Country fact sheet

Municipal waste management

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France

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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

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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

- The per capita generation of municipal solid waste (MSW) has basically remained stable between 2001 and 2014, but it remains above the EU average.
- Total MSW recycling has increased from 26 % of generated waste in 2001 to 39 % in 2014; in the same period, material recycling and organic recycling rates rose from 14 % to 22 % and from 12 % to 17 % respectively.
- France is approaching its 2016 reduction target for the landfilling of biodegradable municipal waste. The separate collection of bio-waste, however, only covers 3% of the national territory.
- The extended producer responsibility has been broadened to cover waste streams such as medicines, paper, textiles and furniture.
- The landfill tax has increased since 2009 and an incineration tax was introduced in the same year, but they have had so far only had a minor effect on the amount of waste disposed in landfills or sent to incineration.
- Grenelle I Law, Grenelle II Law, the National Waste Prevention Programme 2014-2020, and the 2015 Law on Energy Transition have set quantitative national targets for waste prevention, recycling and diversion of waste from landfill.

1 Introduction

1.1 Objective

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

- the 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 differences in management performance;
- indicators relating to the country's most important initiatives taken to improve the management of MSW; and
- an assessment of possible future trends

2 France's municipal solid waste management performance

The waste management landscape between 1992 and 2007 in France has been governed by the Waste Law No 92-646, adopted on 13 July 1992, concerning the disposal of waste and registered organisations for the protection of the environment. More recently, relevant waste management targets and instruments have been shaped by Grenelle I Law of 2009, Grenelle II Law of 2010, the National Waste Prevention Programme covering the 2014–2020 period, and the 2015 Law on Energy Transition.

The per capita generation of MSW[1] in the country has remained basically stable between 2001 and 2014, falling slightly from 526 kilograms per person to 509 kilograms, which is above the 2014 EU average of 474 kilograms per person (Eurostat, 2016).

Total MSW recycling has increased from 26 % of generated waste in 2001 to 39 % in 2014; in the same period, material recycling and organic recycling rates rose from 14 % to 22 % and from 12 % to 17 % respectively (Eurostat, 2016).

The landfill rate has decreased from 41 % of generated MSW in 2001 to 26 % in 2014, while incineration has remained almost stable, with, however, a marked decline of incineration without energy recovery (Eurostat, 2016).

2.1 Municipal solid waste indicators

The following indicators illustrate the development of MSW generation and management for 2001–2014. All percentage figures have been calculated by relating the waste managed to the generated amount, which in France is equal to the amount treated[2].

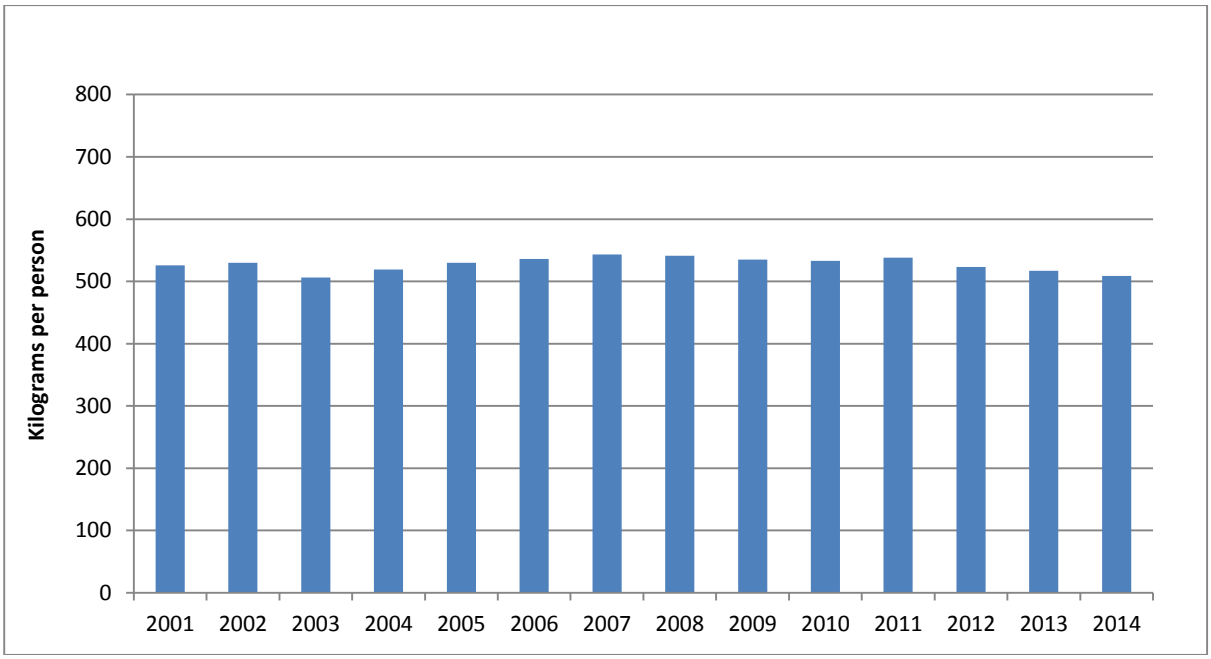
In 2001, France generated 32 198 000 tonnes of MSW and 33 703 000 in 2014, a 5 % increase (Eurostat, 2016). Per capita MSW generation has varied from a low of 506 kilograms in 2003 to a

[1] In France, MSW is defined as: street sweeping; sewage sludge, although this is not included in data reported to Eurostat; garden and park waste from municipal sources; household waste, which includes waste delivered to recycling centres, bulky items, household hazardous waste and mixed and separately collected household waste. Finally, MSW includes trade waste similar in nature to household waste.

[2] The only exception was in 2007, when the generated amount was 34 630 000 tonnes and the treated amount was 34 629 000 tonnes (Eurostat, 2016). In this case, percentage figures are based on the generated amount.

high of 543 kilograms in 2007. Overall, MSW generation per person remained pretty stable over the whole period (Figure 2.0).

Figure 2.0 France, per capita municipal solid waste generations, 2001–2014



Source: Eurostat 2016

2.1.1 The recycling of municipal solid waste, 2001–2014

The analysis addresses material recycling; organic recycling – the composting and anaerobic digestion of MSW; and total recycling – material recycling and organic recycling.

