

# BENCHMARKING STUDY OF WASTE TREATMENT PERFORMANCE INDICATORS

September 2013

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**FINAL REPORT - SUMMARY**



## SUMMARY

Following the recommendations of the report presented to the French parliament concerning 'Harmonising French performance indicators for municipal waste treatment with those of the other countries of the European Union'<sup>1</sup>, the Ministry for Ecology, Sustainable Development and Energy asked ADEME to provide a benchmarking report about detailed procedures used by various European countries when reporting on municipal waste structural indicators.

The study consists of a comparative analysis of municipal waste data published by France and five other member states, with the aim of answering the following questions:

- to what extent are procedures used by France, in the context of reporting on municipal waste structural indicators and that of monitoring objectives set by the Grenelle of Environment comparable with those used by other European Union countries?
- what are the factors responsible for the wide variation in recycling rates between the countries of the European Union and how should such variation be interpreted?
- what recommendations can be made to ensure increased convergence between French definitions and those of other European Union countries, whilst at the same time maintaining consistency with national reporting and monitoring requirements regarding indicators established by the Grenelle of Environment?

Firstly the report recalls the definitions and conventions concerning the European 'municipal waste' structural indicator. It then provides a detailed examination of the situations in France and the five other countries selected for the benchmarking exercise, the Netherlands, Austria, Denmark, Spain and the Czech Republic, with respect to municipal waste reporting practices.

The study was conducted in 2012, using data available at the end of 2012 on the Eurostat website, responses from member states to the consultation undertaken by Eurostat in 2011 and the answers, provided by the five countries selected, to the questionnaire which they were sent in 2012 for the specific purposes of this report.

Since 2012, several countries have amended the data sent to Eurostat regarding quantities and treatment of their municipal waste. For Austria, one of the countries examined in detail in the report, the new data fully confirms the analyses made in the report.

The report was updated at the end of September, 2013, using data published on the Eurostat website (quantities and treatment of municipal waste) on September 25, 2013.

### Main findings

The heterogeneity of municipal waste indicators reported by EU countries is clearly demonstrated by the Eurostat data, not only by the wide range of municipal waste production levels per person reported by the member states, but also by the very significant variation from one country to another in the ratio between quantities of municipal waste produced and household waste produced.

**However, this does not prevent the identification of two relatively homogeneous groups of countries characterised by different levels of overall recycling rates<sup>2</sup>. The first of these groups consists primarily of countries in Northern Europe, where recycling rates are above the European average (40%) and can even exceed 60%. The second consists of most of the countries which joined the EU during the fifth enlargement, where recycling rates are below 25%. The seven remaining countries form an intermediate group with recycling rates of between 25% and 40%.**

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<sup>1</sup> See Article 46 of August 3, 2009 Law

<sup>2</sup> Overall recycling rates = material recycling rate + composting rate (composting and methanisation)

