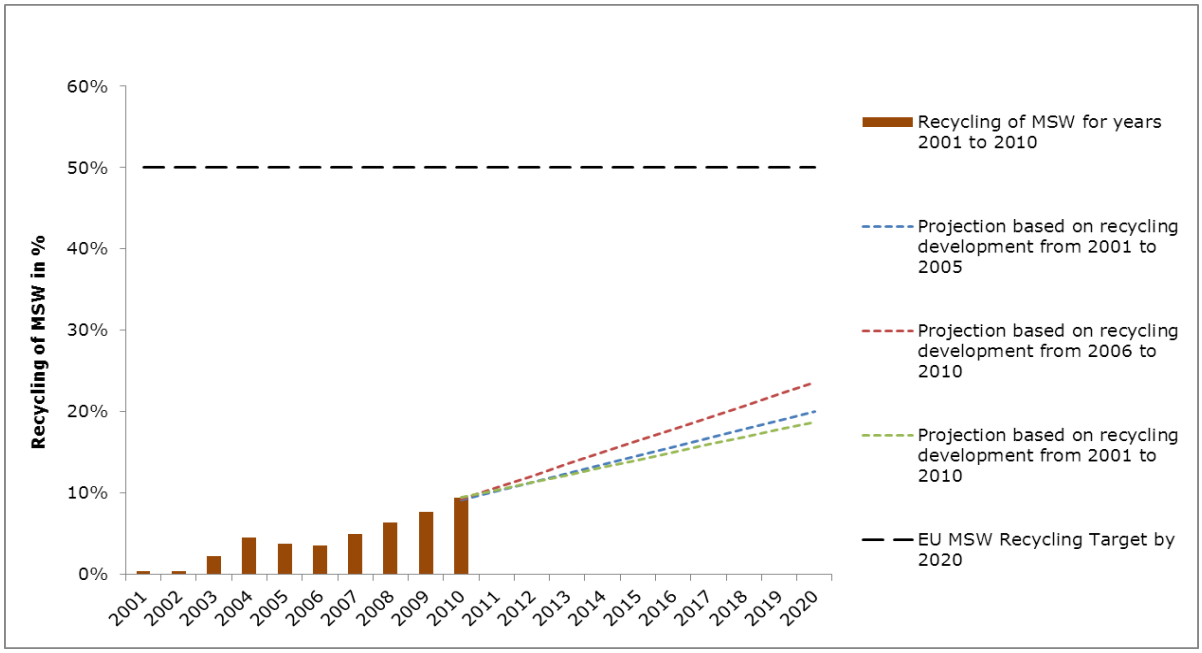
2.1.2 The yearly increase rate of recycling of MSW

In order to assess the prospects of Latvia meeting the 50 % recycling target as set out in the Waste Framework Directive[2], three scenarios have been calculated. Figure 2.2 shows that if the rate of increase in recycling over the last five years can be maintained, the recycling rate would reach 24 % in 2020, which is considerably below the 50 % target set in the EU legislation for 2020. Therefore, it will require an extraordinary effort in Latvia to move the recycling rate to 50% by 2020.

[1] This drop may be explained as a statistical issue, not a real decrease in amount. The recycling figures until 2004 have been calculated by relating the reported amounts of recycling to the collected amounts. From 2005 onwards, the percentages have been calculated by relating the recycling amounts to the (larger) generated amounts of MSW.

[2] The EU's updated Waste Framework Directive from 2008 (EU, 2008) includes a new 50 % recycling target for waste from households, to be fulfilled by 2020. In 2011, the European Commission decided that countries can choose between four different calculation methods to report compliance with this target. One of these methods is to calculate the recycling rate of MSW as reported to Eurostat (EC, 2011).

Figure 2.2 Future recycling of MSW in Latvia



Source: Calculation by Copenhagen Resource Institute (CRI), based on Eurostat, 2012

It has to be kept in mind that these three scenarios are very simplistic and do not take into account any planned policy measures. In addition, they are based on one calculation methodology for recycling of municipal waste (MSW recycled/MSW generated, using data reported to Eurostat) whereas countries may choose to use another methodology to calculate compliance with the 50 % recycling target of the Waste Framework Directive. The scenarios in Figure 2.2 should therefore be interpreted only as to give some rough indications and assessment of the risk of missing the target.