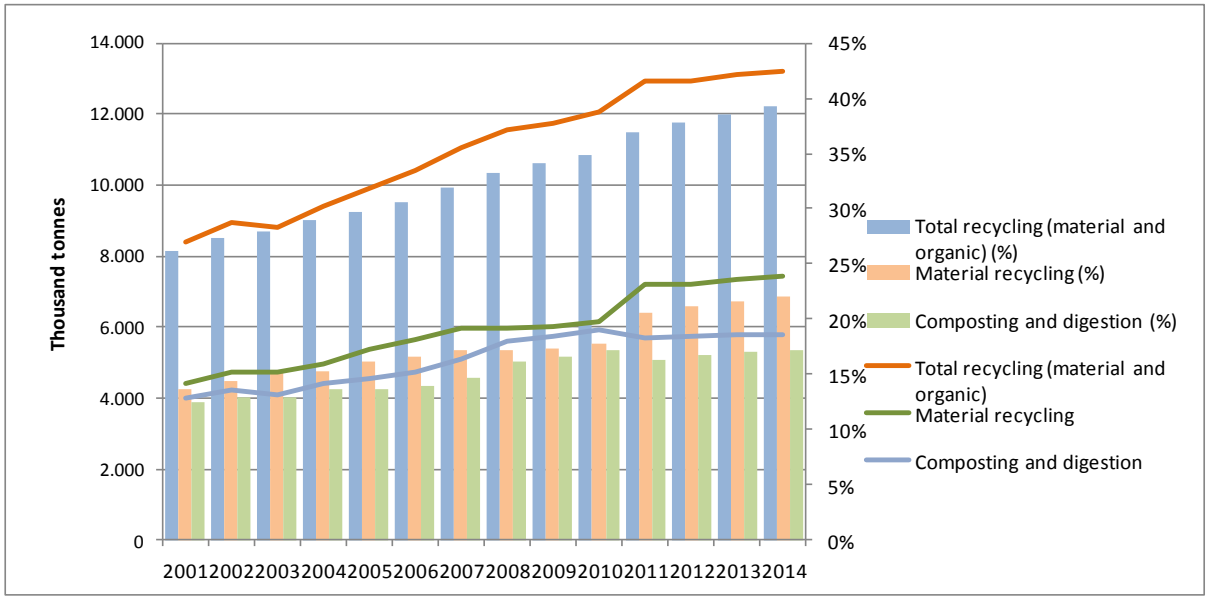
Figure 2.1 shows that total MSW recycling has increased from 26 % of generated waste in 2001 to 39 % in 2014, equivalent, on average, to about 1 percentage point increase per year. Figure 2.1 also shows that material recycling and organic recycling have been evolving at approximately the same rate between 2001 and 2014, with the material recycling rate slightly higher than the organic recycling rate, especially in the 2010–2014 period.

It is important to emphasise that the increase in recycling rate is strongly related to the improvement of separate collection. A 100 % door-to-door collection system is in place for packaging waste, while other waste, especially paper and glass, is collected through bring sites. About 4 500 civic amenity sites, covering 96 % of the national territory, mainly collect green waste, bulky waste, construction and demolition waste, and recyclables, mainly from households (BiPRO, 2015 and Gibbs *et al.*, 2014a).

Over the time period, on average, the share of material recycling and the share of organic recycling were respectively 54 % and 46 % of the total reported MSW recycled.

It should be noted that the MSW generation in absolute terms increased by 5 % in the 2001–2014 period, while the amount of municipal organic waste recycled increased by 45 %, and the absolute amount of MSW recycled for materials increased by 69 %. In 2014, 33.7 million tonnes of MSW were generated, 7.4 million tonnes were destined to material recycling and 5.7 million tonnes were destined to organic recycling.

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



Source: Eurostat, 2016

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[3]. France has chosen calculation method 2 (Gibbs *et al.*, 2014a). 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, 2015).

2.1.2 Landfilling of biodegradable municipal waste

The percentage of biodegradable municipal waste (BMW) landfilled, compared with the amounts landfilled in 1995, was calculated to assess the level of compliance with the diversion targets of the EU Landfill Directive 1999/31/EC (EC, 1999).

According to the Directive, Member States are to reduce the amount of BMW landfilled to 75 % of the total amount of BMW generated in 1995 by 2006; to 50 % by 2009; and to 35 % by 2016.

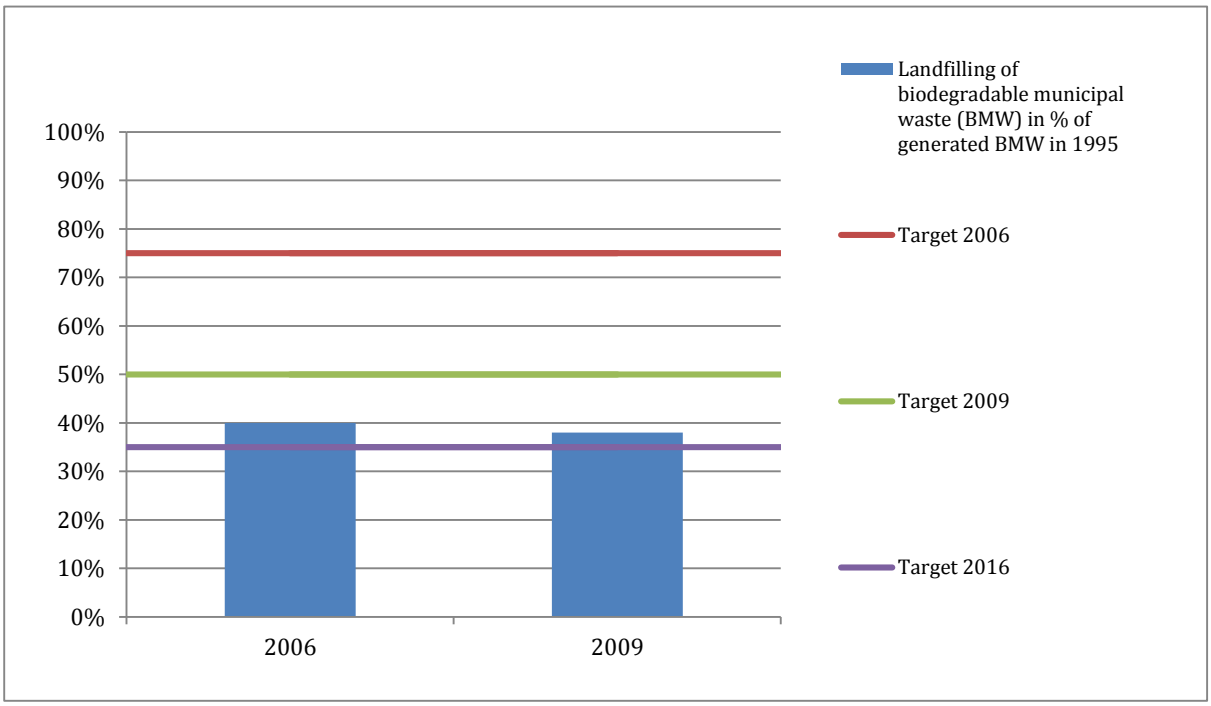
In 1995, the generated amount of BMW was 18 615 000 tonnes. As indicated in Figure 2.2, France met its legal obligations for the first two targets by 2006, when the landfilled amount of BMW was

[3] 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 (this is the method used in this document).
4. municipal waste (the method used in this document).

7 432 000 tonnes, or 40 % of the quantity generated in 1995. France is also approaching its 2016 target.

Figure 2.2 France, landfilling of biodegradable municipal waste, 2006 and 2009, % of biodegradable municipal waste generated in 1995



Source: EC, forthcoming

When comparing organic waste recycling and the BMW landfilled as percentage of the generated MSW for each year, one can infer that the BMW diverted from landfills contributed to the increase in organic recycling, and vice versa, as opposed to it being diverted to incineration. This is based on the assumptions that the waste composition has remained constant and that a minimal amount of home composting has been introduced.