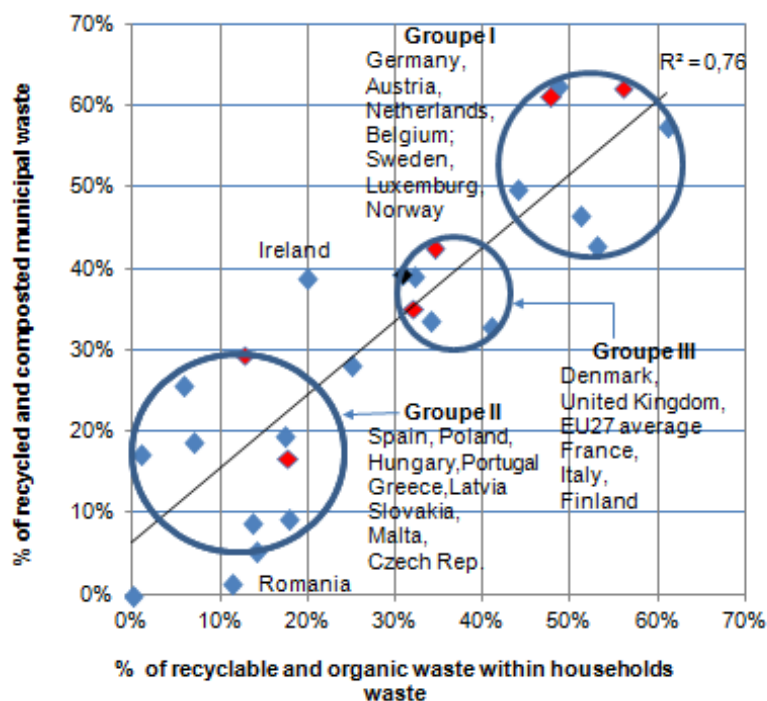
### Overall Recycling Rates

R >50%		50 % > R >40%	
Germany	62.5%	Sweden	47.7%
Austria	62.0%	Luxemburg	46.3%
The Netherlands	60.7%	Denmark	42.7%
Belgium	56.6%	Norway	40.7%
Switzerland	50.1%	Ireland	40.5%
		Slovenia	40.0%
UE (27 countries) 39.8%			
40 % > R >25%		25% > R	
United Kingdom	39.1%	Hungary	22.0%
France	37.2%	Lithuania	20.4%
Finland	34.8%	Portugal	20.0%
Italy	33.4%	Cyprus	19.8%
Estonia	30.5%	Greece	17.7%
Spain	28.6%	Czech Republic	17.0%
Poland	28.1%	Iceland	16.0%
		Latvia	11.6%
		Slovakia	10.6%
		Malta	10.3%
		Croatia	8.4%
		Bulgaria	5.9%
		Romania	1.3%

2011 Source: Eurostat data base (extracted September 2013); recycling rates calculated on the basis of treated waste.

Although municipal waste includes a variable proportion of waste other than household waste, municipal waste recycling rates seem to be closely related to the composition of household waste. The following graph shows the connection between overall municipal waste recycling rates calculated from treated waste, and the percentage of recyclable and organic waste in household waste (excluding mineral waste) for 2010.

### Relationship between composition of household waste and municipal waste recycling rates



Year 2010; Eurostat data;  
Cyprus, Estonia and Lithuania are not included, cf. footnote 4 below

Conscious of the problems affecting the comparability of municipal waste data from country to country, the Eurostat Task Force on waste statistics organised a consultation between member states concerning the categories of waste included in municipal waste and the procedures used to quantify the different treatments.

The consultation confirmed the wide variety of situations prevailing with respect to both composition of municipal waste<sup>3</sup> and reporting conventions used, and therefore also to recycling rates that might result from calculations based on the data provided.

The first cause of data variability is the lack of a sufficiently operational definition of municipal waste. Despite the existence of regulations providing a detailed list of types of waste and a statistical nomenclature, both of which are compulsory, production of consistent data is hampered by data-collecting constraints in each of the countries concerned. Such constraints result partly from the organisation of waste management systems and partly from the wide variety of statistical methods used, which can focus either on the waste collection phase or, on the contrary, on the waste treatment phase.

The second cause of such variability is the coexistence of two main different approaches to report for waste treatments.

The first approach, described as the first treatment approach, focuses on the first destination to which waste is sent. With this approach, when waste passes through pre-treatment facilities (sorting centres, composting or mechanical-biological treatment plants), outputs from such facilities are not assigned to the four final disposal processes (incineration, land-fill, material recycling and composting).

The second approach describes the final treatment of waste once outputs from pre-treatment facilities have been consigned to the corresponding final disposal process. With the first approach, quantities of waste treated are smaller than quantities of waste produced, which can lead to significant bias when calculating recycling rates.

## **Analysis of data obtained from the different countries**

### **France**

Data about municipal waste was obtained from a survey concerning all waste collected by local authorities ('collection' survey conducted by ADEME), whose results are largely consistent with those of the ADEME survey of household and similar waste processing facilities (ITOM survey).

#### ***Composition of municipal waste***

In 2011, the amount of municipal waste produced in France was 527 kg per person, 5% more than the European average (500 kg per person for the 27 members of the EU).

These figures do not include sewage sludge, mineral waste, or waste from specific streams (scrapped vehicles, tyres, batteries or car batteries, WEEE, etc.) In 2009, organic waste (73 kg per person) accounted for 14% of all municipal waste and recyclable waste totalled 19% (100 kg per person).