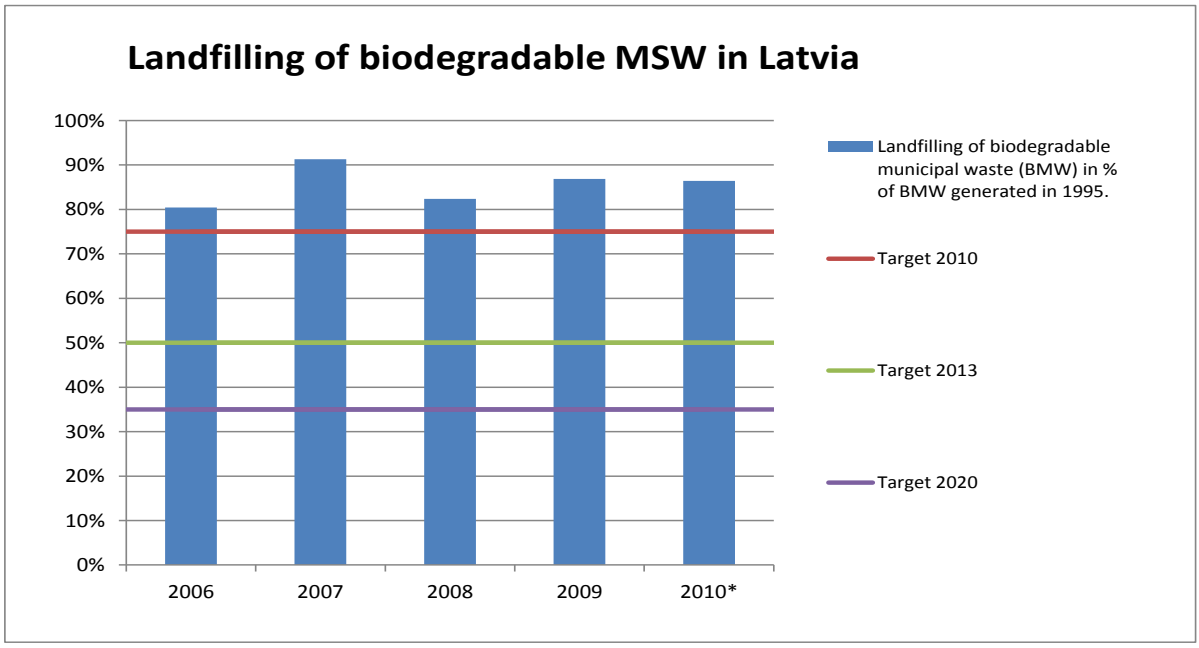
2.1.3 Landfilling of biodegradable municipal waste

According to the EU Landfill Directive, EU Member States have to reduce the amount of biodegradable municipal waste (BMW) landfilled by a certain percentage by 2006, 2009 and 2016. As a country that landfilled more than 80 % of its MSW in 1995, Latvia has been granted a derogation period of four years and has thus to meet the targets by 2010, 2013 and 2020, respectively. In 1995, Latvia generated 460 000 tonnes of BMW.

The first target of the Landfill Directive that Latvia has to meet is to reduce BMW landfilled to 75 % of the generated amount in 1995. Latvia has reported data on BMW landfilled for 2006-2009. Data for 2010 is not yet available so therefore the 2010 figure presented in figure 2.3 has been estimated by the ETC/SCP. It was calculated by subtracting the increase in the amount of MSW going to composting from 2009 to 2010 from the amount of BMW being landfilled in 2009. This is only a rough estimate, but compared to 2006, the estimated amount of landfilled BMW in 2010 increased to 397 525 tonnes (equivalent to 86 % of the quantity generated in 1995). Based on the estimate, the 2010 target of 75 % seems to have not been achieved.