Separate collection of bio-waste, especially food waste, is still limited in France. Some municipalities, however, are developing selective bio-waste collection, but this currently only covers 3 % of the population (Ademe, 2013b; Sueze, 2013). Moreover, since 1 January 2012, the Decree of 11 July 2011 implementing the Grenelle II Law requires major producers of bio-waste such as caterers to sort their waste to make it properly recyclable.

2.1.3 Regional differences in municipal solid waste recycling, 2002–2011

France reported regional MSW recycling data to Eurostat (Eurostat, 2015a) from 2002 to 2011[4]. Figure 2.3 shows regional differences in total MSW recycling in 2011[5].

Metropolitan France has 22 regions[6] (Figure 2.3), which are characterised by relevant socio-economic differences. In 2014, total population ranged from 323 092 in Corsica to 12 005 077 in the Ile de

[4] For 2001–2013 period, data are only available for 2002, 2004, 2006, 2008, 2010, and 2011.

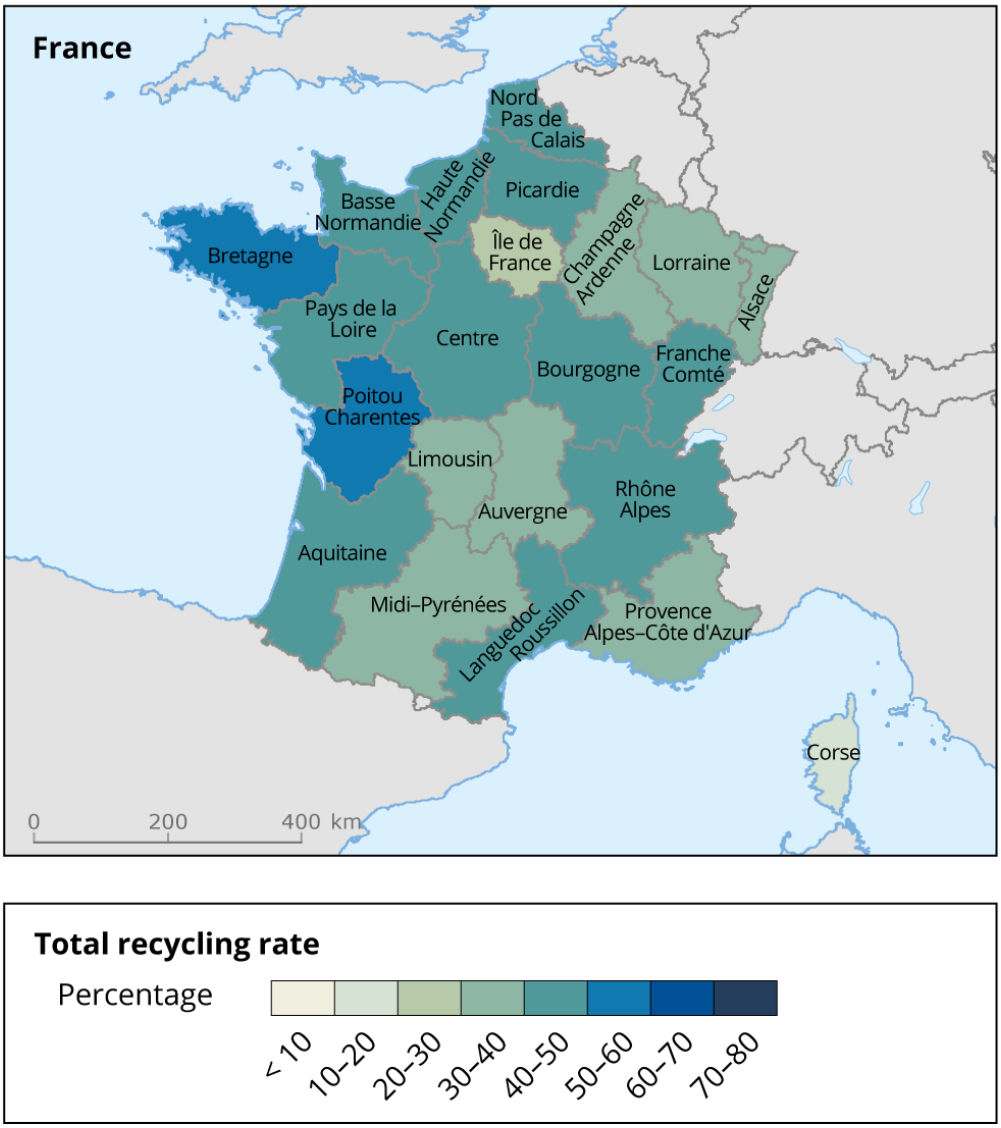
[5] According to Eurostat (2015e), the regional data for 2011 are not fully consistent with the sustainable development indicators (SDI) data but the differences are much smaller than in earlier years. The main shortcoming of the data is the overestimation of MSW recycled by about 25 %, compared to the national SDI data.

[6] In addition, France has four overseas regions – Guadalupe, Guyane, Martinique and Réunion – which are not part of this analysis.

France (Eurostat, 2015b, provisional data), while population density, in 2013, ranged from 37 people per square kilometre in Corsica to 997 per square kilometre in the Ile de France (Eurostat, 2015c). In 2013, gross domestic product (GDP) per capita, as a percentage of the EU average, ranged from 80 % in the Limousin region to 175 % in the Ile de France (Eurostat, 2015d).

The analysis below covers only the 21 regions of continental France. The four overseas regions have very different climatic, demographic and socio-economic conditions from mainland France, while the MSW management on Corsica cannot be easily compared to that of the other French continental regions, since islands face specific problems in managing waste. Indeed, in 2011 of the metropolitan regions, Corsica had the lowest total, material, and organic recycling rates – 16 %, 13 %, and 3 % respectively.

Figure 2.3 France, regional differences in municipal solid waste recycling, 2011



Source: Eurostat, 2015a

Across the regions of continental France, total recycling rates of generated MSW in 2011 ranged from 28 % to 55 % (Figure 2.3).

In 2011, the highest amount of MSW was generated in the Ile de France, the Paris region. The region also had the lowest total and organic recycling rates in 2011, 28 % and 9 % respectively. The most probable reason for the low recycling performance is the high density of multi-storey housing, making efficient recycling more technically challenging due to space constraints. The region with the lowest material recycling rate, 18 % of 1.1 million tonnes of MSW, in 2011 was the Haute-Normandie, in the north of France.

In 2011, Bretagne, in the north-west of France, which generated 1.8 million tonnes of MSW, was the region with both the highest total and organic recycling rates – 55 % and 32 % respectively. The highest 2011 material recycling rate, 32 %, was recorded in Nord-Pas-de-Calais, in the north-east of France.

The wide regional differences in waste management performance are an indication that policies have been applied differently at the regional level. Other relevant factors influencing this variation could be cultural differences between the different regions, as well as the available budget allocated for waste management in each region. The overall message of Figure 2.3 is for the French regions to assess the drivers of the best performers and identify the potential barriers for implementation in the less well performing regions, in order to improve the overall waste management situation in France.