In 2010, there was 30% more municipal waste than household waste (excluding mineral waste), the former including a share of the waste produced by certain economic activities, in particular the service sector. The average for the rest of the EU was around 20%.

14% of household waste consisted of organic waste, which is exactly the same percentage as for municipal waste. At 58 kg per person, France is ranked 7th in the EU and slightly above the European average of 52 kg per person for the 27 member EU states with regard to the amount of organic waste produced by private households. As opposed to certain other countries, in France organic waste does not include animal waste or food waste, as it comprises only plant material. At 30 kg per person, France is in 6th place with respect to plant material waste from the service sector and waste-related activities, considerably behind Denmark (78 kg per person) and the Netherlands (76 kg).

Quantities of market waste and street cleaning waste, and, to a lesser extent, green waste produced by local authorities, have almost certainly been underestimated in the collection survey. Nevertheless, the coherence of the figures with the results of the waste-processing facilities survey suggests that

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<sup>3</sup> In the text of this report, 'composition of household waste' refers to the different shares arising from mixed and separate collection systems and not to what it actually consists of as determined by household waste characterisation campaigns (such as MODECOM in France).

some of this waste has been allocated to other sections of the results or that it is not collected (and therefore not included in the collection survey), but rather processed on site in dedicated facilities which are not covered by the waste-processing facilities survey, as is the case with green household waste *directly processed by the household*, estimated to be 70 kg per person.

Statistics about municipal (and/or household) waste do not necessarily include organic waste that is not collected but processed on site in specific *non collective* facilities (and therefore outside the scope of the ITOM survey). On the one hand, matter that is recycled on site is not in fact waste, and, on the other hand, the relevant data is by its very nature imprecise and poorly monitored, as it is not regularly covered by statistical surveys but rather assessed on an occasional basis.

France's production of recyclable household waste per inhabitant (70 kg per person) puts it close to the EU average (72 kg per person), level with Denmark, and far below countries like Austria (166 kg per person) or the Netherlands (123 kg per person). The primary differentiating factor is the amount of paper and cardboard waste production, which reaches 81 kg per person in Austria and 68 kg per person in the Netherlands, as against just twenty or so kg in France, Denmark and Spain.

The difference results primarily from the organisation and performance of separate collection systems. In France, for instance, separate collection only involves 25% of the total arising of paper and cardboard in household and similar waste (21 kg per person out of 82 kg), whereas in Austria it involves 80% of the arising (81 kg per person out of 100 kg).

### **Calculation of recycling rates**

When reporting to Eurostat, France partially applies the 'final treatment' approach. Sorting centres rejects (around 20% of total inputs) are assigned to landfill and/or incineration. On the other hand, materials unsuitable for composting or methanization are not deducted from composting volumes.

If composting plants rejects, particularly those from MBT plants, are included in mixed general household waste, composting rates fall significantly (from 16.2% to 12.5%). As a relatively large share of composting plants rejects are consigned to material recycling, the drop in composting rates would be partially offset by the increase (from 18.6% to 19.7%) in material recycling rates.

Overall, if the 'final treatment' approach were applied to composting rejects, total recycling rates would fall from 34.9% (2010 structural indicator) to around 32.2%.

## **The Netherlands**

### **Composition of municipal waste**

In 2011, the amount of municipal waste produced was 597 kg per person, ranking the Netherlands sixth in the whole of the EU. Sewage sludge and end-of-life vehicles (ELV) are not included. Mineral waste totalled around 20 kg per person, the same as market and street cleaning waste, whereas only small quantities of equipment and waste from economic activities are included.

Excluding market and street cleaning waste (20 kg per person), organic waste (142 kg per person, including 39 kg per person for green waste from parks and gardens) accounts for 24% of municipal waste and recyclable waste around 20% (120 kg per person).

Not including soil and rubble, municipal waste generation totalled 574 kg per person, which was 15% more than household waste generation (excluding mineral waste).

22% of household waste was organic waste. At 103 kg per person, the Netherlands is in 3rd place in the EU, after Luxemburg and Germany, with twice the European average. As opposed to the situation in France and Germany, the majority (74%) of organic waste consists of animal and food waste. Green waste from the service sector totalled 71 kg per person, the second highest level in the EU.