The figure also indicates that huge efforts have to be undertaken in Latvia to fulfill the 50 % target by 2013 and the 35 % target by 2020.

Figure 2.3 Landfilling of biodegradable MSW in Latvia



Source: EC, 2012 and CRI calculation * The figures for 2010 are CRI estimations. The target dates take account of Latvia's 4 years derogation period.

2.1.4 Regional differences of MSW recycling from 2001 to 2010

Latvia has not reported regional MSW recycling data to Eurostat, so this indicator can not be applied in this report.

2.1.5 The relation between landfill tax level and recycling level of MSW

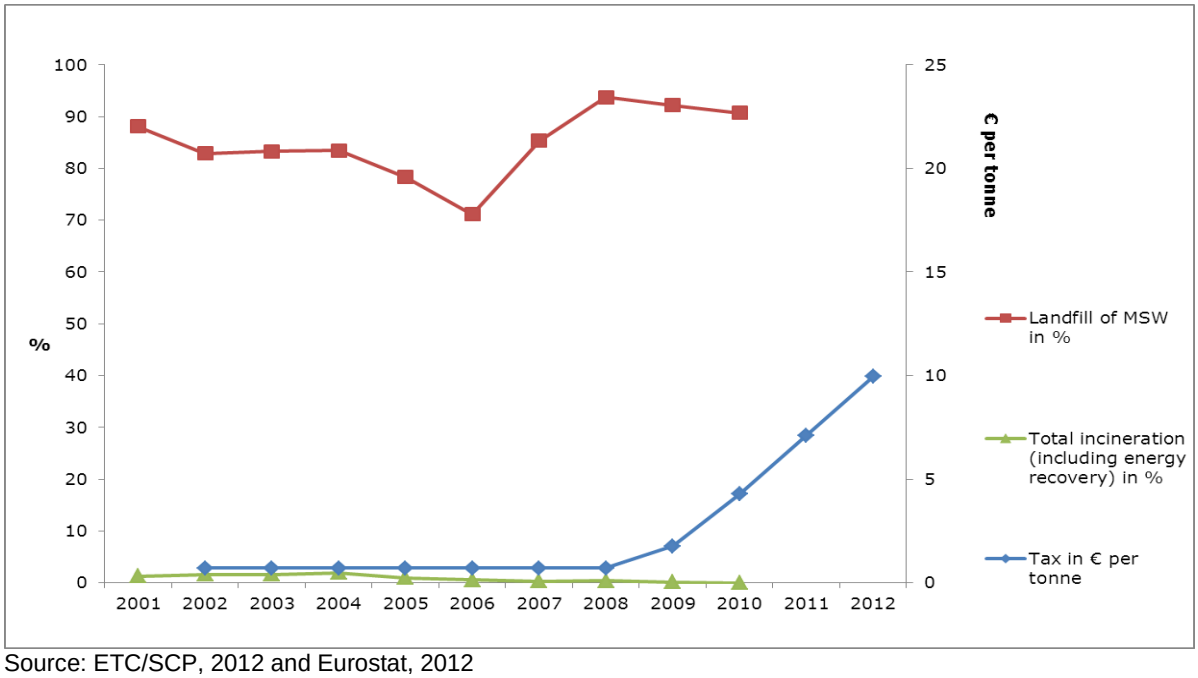
Latvia has introduced a landfill tax within the Law on Natural Resources Tax. The landfill tax was introduced in Latvia in 1991 and amended in 1996 and 2006 (ETC/SCP, 2012).

The taxpayers receive an individual landfill permit (ETC/SCP, 2012). Revenue from the tax is divided between the state budget (40 %) and the special environmental protection budget (60 %), which supports the municipalities in which landfills are located (ETC/SCP, 2012).