2.1.4 The relationship between landfill tax and recycling rates of municipal solid waste

The objective of this analysis is to assess whether fiscal instruments, and more specifically the landfill and the incineration taxes have an effect on recycling rates.

In France, the general tax on polluting activities, the Taxe Générale sur les Activités Polluantes (TGAP) has traditionally applied to landfilling and, more recently, to incineration. Between 2001 and 2008, the landfill tax remained constant at EUR 9.15 per tonne of waste disposed . Landfill sites with ISO14001 or EU Eco-Management and Audit Scheme (EMAS) accreditation were given a discount reducing the rate to EUR 7.5 per tonne, as the environmental certification implies better management of waste and potentially improved environmental performance compared to non-certified sites (ETC/SCP, 2012). Moreover. a tax reduction is available for landfill sites if energy recovery of biogas exceeds 75 % and if waste is transported from collection points to the final repository site by rail or boat. A complete exemption applies to sites with full energy recovery of biogas (OECD, 2011).

The 2009 reform increased the TGAP four times between 2009 and 2015. In addition, it has introduced an incineration tax to be implemented for the period, EUR 7 per tonne in 2009 rising to EUR 14 per tonne in 2015. However, incineration with energy recovery and high energy efficiency are subject to reductions of EUR 1.5 per tonne in 2009 rising to EUR 3 per tonne in 2015 ªETC/SCP, 2012). Tax reductions are also applied based on the means of transport and the nitrogen oxides ($NO_{X)}$ pollution caused (OECD, 2011).

The tax revenue generated from the landfill tax, EUR 275 million in 2011, and incineration taxes, EUR 47M in 2011, have supported local authority investment in increasing recycling rates in France (Commissariat général au développement durable, 2013).

The new tax on incineration and the increase in the landfill tax seem to have had so far only a minor effect on the amount of waste sent to either landfills or incineration. The landfill rate declined from 41 % of generated waste in 2001 to 26 % in 2014, but in the 2009–2014 period, when the landfill tax increased, it decreased by only 6 percentage points. Similarly, the incineration rate remained stable throughout 2001–2014, accounting for 32 %–36 % of MSW. Over the same period, the total recycling rate has gradually increased from 26 % in 2001 to 39 % in 2014, about one percentage point per year (Figure 2.4).

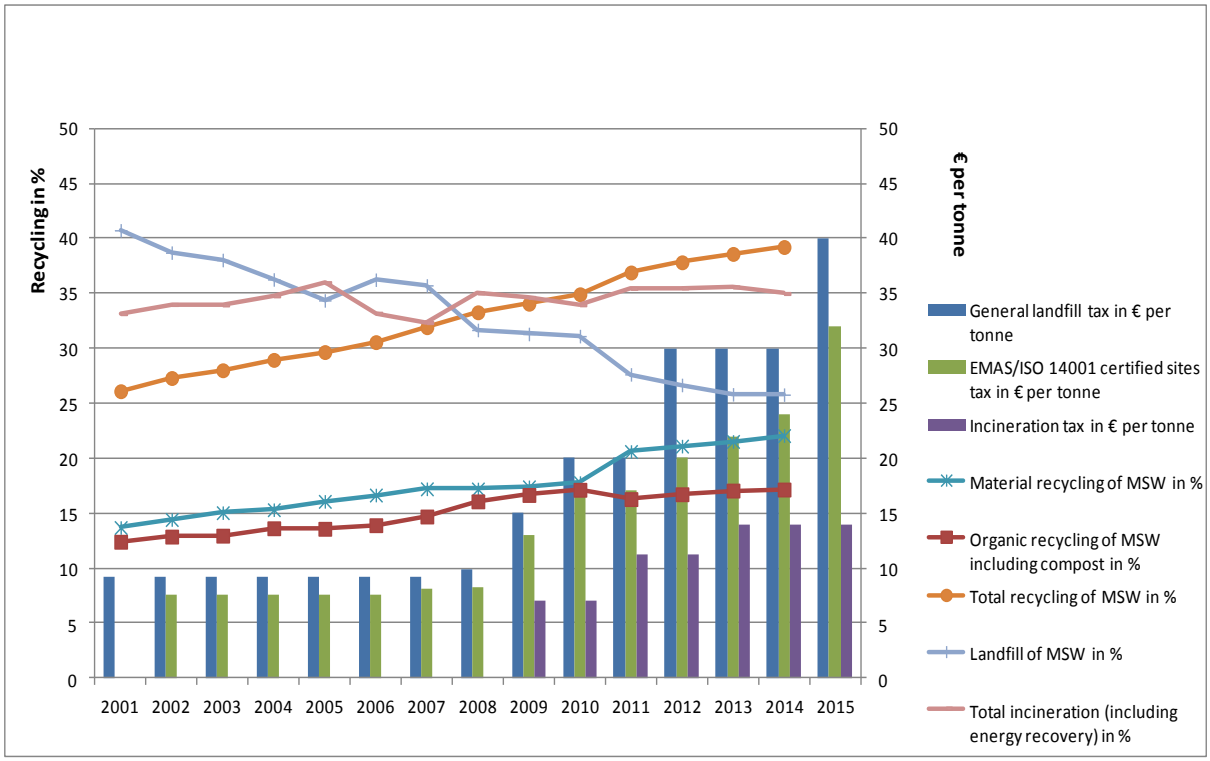
The lack of an evident correlation between changes in the landfill tax rate and the introduction of an incineration tax, on the one hand, and the landfilling, incineration and recycling rates on the other,

might be due to the fact that France has one of the lowest landfill and incineration taxes among western European countries, coupled with the broad use of tax exemptions. In 2010, about 90 % and 97 % by weight of all waste subject to landfill and incineration taxes respectively benefited from tax breaks (Commissariat général au développement durable, 2013). In 2010, the average landfill tax was EUR 14.6 per tonne, compared to a full rate of EUR 20, while the average incineration tax was EUR 2.9 per tonne, compared to a full rate of EUR 7; (Commissariat général au développement durable, 2013). However the total cost of landfilling in France, the landfill tax plus gate fee, is within mid- to high-range of EU Member States (BIO Intelligence Service, 2012).

It has also been argued that, since the landfill tax and the incineration tax apply to all types of waste, they may have had a more immediate effect on the non-MSW than MSW (Commissariat général au développement durable, 2013; Environment Ministry, 2012b).

In France, the landfill tax is supplemented by a ban on untreated waste, which might have had an even larger effect on the landfill rate. According to a study by BIO Intelligence Service (2012), however, the ban is not fully respected.

Figure 2.4 France, landfilling, incineration, and recycling of municipal solid waste and associated taxes, 2001–2015, and EUR per tonne



Source: Eurostat, 2016; ETC/SCP, 2012

2.1.5 Environmental benefits of better municipal solid waste management

Figure 2.5 shows a scenario for greenhouse gas emissions from MSW management in France. The scenario assumes a yearly growth rate of 1.1 % in municipal waste generation for 2011–2015 and 0.5 % for 2015-2020[7]. The scenario also assumes that EU targets for municipal waste are fully met.