If Cyprus, Estonia and Lithuania are not included, as the data from these countries does not appear to be entirely reliable<sup>4</sup>, the Netherlands is ranked third in the European Union with 123 kg of recyclable household waste per inhabitant. This is mainly owing to paper and cardboard waste volumes (68 kg per person), which are comparable only with those of Austria and Germany.

<sup>4</sup> For these three countries recyclable waste ratios per person are respectively 318 kg, 153 kg and 137 kg, but this is a result of exceptionally high ratios (over 100 kg per person) of metal and/or cardboard, paper and plastic waste



### **Calculation of recycling rates**

When reporting to Eurostat, the Netherlands only includes waste consigned directly to the four final disposal processes, excluding waste sent to pre-treatment facilities (sorting centres and MBT plants). 86% of waste produced is processed. Calculations based on volumes of processed waste give recycling rates of 60.9% for 2010.

Based on incomplete information concerning outputs from pre-treatment plants, sent to Eurostat within the framework of a municipal waste survey, recycling rates calculated taking into account waste consigned to incineration and/or landfill after pre-treatment would be between 51% and 56%, or 5-10 points below the structural indicator. In 2008, composting rates would have been 24% and material recycling rates 29.5%, as against 27.4% and 32.7% respectively. If soil and rubble (probably sent mainly for material recycling) are excluded, material recycling rates could fall to 24.5% and overall recycling rates to 48%. In this case, the rate would be some 12 or 13 points below the structural indicator.

### **Austria**

Analysis based on data provided in 2012

#### **Composition of municipal waste**

In 2010, the amount of municipal waste produced was 591kg per person, putting Austria in seventh place in the whole of the EU. This does not include mineral waste, sewage sludge or ELVs. Market and street cleaning waste totalled 26 kg per person. The results also include a small quantity of hazardous waste, which undergoes specific treatment processes. Organic waste totalled around 177 kg per person, excluding market and street cleaning waste, thus accounting for 30% of municipal waste. Production of recyclable waste was somewhat lower, at 166 kg per person, or 28% of municipal waste.

Production of municipal waste was 35% higher than that of household waste (excluding mineral waste).

Quantities of organic waste included in household waste vary considerably. In 2008 it accounted for 19% of household waste and 86 kg per person, whereas in 2010 there were only 55 kg per person and Austria ranked 8<sup>th</sup> compared with the rest of the EU, just below France. Organic waste from the service sector amounted to 67 kg per person, the highest level in the European Union after the Netherlands and three times the European average.

In 2009, parks and gardens waste totalled 38 kg per person, added to which there were around 50 kg per person of graveyard and green road maintenance waste.<sup>5</sup>

With 163 kg of recyclable household waste per inhabitant, more than twice the European average, in 2010 Austria was ranked first in the EU, with Belgium in second place (131 kg).

As mentioned previously, these results arise primarily from the levels of paper and cardboard waste (81 kg per person, the European record), although glass (27 kg), wood (24 kg) and plastic (18 kg) also play their part.

#### **Calculation of recycling rates**

When reporting to Eurostat, Austria partially applied the 'final treatment' approach, allocating pre-treatment plant outputs to the corresponding final disposal process. Sorting centres and MBT rejects are mainly included in incineration figures. The overall recycling rate (structural indicator), which results from the high levels of recyclable and organic waste, is 70%, made up of 30% material recycling and 40% composting.

This method however includes in its composting element the 'low calorie' share of mixed households ordinary waste consigned to MBT plants, where it is pre-treated in order to reduce its volume and toxicity, even though the resulting pre-treated waste is then consigned to landfill.

If the above is amended, so that outputs from the pre-treatment process in question are assigned to landfill, composting rates fall to 32.4%, whereas material recycling rates increase very slightly to 31%. This approach results in a drop in volumes processed in comparison with volumes produced that is the equivalent of the loss in mass engendered by pre-treatment (dehydration). Overall, recycling rates would then be 63% rather than 70%, i.e. a drop of 6 or 7 points.

<sup>5</sup> This type of waste would not be included in municipal waste calculations for France (source ADEME)

### Analysis based on revised data (September 2013)

In the most recent data sent to Eurostat, Austria reduced the quantities of municipal waste generated by 5.6%. Moreover, based on the convention described in the previous paragraph with respect to final disposal of outputs from MBT plants, the overall recycling rate falls from 70% to 62%, with landfill increasing by 0.7% to 3.4% and incineration by 29.5% to 34.5%. The ratio between quantities of waste treated and quantities of waste produced then drops to less than 1:0.96.