The rate of the landfill tax in the period from 2002 to 2008 was 0.7 EUR/t. In 2009, the rate was increased to 1.78 EUR/t, and has been increased yearly ever since, reaching the rate of around 10 EUR/t in 2012, but this still remains at a rather low level compared to other countries. Figure 2.5 shows that the rate of landfilled MSW decreased steadily from 2001 to 2006, without an increase in the landfill tax in that period. However, the decrease in percentage hides the fact that that the absolute amounts of MSW landfilled increased greatly from 2005 to 2006 due to an increase in the total generated amounts. Furthermore, for the years before 2007, for between 10 % and 25 % of generated MSW no information is recorded about its treatment. As such, it must be considered possible that the landfill rate could have been higher in the period from 2001 to 2007 than illustrated.

The raise in the landfill tax after 2008 has not resulted in a significant reduction of the amount of MSW landfilled. Therefore, it seems that the increase of the tax has had a very limited impact on landfilling of MSW. This is likely to be because the level of the tax has been kept rather low. The landfill tax has also failed to make any impact on the level of incinerated MSW. Incineration of MSW in Latvia accounts for only a negligible fraction of MSW treatment.

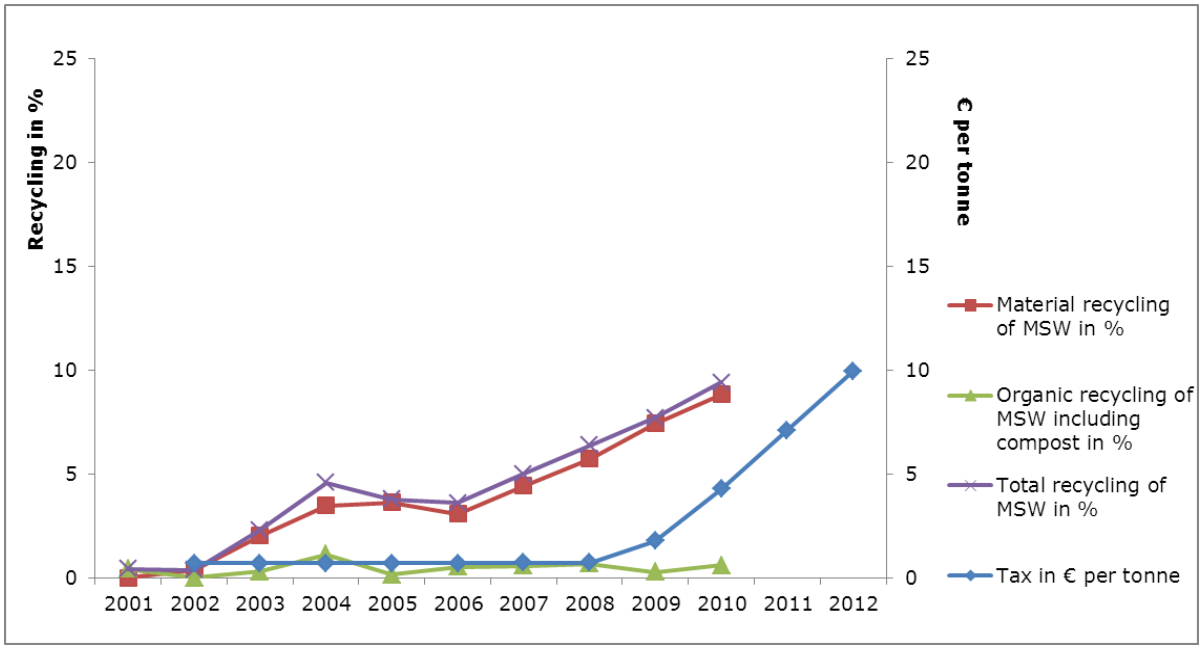
Figure 2.5 Development of landfilling and incineration of MSW and landfill tax in Latvia



Source: ETC/SCP, 2012 and Eurostat, 2012

Figure 2.6 shows that total recycling of MSW already started to increase when the tax level was very low. Total recycling, which almost completely consists of material recycling (organic recycling is still almost negligible), has increased slowly since 2003, while the landfill tax has increased annually since 2008. The apparent decrease in recycling in the period 2004 to 2006 was due to a change in the calculation methodology (see section 2.1.1 of this analysis).