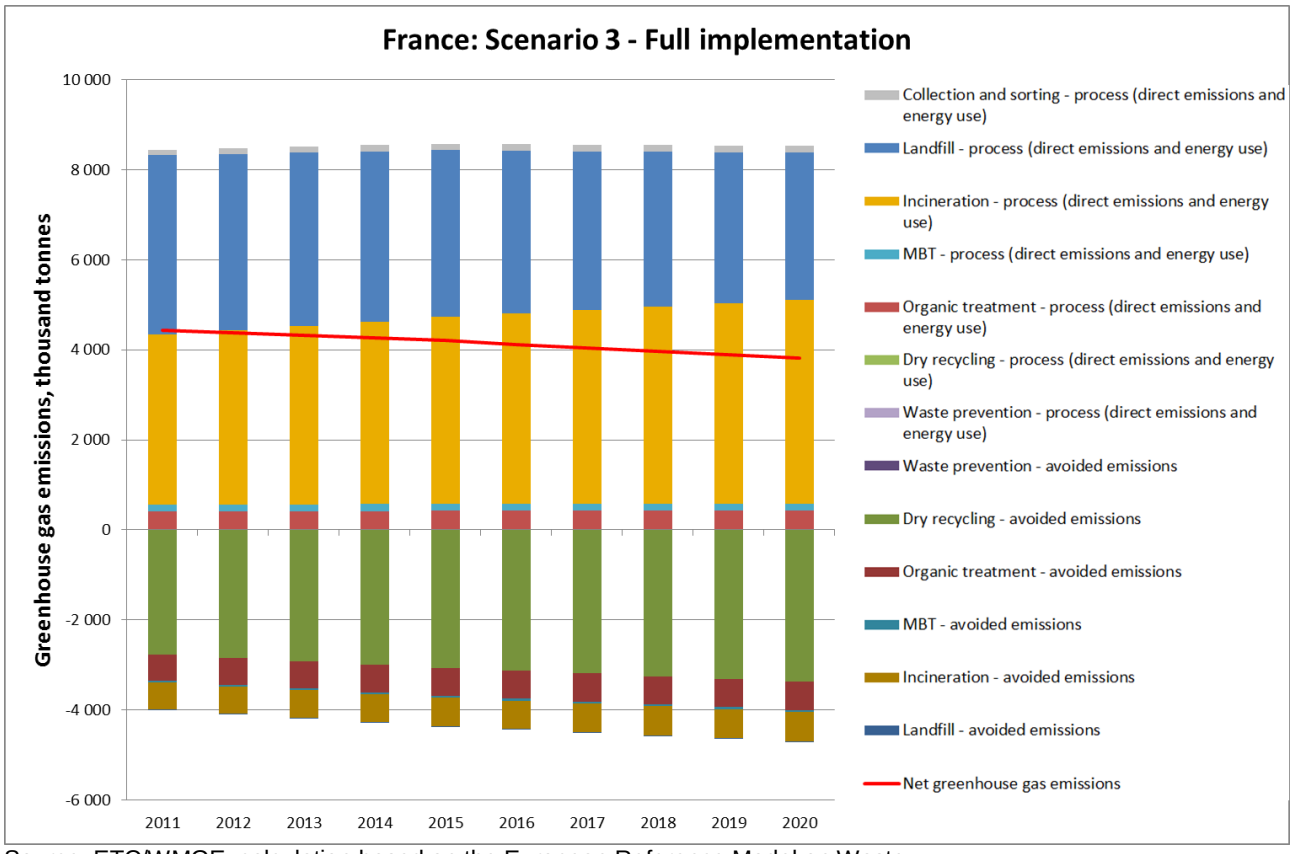
[7] Eurostat data (Eurostat, 2016) show a 2 % decrease in absolute amounts of waste generated in 2010–2014.

The calculation of emissions is based on data and assumptions 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 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 2.5 shows direct, avoided 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; mechanical biological treatment (MBT) and related technologies; collection and sorting; 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 2.5 France, scenario for greenhouse gas emissions from municipal solid waste management in France, 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.

In countries with a low landfill share and high recycling rate, waste treatment can have an overall positive impact on greenhouse gas emissions, reducing emissions from the economy as a whole, but France is not yet one of these. Based on the modelled scenario with full policy implementation, net

emissions from the treatment of municipal waste in France are expected to decrease only slightly over in 2011–2020. Throughout the modelled period greenhouse gas emissions related to municipal waste management originate mostly from landfill and incineration, with the share of incineration increasing towards 2020. While the direct emissions from waste management remain almost stabile, the small decrease in net emissions is mostly due to an increasing amount of avoided emissions related to dry recycling.

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 are included in or excluded from of the 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.

In France, in 2010 the proportion of packaging waste generated by households was estimated to be about 37 % of the total packaging placed on the French market in 2008 (Ademe, 2010). In 2013, more than 3.2 million tonnes of household packaging waste were separately collected, two thirds of which was glass (Ministry of Ecology, Sustainable Development, 2015). French MSW data reported to Eurostat include packaging waste from households. MSW sent to MBT is reported based on the inputs to the MBT process.

2.3 Important initiatives taken to improve municipal solid waste management

In France, the waste management landscape between 1992 and 2007 was governed by the Waste Law, adopted on 13 July 1992 (Law 92-646, of 13 July 1992). Its main objectives were to reduce waste generation, minimise the distance waste is transported, promote material or energy recovery and ban the landfilling of untreated waste or waste that cannot be treated any further. This legislation, however, did not include any quantitative targets, except for the landfill ban of untreated waste that had to be enforced by 1 July 2002. The 1992 law also introduced a requirement for municipalities to produce waste management plans (on the regional level, each department has to develop its own plan), with specific collection and waste management targets. These plans generally follow the principles of the waste hierarchy, but with large differences among the departments.

In 2007–2008, a new French waste management policy was developed with a considerable stakeholder involvement – government, unions, employers, non-governmental organisation (NGOs) and local authority representatives. Known as the Grenelle Environnement process, the consultation covered a wide range of environmental issues, including waste management. The outcomes of the process shaped the new legislative framework, which has specific targets for waste management at the national level. In 2009, the Grenelle I Law was adopted (Law 2009-967, of 3 August 2009), followed, in 2010, by the Grenelle II Law (Law 2010-788 of 12 July 2010), which contains provisions implementing its predecessor. Both the laws establish relevant targets and objectives related to, in particular, the reduction of waste generation, landfilling and incineration, and an increase in recycling (Table 2.1).

In order to achieve the objectives of the first Grenelle Law, France decided to significantly increase the landfill tax and also introduced an incineration tax in 2009, with the aim to creating an incentive

to divert waste away from landfill and incineration – the 2009 TGAP reform. The tax rate is, however, still relatively low compared to other EU countries.

According to Decree 2012–22 of 6 January 2012 related to the management of furniture waste, 45 % of waste household furniture and 75 % waste professional furniture should be reused/recycled by 2015. If this policy instrument proves successful, a significant amount of waste will be diverted from the mixed MSW stream, contributing to the achievement of both the 2020 MSW recycling target and the 2016 BMW landfill reduction target imposed by the EU Landfill Directive.