### **Denmark**

In 2010, Denmark introduced a new system for reporting its waste statistics, which resulted in a break in statistical serie, and, more particularly, a significant fall in material recycling rates.

#### ***Composition of municipal waste***

In 2011, the amount of municipal waste produced was 719 kg per person, putting Denmark in first place for the whole of the EU. Soil and rubble is almost completely excluded (3 kg per person). Municipal organic waste totalled 130 kg per person, or 19% of all municipal waste. Production of recyclable waste (approximated from separate collection figures) amounted to 111 kg per person, or 17% of municipal waste. Waste from economic activities is included in municipal waste at a rate of 53 kg per person (8% of municipal waste). No data is available concerning market and street cleaning waste.

Production of municipal waste is 73% greater than that of household waste excluding mineral waste, the highest percentage in the whole of the European Union apart from Malta.

Quantities of organic waste included in household waste total 46 kg per person. In 2010 this was the equivalent of 12% of all household waste (excluding mineral waste), and Denmark was therefore ranked 11<sup>th</sup> in the EU, with a level very slightly below the average for the 27 EU member states (52 kg per person). The volume of municipal organic waste is the sum of organic household waste, organic waste from the service sector (22 kg per person) and organic waste from waste management activities (58 kg per person).

With 71 kg of recyclable household waste per member of the population (19% of household waste excluding mineral waste), in 2010 Denmark was in ninth place in the European Union<sup>6</sup> (EU 27 average = 72 kg per person), just in front of France (70 kg).

#### ***Calculation of recycling rates***

In its response to the Eurostat questionnaire, Denmark stated that, until 2009, waste-processing data was based on declarations from processing and pre-treatment plants, the latter being required to state the (final) disposal destination for incoming waste. Quantities processed were the same as those generated, which suggests that Danish data is based on the 'final treatment' system.

Composting rates are 19%, which is the percentage of organic waste in municipal waste<sup>7</sup>. Material recycling rates are 23%, 6 points higher than the percentage of municipal waste collected separately.

As Danish data is based on the 'final treatment' approach, changing the calculation conventions regarding the structural indicator does not appear to be appropriate.

### **Spain**

#### ***Composition of municipal waste***

In 2011, the amount of municipal waste produced was 498 kg per person, ranking Spain fourteenth overall in the whole of the EU. This does not include soil or rubble. Organic waste totalled only 21 kg per person (4% of municipal waste), including 9 kg of green waste from parks and gardens. Recyclable waste came to 59 kg per person (11% of all municipal waste). Waste from economic activities and market and street cleaning waste is included but quantities are not given.

In 2010, production of municipal waste was only 4% higher than that of household waste (excluding mineral waste).

Quantities of organic waste included in household waste came to 12 kg per person, which is less than a quarter of the overall average for the EU 27 member states (52 kg per person). This puts Spain in

<sup>6</sup> Excluding Cyprus, Estonia and Lithuania

<sup>7</sup> However, it is possible that the quantity of organic waste in municipal waste has in fact been derived from quantities of composted waste.



17th place for the EU, after the Czech Republic. This waste comprises solely animal and food waste. When adding green waste from parks and gardens, one obtains the share of organic waste in municipal waste.

With 49 kg of recyclable household waste per member of the population (10% of household waste excluding mineral waste), in 2010 Spain ranked twelfth in the European Union overall<sup>8</sup> (EU 27 average = 72 kg per person).

### **Calculation of recycling rates**

Material recycling (84 kg per person and 17% of municipal waste) and composting (59 kg per person and 12 % of municipal waste) levels in Spain are significantly higher than the respective percentages of recyclable waste (59 kg per person and 11%) and organic waste (21 kg per person and 4%) in municipal waste.

Available data only relates to final disposal processes, which means that pre-treatment flows (MBT plants and sorting centres), which clearly play a significant part in calculating recycling rates, cannot be described.

As Spanish data is based on the 'final treatment' approach, changing the calculation conventions regarding the structural indicator does not appear to be appropriate.