Figure 2.6 Development of MSW recycling and landfill tax in Latvia



Source: ETC/SCP, 2012 and Eurostat, 2012

The landfill tax in Latvia is still quite low although it has been increased considerably since 2008. It has provided some (limited) incentive for diverting waste from landfills, and with the further increase in 2011 and 2012 this incentive will be stronger for municipal waste. The tax also provides an income to the state budget. The largest part of the revenue is used for environmental projects (ETC/SCP, 2012).

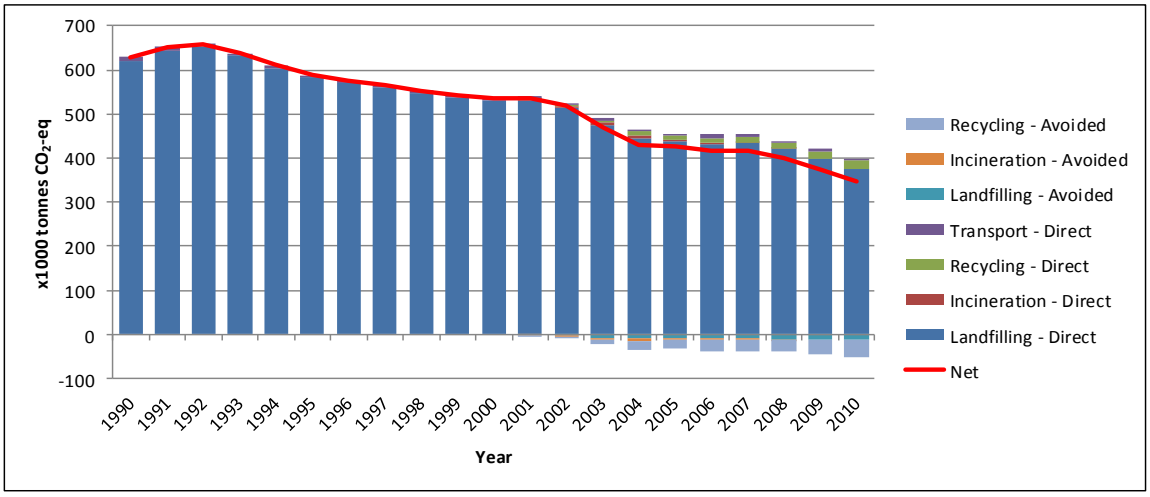
2.1.6 Environmental benefits of better MSW management

Figure 2.7 shows the development of GHG emissions from MSW management, calculated using a life-cycle approach. The graph shows the direct emissions, the avoided emissions and the net emissions of the MSW management.

Figure 2.7 indicates an almost constant decrease in the level of net emissions from 1992.

The figure also shows a slight constant decrease of direct emissions from landfilling since 1992, probably because of better landfill technology. The decrease would have been larger if the amount of BMW landfilled had been reduced to a larger degree, cf. section 2.1.3. It is reasonable to assume that these quite high levels of direct emissions from landfilling will also remain for years to come due to the fact that recently landfilled BMW (e.g. five to ten years ago) will continue to emit considerable amounts of greenhouse gases.

Figure 2.7 GHG emissions from MSW management in Latvia[3]



Results presented in this figure should not be used for the compilation of GHG reporting (national inventory report of the IPCC) or compared with IPCC figures, as the methodology employed here relies on life cycle thinking and, by definition, differs from the IPCC methodology.

[3] All the GHG emissions (positive values) represent the direct operating emissions for each waste management option. These direct operating emissions have been calculated with the use of the IPCC methodology for landfills and life cycle modelling for the other technologies (incineration, recycling, bio-treatment and transport). For the indirect avoided emissions (negative values), the calculations integrate the benefits associated with the recovery of energy (heat and electricity generated by incinerators, electricity generated by the combustion of landfill gas or methane from anaerobic digestion). Other avoided emissions include the benefits of recycling of food and garden waste, paper, glass, metals, plastics, textiles and wood in the municipal solid waste. Recycling is here assumed to include material recycling and bio-treatment. Avoided emissions of bio-treatment include fertilizer substitution. All processes generating electricity are assumed to substitute the electricity mix of Latvia in 2009. Processes generating heat are assumed to substitute the average heat mix for the EU25 in 2002. The electricity mix and heat mix are assumed to remain constant throughout the whole time series. The compositions of the MSW disposed in landfills, incinerated or recycled respectively are based on ETC/SCP 2011. In an Eionet consultation process, initiated by the EEA in 2012, Latvia updated the composition of the landfilled and recycled MSW for 2010. The complete methodology is available from ETC/SCP, 2011.