The National Waste Prevention Programme 2014–2020 (Plan de reduction et de valorisation des déchets 2014–2020), adopted in 2014, introduced the target of reducing the per person generation of household and similar waste by 7 %, compared to 2010, by 2020 and a 50 % reduction of food waste by 2025.

The Law on Energy Transition, adopted by the French Parliament on 22 July 2015, is aimed, amongst other things, at promoting resources savings and waste reduction. To this end, it sets two new targets related to municipal waste generation – a per capita reduction of 10 %, compared to 2010, by 2020 – and landfilling – reducing landfilling of non-hazardous waste, excluding inert waste, by 50 %, compared to 2010, by 2025.

Table 2.1 summarises the most important MSW targets and objectives shaped by Grenelle I Law, Grenelle II Law, Decree 2012-22, the 2014 National Waste Prevention Programme and the 2015 Law on Energy Transitions, as well as results achieved when information is available.

Table 2.1 France, national targets and objectives for municipal solid waste management

Objective/Source	Deadline	Legislation	Results (and source)
Reduce the per capita production of household waste and similar waste by 7 %	Between 2009 and 2014	Grenelle I (Law 2009-967)	Achieved (Ministry of Ecology, Sustainable Development, 2015)
Reduction of the amount of MSW sent to landfill or incineration of 15 % (baseline: 2009)	2012	Grenelle I (Law 2009-967)	Not achieved (Eurostat, 2016)
Achieve a total MSW recycling rate (material and organic recycling) of 35 %	2012	Grenelle I (Law 2009-967)	Achieved (Eurostat, 2016)
Achieve a total MSW recycling rate (material and organic recycling) of 45 %	2015	Grenelle I (Law 2009-967)	Not achieved (Ministry of Ecology, Sustainable Development, 2015)
Mandatory adoption by local authorities of local prevention programmes	1 January 2012	Grenelle II (Law No. 2010-788)	
Achieve a recycling rate of 75 % for household packaging	2012	Grenelle I (Law 2009-967)	Not achieved (67% in 2013; Ministry of Ecology, Sustainable Development, 2015)
Introduction of a variable part of the waste tax paid by waste producers (incentive component) reflecting the nature and weight or volume of waste.	2014	Grenelle I (Law 2009-967)	Before Grenelle I Law, 30 local authorities had instituted pay-as-you-throw for waste collection. In 2010 an additional 57 local authorities had adopted this rate structure, while 127 others were carrying out preliminary studies (Ademe, 2012c)
Adoption of waste prevention plans at the municipal level (not binding)		Grenelle I (Law 2009-967)	
Limit treatment in landfill and incineration facilities to 60 % of the waste produced in France		Grenelle II (Law No. 2010-788)	

45 % of household furniture and 75 % of the professional furniture to be reused/recycled	2015	Decree 2012-22	
Reduce the per capita production of household and similar waste by 7 % (baseline 2010)	2020	Plan de reduction et de valorization des déchets 2014-2020 (2014)	
Reduce food waste by 50 %	2025	Plan de reduction et de valorization des déchets 2014-2020 (2014)	
Reduce the per capita production of household and similar waste by 10% (baseline 2010)	2020	Law 2015-992 of 17 August 2015	
Reduce landfilling of non-hazardous waste (excluding inert waste) by 30 % (baseline 2010)	2020	Law 2015-992 of 17 August 2015	
Reduce landfilling of non–hazardous waste (excluding inert waste) by 50 % (baseline 2010)	2025	Law 2015-992 of 17 August 2015	

With regard to specific waste streams, packaging waste, waste electrical and electronic equipment (WEEE) and waste batteries are regulated, respectively, by Law of 15 July 1975 and Law 13 July 1992 (packaging waste), Decree 2014-928 (WEEE), and Decree 2009-1139 (waste batteries). Across the country there are currently three accredited collective schemes for household packaging waste, five for household WEEE, and two for waste batteries and accumulators. With regard to WEEE, in addition to the EU WEEE Directive targets, public authorities set a target of 6 kilograms per person per year for the collection of household WEEE by in 2010, and the collection target is to be increased every year by 1 kilogram per person until 2014.

Although retailers are required to provide a packaging recovery centre, where shoppers can leave packaging after the purchase, this measure has not been properly implemented (Actu-environnement, 2011).

The policy instrument related to the extended producer responsibility (EPR), initiated as early as 1975, has progressively been extended, mainly in the 2001–2010 period, to a number of new waste types including medicines, paper and textiles (Table 2.2). There are about 15 EPR schemes in the country (France, 2016). For textiles, the following targets have been established by national legislation:
1) collection and treatment: 50% of quantities marketed;
2) recycling, materials recovery and reuse of sorted waste: 70% (Ademe, 2012b).

Further, based on Grenelle II Law (Art. 200), household and professional furniture and furnishings became subject to and EPR in 2011 – system for business furniture was created in 2011 by professional furniture manufacturers (called Valdelia). According to the Environment Ministry (2012a), the implementation of the EPR has contributed to the improvement in the recycling performance.

Table 2.2: France, selected EPR schemes addressing municipal solid waste, 2013

Waste type	Accredited systems	Placed on the market (tonnes)	Separate collection (tonnes)	Recycling (tonnes)
Batteries and portable accumulators	Corepile Screlec	226	208	163
WEEE	Recyclum Ecologic Ecosystemes ERP OCAD3E	1 336	455	357
Household packaging	Eco-emballages Adelphe Cyclamed	4 747	n.a.	3 193
Medicines	Cyclamed	170	14.7	0*
Paper	Eco Folio	n.a.	1 423	1 423
Textiles, linens, shoes	Eo TLC	600	159	52