### **Czech Republic**

Municipal waste totals declared by the Czech Republic in the context of the structural indicator are the same as those for household waste declared in the context of the Waste Statistics Regulation, although, according to the Czech Republic's reply to the In Numeri questionnaire, green waste from parks and gardens and street cleaning waste are also included.

### **Composition of municipal waste/household waste**

In 2011, the amount of household waste produced was 320 kg per person, making the Czech Republic one of the lowest placed countries in the EU in terms of producing household waste and even more so in terms of municipal waste. Organic waste totalled 16 kg per person, or 5% of household waste, and recyclable waste amounted to 39 kg per person, or 12% of household waste. The Czech Republic is in 17th place in the EU for these two ratios.

### **Calculation of recycling rates**

In 2011, the overall recycling rate was 17%, the seventh lowest rate for the whole of the European Union.

Volumes of processed waste are 4% below those of waste produced. According to the information provided, only direct flows to treatment plants are included. Material recycling rates come to 15%, very slightly above the share of recyclable waste contained in household waste. Composting rates are just 2.2%, which represents less than half the quantity of organic waste contained in household waste. Either way, both levels are extremely low.

As municipal waste and household waste have been considered to be the same and no data is available concerning indirect flows, it has not been possible to ascertain the validity or otherwise of the data concerning recycling rates.

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<sup>8</sup> Excluding Cyprus, Estonia and Lithuania

## Synthesis

An analysis of the data from these six countries clearly demonstrates that the composition of municipal waste is the primary factor behind variations in recycling rates between countries.

### Composition of municipal waste and recycling rates

#### a) Recyclable waste and material recycling rates

There is a certain parallel between household recyclable waste and municipal recyclable waste, with the percentage of recyclable waste being generally somewhat lower in municipal waste. Performance in paper and cardboard collection (81 kg per person in Austria and 68 kg per person in the Netherlands) is the predominant reason for the size of the share of recyclable waste in household waste – and therefore in municipal waste.

#### Recyclable waste

	kg per person		% in total	
	Household	Municipal	Household	Municipal
Austria	163	166	35%	28%
The Netherlands	123	121	24%	21%
Denmark	71	111	19%	17%
France	70	101	17%	19%
Spain	49	59	10%	11%
Czech Republic	39	39	13%	13%

Data about municipal waste consists of estimates based primarily on responses to the questionnaire on the composition of municipal waste sent by In Numeri to the various countries. This data refers to different years – generally 2008/2009/2010. Data concerning household waste is from Eurostat sources (for 2010)

#### b) Organic waste and composting rates

For three of the countries, quantities of organic waste increase very significantly when switching from household waste to municipal waste. For the Netherlands and Austria, this is because green waste from local authorities and organisations is included. For Denmark, the rise might be due to the inclusion of waste from waste management activities.

#### Organic waste

	kg per person		% in total	
	Household	Municipal	Household	Municipal
Austria	86	177	19%	30%
The Netherlands	103	143	20%	24%
Denmark	46	130	12%	19%
France	58	73	14%	14%
Spain	12	21	2%	4%
Czech Republic	16	16	5%	5%

Data about municipal waste consists of estimates based primarily on responses to the questionnaire on the composition of municipal waste sent by In Numeri to the various countries. This data refers to different years – generally 2008/2009/2010. Data concerning household waste is from Eurostat sources (for 2010)

Overall, ranking of countries by recycling rates reflects their ranking by percentage of organic or recyclable waste.

### Composition and recycling rates

	Organic waste		Recyclable waste	
	% in municipal waste	Composting rates	% in municipal waste	Material recycling rates
Austria	30%	34%	28%	28%
The Netherlands	24%	28%	21%	33%
Denmark	19%	19%	17%	23%
France	14%	17%	19%	18%
Spain	4%	12%	11%	18%
Czech Republic	5%	2%	13%	14%

Data about municipal waste consists of estimates based primarily on responses to the questionnaire on the composition of municipal waste sent by In Numeri to the various countries. This data refers to different years – generally 2008/2009/2010. Data concerning household waste is from Eurostat sources (for 2010), extracted in September 2013. For Austria, recycling rates according to data extracted at the end of 2012 were 40% (composting) and 30% (material recycling) respectively.