Greenhouse gas emissions are decreasing for Latvia between 1990 and 2010, while waste generation and waste landfilled have been increasing during this time period. The reason for the drop in GHG emissions is due to the fact that historically generated amount of MSW dropped by about 30 % between 1989 and 1990. This large drop in MSW generation is due to a proportional drop in GDP between 1989 and 1990 (due to the end of the Soviet Union). The reduction in GHG emissions between 1990 and 2010 is therefore due to the delayed emissions from a reduction of landfilling that occurred in before 1990.

A slight increase of avoided emissions has been noticed since 2001. This increase is mostly linked to recycling: products based on virgin material generate more emissions than those which are based on recyclables. The low amount of avoided emissions from recycling reflects that recycling is still on a very low level in Latvia. Avoided emissions from landfilling and incineration-avoided emissions are negligible.

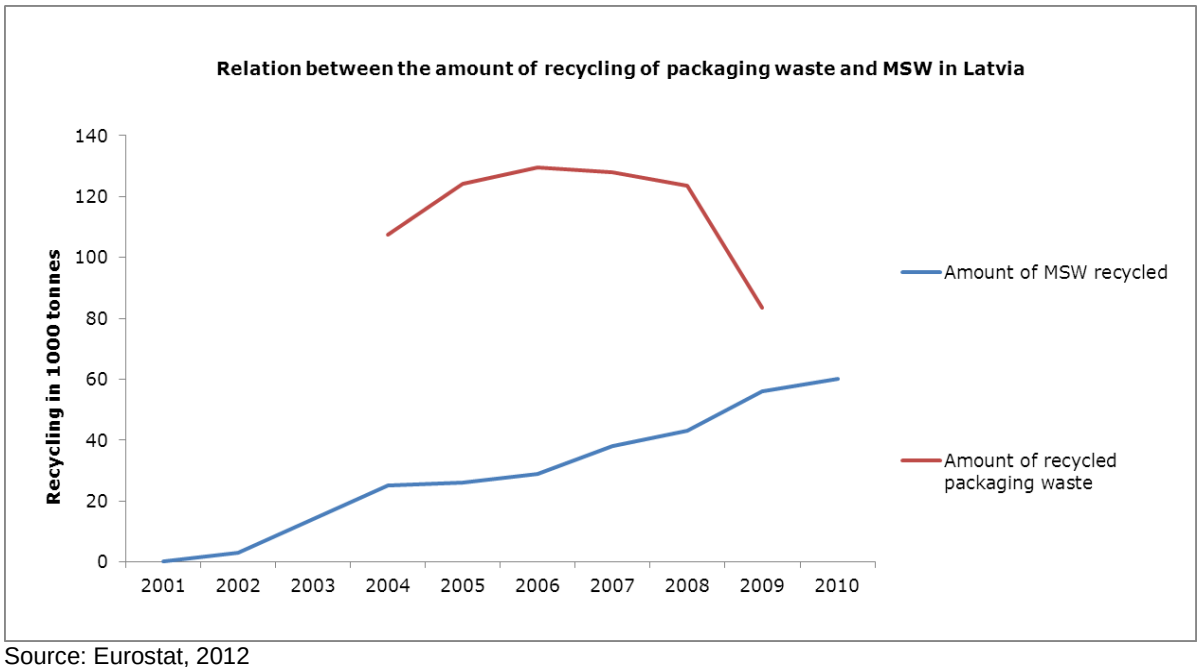
2.2 Uncertainties in the reporting

Some uncertainties or differences in the reporting of MSW can result in different levels of recycling. One example of such differences which might influence the recycling rate of MSW in Latvia is to what extent packaging waste from households and similar packaging from other sources is included in the reported recycling of MSW. Most Member Countries, including Latvia, have producer responsibility schemes on packaging waste and therefore packaging waste is not always reported to Eurostat as MSW.