Source: Ministry of Ecology, Sustainable Development, 2015

Note: * = 2012 data

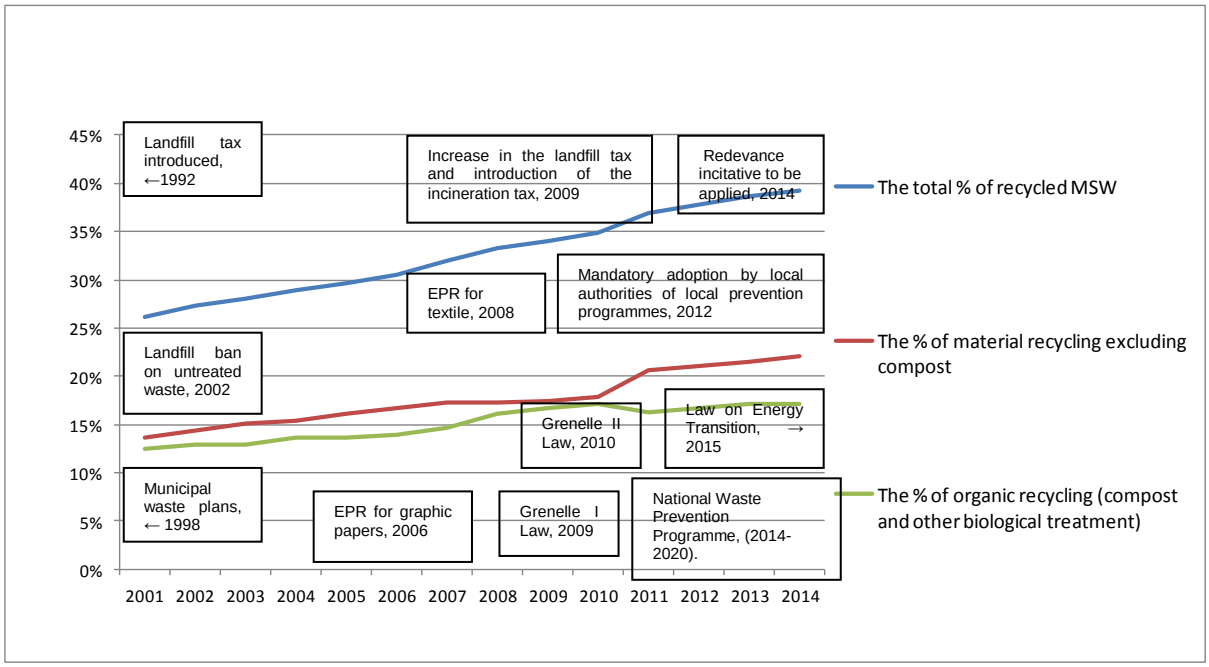
The eco-tax collected from the producers through EPRs is redistributed to municipalities at variable rates per tonne of waste – in accordance with the waste hierarchy, higher per tonne subsidies are distributed to municipalities for waste fractions sent to recycling. Both the rate of the eco-tax and the subsidies are reviewed and audited by the government on a regular basis.

France relies on a 100 % door-to-door collection system for certain types of household waste – co-mingled plastic and metal, plus mixed municipal -residual- waste). Other waste fractions, such as paper and glass, are mainly collected through bring sites – approximately 80 % of glass is collected through bring sites, and the remaining 20 % by door-to-door collections. There are about 4 500 civic amenity sites, covering about 96% of the French territory, which mainly collect green waste, bulky waste, construction and demolition waste, and recyclables. There is no primary collection system for bio-waste (BiPRO, 2015; Gibbs et al., 2014a).

Collection services are covered by three different financing systems, depending on the municipality:

- Taxe d'enlèvement des ordures ménagères (TEOM): this is paid by the household, is not related to the use of the waste management service, and is generally calculated on the rateable value of the property. It is a council tax and is collected with the annual property rates bill. As it is a discretionary tax, some councils simply decide to fund the service through the general budget (see below). The tax is applied by 67 % of French municipalities, covering 80 % of the population (French Senate, 2015, Gibbs *et al.*, 2014a; Ademe, 2013;).
- Redevance d'enlèvement des ordures ménagères (REOM): this fee reflects the use of waste management services as it is calculated on household composition, residential floor space or waste volumes; 30 % of French municipalities, covering 10 % of the population, apply REOM, including 35% of municipalities with fewer than 500 inhabitants (French Senate, 2015, Gibbs *et al.*, 2014a; Ademe, 2013). This tax may be covered by the general municipal budget, although this option is rarely chosen (see below).
- The general municipal budget is used to cover waste management costs by about 3 % of French municipalities, equal to 10 % of the population (French Senate, 2015, Gibbs *et al.*, 2014a; Ademe, 2013).

Figure 2.6 France, recycling of municipal solid waste and important policy initiatives, 2001–2014



Pursuant to Grenelle I Law, municipalities were required to apply a variable share of the waste tax reflecting the quantities of waste produced by residents, the so-called *redevance incitative* or RI) by the end of 2014. The RI can be applied both within a TEOM and REOM financing system. In particular, an *incitative TEOM* was created by the 2012 Budget Law[8] and the Grenelle II Law and can be applied on an experimental basis for a 5-year period by Etablissements Publics de Coopération Intercommunale (EPCI). About 130 EPCI have made a commitment with the Environment and Energy Management Agency (Ademe) to implement the new system (Ademe, 2013a).

With regard to waste treatment, in 2012, there were 590 composting facilities; 126 incinerators, 113 of which include energy recovery; and 128 landfill sites (Ministry of Ecology, Sustainable Development, 2015).

An overview of the main policy instruments that may have influenced or will influence the recycling rate in France is presented in Figure 2.6.

2.4 Future possible trends

The per capita generation of MSW in France has remained basically stable, in the 2001–2014 period, falling marginally from 526 kilograms to 509 kilograms per person, which is above the EU 2014 average of 474 kilograms per person. It is not yet possible to determine the impact of the new National Waste Prevention Programme 2014–2020 on MSW generation.

The 2016 target for the diversion of biodegradable municipal waste from landfill is likely to be met. It should be noted that the reduction rate of biodegradable municipal waste sent to landfill is almost inversely proportional to the increase in organic recycling, indicating that biodegradable waste has mostly been diverted from landfill to biological treatment. This is also supported by the fact that the amount of incinerated MSW has been very stable between 2001 and 2014.

[8] Article 97, Law 2011-1977 of 28 December 2011.

References

Actu-environnement, 2011. *Emballages: les hypermarchés ne respectent pas le Grenelle* (Packaging : Supermarkets do not respect the Grenelle). (http://www.actu-environnement.com/ae/news/emballages-cniid-grenelle-hypermarches-13024.php4) accessed June 2016.

Ademe (French Environment and Energy Management Agency), 2004. *Plans départementaux d'élimination des déchets ménagers et assimilés. Bilan 2002* (Municipal waste management plans. 2002 Assessment). Bossu, C., Filippi, P.O., Bergey, J.L., Chare, B. and Benony, V. (eds.) Direction Déchets et sols, Ademe. Angers, France.

Ademe (French Environment and Energy Management Agency), 2010. *Industrial, commercial and household packaging in France*. Collection Repère. Angers, France.

Ademe (French Environment and Energy Management Agency), 2011. *Waste prevention in France*, 2011 Status Report. Angers, France.

Ademe (French Environment and Energy Management Agency), 2012a. *Déchets*, Edition 2012. Chiffres clés. (Waste, 2012 Edition. Key data). Angers, France.

Ademe (French Environment and Energy Management Agency), 2012b. *Extended Producer Responsibility Schemes in France – Panorama 2011*, 2012 Edition. Angers, France.

Ademe (French Environment and Energy Management Agency), 2012c. *Waste prevention in France – 2011 Status Report*. Angers, France.

Ademe (French Environment and Energy Management Agency), 2013a. *French know-how in the field of waste management*. Angers, France.

Ademe (French Environment and Energy Management Agency), 2013b. *State of the art of separate collection and local management of bio-waste*. Angers, France.

BIO Intelligence Service, 2012. *Use of economic instruments and waste management performances*. Paris, France.

BiPRO, 2012. *Screening of waste management performance of EU Member States*. Report submitted under the EC project *Support to Member States in improving waste management based on assessment of Member States' performance*. Report prepared for the European Commission, DG ENV. Munich, Germany.