For three countries (the Netherlands, Denmark and Spain) material recycling rates are 6 to 12 points higher than the percentage of recyclable waste in municipal waste. Except for the Netherlands, whose reports are based on the first treatment approach and therefore do not include waste sent for pre-treatment, the situation is explained by the fact that unsorted waste is sent to sorting centres and/or MBT plants.

With respect to the Netherlands, it has been supposed that recycled waste includes other categories of waste, such as bulky waste, equipment and mineral waste.

Composting rates in Austria, France and Spain are 3 to 8 points higher than the percentage of organic waste in municipal waste. This difference is explained by unsorted waste passing through composting or MBT plants. For the Netherlands, however, the reporting method excludes this hypothesis.

### Impact of calculation method

For three of the countries examined, it was possible to recalculate recycling rates by adopting a consistent approach based on assigning outputs from pre-treatment plants to the corresponding final disposal processes. This has generally resulted in a fall, sometimes quite considerable, in recycling rates.

Nevertheless, the new calculations have little effect on relative positions of the various countries in terms of overall recycling rates.

	Material recycling rates	
	Original	Amended
Austria (1)	30%	31%
The Netherlands	33%	26%
France	18%	19%

	Composting rates	
	Original	Amended
Austria (1)	40%	32%
The Netherlands	28%	26%
France	17%	13%

	Overall recycling rates	
	Original	Amended
Austria (1)	70%	63%
The Netherlands	61%	52%
France	35%	32%

(1) Recycling rates for Austria are based on data extracted at the end of 2012; as shown in the most recent data sent to Eurostat, Austria's composting rates have fallen to 34% and material recycling to 28%

### Recommendations

The Eurostat Task Force has made a number of recommendations as to how to achieve a greater degree of consistency regarding the conventions used when reporting structural indicators.

The Task Force felt that it would be particularly desirable for outputs from pre-treatment facilities (sorting centres and MBT plants) to be assigned to the corresponding final disposal process rather than being omitted or simply assigned en masse to a single final disposal process.

Recommendations from the task force were less detailed with regard to municipal waste, apart from confirming the importance of the definition featuring in the OECD/Eurostat joint questionnaire, and the need to include household packaging waste (chapter 15 in the waste list). Looking at the current situation, this may not be enough to achieve more consistent application of this definition across the different countries of the European Union.

Taking the subsidiarity principle into account, municipal waste reporting depends on the specific conditions prevailing in the various member states.

These are to be found at two levels:

- a) the systems used to collect, pre-treat and process waste - what exactly they cover, and whether they are publicly or privately operated,
- b) the statistical methods used, which can favour collecting data either purely from the collection phase and/or from the pre-treatment and final disposal phase.

Such a situation makes it very difficult to achieve true consistency, without significantly increasing the workload of statistics services. A solution could be asking them to provide, at the very least, a qualitative description of the composition of municipal waste.

Although the recycling objectives set by the Grenelle Environment Forum refer to household and similar waste rather than municipal waste, and are expressed in terms of waste being sent for recycling as opposed to waste actually undergoing recycling, it nevertheless seems desirable to adopt the European structural indicator on municipal waste as a way of monitoring achievement of the Grenelle objectives, in order to avoid increasing the number of statistical assessments performed.

To do this, it will be necessary to:

- a) slightly alter the 'collection' survey in such a way as to improve reporting on municipal green waste, market waste, and street cleaning waste.
- b) improve the characterisation of sorting centre outputs according to waste inputs, so as to be able to differentiate between sorting centres rejects arising from mixed general business waste and those arising from household and similar waste.

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## ABOUT ADEME

The French Environment and Energy Management Agency (ADEME) is a public agency under the joint authority of the Ministry of Ecology, Sustainable Development and Energy, and the Ministry for Higher Education and Research. The agency is active in the implementation of public policy in the areas of the environment, energy and sustainable development.

ADEME provides expertise and advisory services to businesses, local authorities and communities, government bodies and the public at large, to enable them to establish and consolidate their environmental action. As part of this work the agency helps finance projects, from research to implementation, in the areas of waste management, soil conservation, energy efficiency and renewable energy, air quality and noise abatement.

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