In 2009, 186 000 tonnes of packaging waste was generated in Latvia, which is a sharp drop from 323 000 tonnes in 2007 and 264 000 tonnes in 2008. This development seems to be linked to the economic crisis. In 2009, 95 000 tonnes (51 %) were recovered and 84 000 tonnes (45 %) were recycled (Eurostat, 2012a).

Figure 2.8 shows that the amount of recycled MSW in Latvia was significantly lower than the amount

Figure 2.8 Comparison of packaging waste recycled and MSW recycled from 2001 to 2010



Source: Eurostat, 2012

of recycled packaging waste, which may indicate that Latvia has not included much of the recycled packaging waste from households and similar packaging from other sources in its reported amounts of recycled MSW.

Significant amounts of sorted municipal waste are exported from Latvia for recovery in other Member States (in particular metals), (MEPRD, 2012). Currently this issue is reviewed by the Ministry of Environmental Protection and Regional Development of Latvia, as it seems that waste exported for recycling to other Member States has not been included in the amounts of recycled MSW that Latvia has reported to Eurostat.

Another potential source of uncertainty is that some countries allocate the total amount of MSW sent to Mechanical Biological Treatment (MBT) to recycling. In other countries, only the actual amount of recycled material recovered in the MBT is included, and not the waste material that is subsequently sent to landfill or incineration. In Latvia, there is one MBT plant operating and nine MBT facilities are planned. There is currently no information available on which method Latvia uses for the reporting of MSW treatment to Eurostat as regards the MSW treated in the existing MBT plant.

2.3 Important initiatives taken to improve MSW management

The National Waste Management Plan 2006 – 2012 was approved in December 2005, with the purpose to prevent waste generation and to promote recycling of waste.

A national waste management plan and, possibly, regional waste management plans, will be prepared to cover the period from 2013 to 2020. Currently, no projections have been made for the generation of municipal waste but, nevertheless, current waste management plans contain targets for municipal waste management until 2020 (EEA, 2010):

- To decrease the amount of landfilled biodegradable waste in accordance with the Landfill Directive;
- To reach the packaging recovery and recycling targets in accordance with the Packaging Directive;
- To reach targets for collection and recovery of waste electric and electronic equipment in accordance with the WEEE Directive;
- To reach targets for collection and recycling of waste batteries and accumulators.

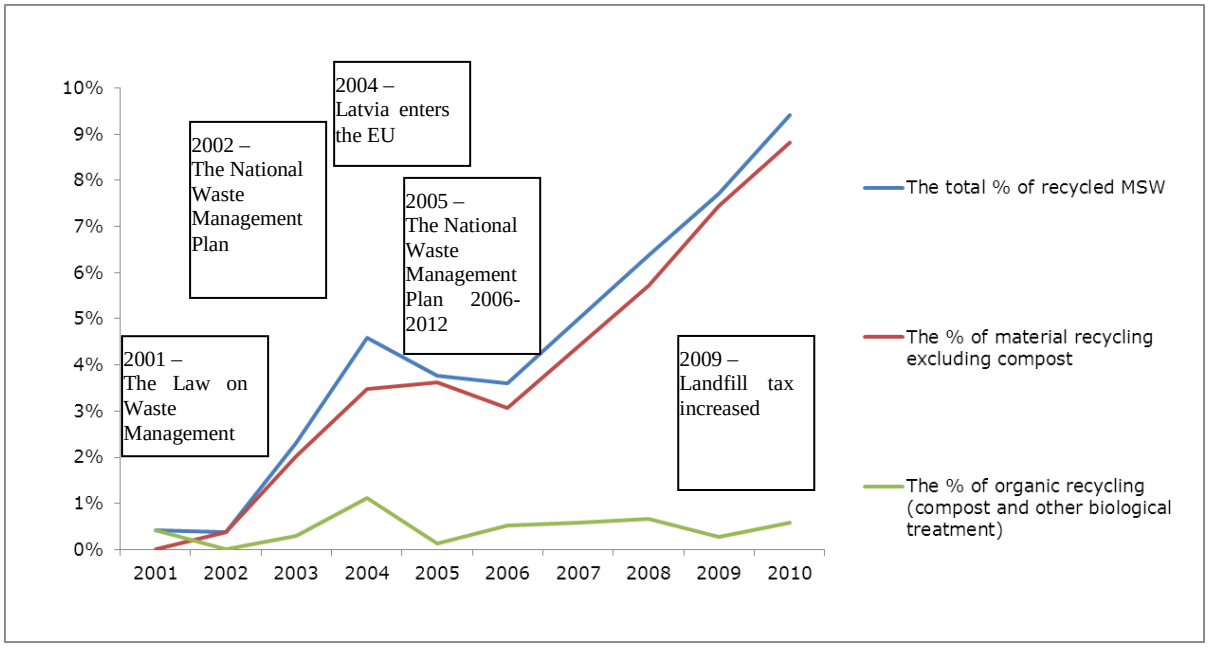
Special attention will be paid to waste prevention and minimization. It has been planned to prepare and implement the National waste prevention and minimization programme which will be an integral part of the National Waste Management plan (EEA, 2010).