BiPRO, 2015. *Assessment of separate collection schemes in the 28 capitals of the EU*, Final Report. Munich, Germany.

Commissariat général au développement durable, 2013. *Gestion des déchets : bilans 2009–2012 de la TGAP et des soutiens de l'ADEME*. Paris, France

Décret n° 2012-22 du 6 janvier 2012 relatif à la gestion des déchets d'éléments d'ameublement (Decree 2012-22 of 6th January 2012, related to the management of waste originating from furniture).

EC, 1999, Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste. OJ L 182, 16.7.1999, p.1–19.

EC, 2008. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives. OJ L 312 , 22/11/2008, p. 3-30.

EC, 2011. Commission Decision 2011/753/EU of 18 November 2011 establishing rules and calculation methods for verifying compliance with the targets set in Article 11(2) of Directive 2008/98/EC of the European Parliament and the Council. OJ L 310, 25.11.2011, p. 11–16.

EC, 2015. Proposal for a Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste; COM(2015)595 final.

EC, forthcoming, Final Implementation Report for the Directive 1999/31/EC on the Landfill of Waste, prepared by Eunomia Research and Consulting Ltd, ENT Environment and Management, EPEM S.A., Ekokonsultacijos and the Environmental Research Institute (ORZ) for the European Commission, DG Environment under Study Contract DG ENV.C.2/FRA/2013/0023. Brussels, Belgium. Draft report, forthcoming.

Environment Ministry, 2011, 'Premier bilan de la réforme de la TGAP de 2009 et de la politique de soutien sur les déchets ménagers et assimilés' (First assessment of the reform of the 2009 general tax on polluting activities and financing policy on municipal solid waste), 167 pp.

Environment Ministry, 2012a. *Rapport sur les modalités d'évolution et d'extension du principe de responsabilité élargie des producteurs dans la gestion des déchets* (Report on the modalities of evolution and extension of the principle of extended producer responsibility in waste management). Paris, France.

Environment Ministry, 2012b, Personal correspondence.

ETC/SCP, 2012. *Overview of the use of landfill taxes in Europe*. Fischer C., Lehner M., and McKinnon D.L. (eds.) ETC/SCP Working paper 1, 2012. Copenhagen, Denmark. (http://scp.eionet.europa.eu/publications/WP2012_1) accessed 10 August 2016.

Eurostat, 2012. *Results of Eurostat survey on MSW reporting*, presented at a Eurostat conference on 7–8 February 2012. Brussels, Belgium.

Eurostat, 2013. *Country specific notes on municipal waste data.* Brussels, Belgium.

Eurostat, 2015a. *Environment, Waste, Waste streams, Municipal waste by NUTS 2 regions*, pilot project (env_rwas_gen). Brussels, Belgium. (http://ec.europa.eu/eurostat/data/database) accessed December 2015

Eurostat, 2015b. *Tables by themes, General and regional statistics, Regional statistics, Regional demographic statistics, Population on 1 January, NUTS 2 region*. Brussels, Belgium. (http://ec.europa.eu/eurostat/data/database) accessed December 2015.

Eurostat, 2015c. *Tables by themes, General and regional statistics, Regional statistics, Regional demographic statistics, Population density by NUTS 2 region*. Brussels, Belgium. (http://ec.europa.eu/eurostat/data/database) accessed December 2015.

Eurostat, 2015d. *Database by themes, General and regional statistics, Regional statistics, Regional economic accounts, Regional gross domestic product, PPS per inhabitant in % of the EU-28 average, by NUTS 2 regions*. Belgium, Belgium. (http://ec.europa.eu/eurostat/data/database) accessed December 2015.

Eurostat, 2015e. *REQ 2014 – Data validation and clarification on waste statistics. Supply of statistical services in the field of water and regional environmental statistics Lot 2: Regional environmental statistics*. Brussels, Belgium.

Eurostat, 2016. *Environment, Waste, Waste streams, Municipal waste (env_wasmun).* Brussels, Belgium. (http://ec.europa.eu/eurostat/data/database) accessed June 2016

France, 2016. Information received during the Eionet consultation of the paper. E-mail of 6 June 2016 from Xavier Ghew, Ministère de l'Environnement, de l'Énergie et de la Mer.

French-Property.com. 2011. Waste collection is also taxable. (online article). Southend-on-Sea, UK. (http://www.french-property.com/news/tax_france/tax_waste_collection_teom/) accessed 10 August 2016.

French Senate, 2015. *Enlèvement des ordures ménagères et tarification incitative : laisser le choix aux collectivités*. Rapport d'information n° 323 (2013-2014) de MM. Jean Germain et Pierre Jarlier, fait au nom de la commission des finances, déposé le 29 janvier 2014. Paris, France.

(http://www.senat.fr/rap/r13-323/r13-323_mono.html#toc48) accessed 10 August 2016.

Gibbs, A., Elliott, T., Vergunst, T., Ballinger, A., Hogg, D., Gentil, E., Fischer, C., Bakas, I. and Ryberg, M. 2014a. *Development of a modelling tool on waste generation and management — Appendix 1: Baseline report*, Final report for the European Commission DG Environment under Framework Contract No ENV.C.2/FRA/2011/0020. Copenhagen, Denmark.

Gibbs, A., Elliott, T., Ballinger, A., Hogg, D., Gentil, E., Fischer, C. and Bakas, I., 2014b. *Development of a modelling tool on waste generation and management — Appendix 6: Environmental modelling*, Final report for the European Commission DG Environment under Framework Contract No ENV.C.2/FRA/2011/0020. Copenhagen, Denmark.

Gibbs, A., Elliott, T., Vergunst, T., Ballinger, A., Hogg, D., Gentil, E., Fischer, C. and Bakas, I 2014c, *Development of a modelling tool on waste generation and management — Headline project report*, Final report for the European Commission DG Environment under Framework Contract No ENV.C.2/FRA/2011/0020. Copenhagen, Denmark.

Grenelle I Law (2009-967, 3rd August 2009, Art. 46, relating to the implementation of the Grenelle for the environment). Paris, France.

Grenelle II Law (Law No. 2010-788 of 12 July 2010). Paris, France.

Loi No 92-646 du 13 juillet 1992 relative à l'élimination des déchets ainsi qu'aux installations classées pour la protection de l'environnement (Law No 92-646 of 13th July 1992, concerning the disposal of waste and registered organisations for the protection of the environment). Paris, France.

Ministry of Ecology, Sustainable Development, Observation et Statistiques, 2015. Indecators and indecies. Paris, France (http://www.statistiques.developpement-durable.gouv.fr/indicateurs-indices/f/2092/0/dechets-responsabilite-elargie-producteur.html) accessed on December 2015.

Programme national de prevention des déchets 2014-2020 (http://www.developpement-durable.gouv.fr/IMG/pdf/Programme_national_prevention_dechets_2014-2020.pdf) accessed June 2016.

Suez, 2013. How is bio-waste managed in France? (online article)

(http://www.emag.suez-environnement.com/en/biowaste-management-france-10895) accessed 10 August 2016.