Plans to carry out activities to improve the separate collection system for municipal waste are also in place. Such systems are crucial for achieving recycling targets. This activity would also help to achieve the targets for the recycling of packaging waste, as well as the targets for collection and recovery of batteries and accumulators and waste electric and electronic equipment (EEA, 2010).

In order to provide for the safe disposal of collected waste which is not suitable for recovery, improvements will be made to landfill sites and non-compliant dumpsites have been closed down. Constructing new waste incineration or co-incineration facilities has also been considered (EEA, 2010).

At the moment all active landfills are consistent with the EU requirements. There are 11 active landfills operating in Latvia. All other existing landfills do not receive wastes for disposal anymore, but not all of them have been re-cultivated yet. (LEGMC, 2013)

Figure 2.9 Recycling of MSW in Latvia and important policy initiative



In order to increase levels of awareness, numerous information campaigns addressing certain target groups (e.g. households, the public, businesses, schools, tourists, industry, etc) have been organised.

Currently, municipal waste collection schemes are running in parallel with packaging waste collection schemes and collection schemes for hazardous waste (BIPRO, 2012).

Competent authorities in Latvia have planned some measures in the field of municipal waste management. Among those measures are (BIPRO, 2012):

- Re-cultivating of closed non-compliant landfills and elimination of illegal dumpsites;
- Improvement of technical conditions for waste processing and recycling;
- Improvement of the conditions for separate collection by information campaigns and infrastructural investments including adopted collection schemes;
- Minimizing the landfilling of municipal waste by improving alternative waste management infrastructure and use of financial tools;
- Developing an appropriate tax and fee system starting with a basic approach to minimise landfilling, promoting separate collection and the prevention of littering;
- Information and awareness campaigns to encourage the public to stop littering and improve environmental protection related to waste issues.

2.4 Future possible trends

As it is indicated in Figure 2.2, it will require an extraordinary effort for Latvia to fulfill the recycling target of 50% by 2020 according to all three calculated scenarios. It will require a very high yearly increase of recycling of MSW from 2010 to 2020 if Latvia is to fulfill the target. The increase rate would have to be almost 4 percentage point per year, and it would require a huge effort from the government and the local authorities, as well as a good level of co-operation between the public and private sector.

Figure 2.8 indicates that MSW recycling rates would be higher if some of the recycled packaging waste from MSW sources would be included systematically in the reporting of recycled MSW. The new National Waste Management plan for the period 2013 – 2020 is being drafted by the Ministry, and is expected to be completed by the end of 2012. It is reasonable to expect that it will contain the latest estimations of MSW trends in the future, as well as detailed targets and measures for achieving them.

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