

# WASTE



Eurostat estimates that 2,300 million tonnes of waste were generated in 2010 in the EU-27. Approximately 5% of them came from Spain. Per inhabitant, this amount means, roughly, that during this year each European generated around 4,500 kg of waste, while in Spain this quantity was lower than the European average, with less than 2,451 kg/inhabitant. These figures are, without doubt, very worrying, since landfill is not a sustainable solution and the destruction of waste is highly problematic because of the environmental consequences of the by-products produced.

Reduction in waste generation is the first step in its management, as this avoids having to get rid of it. When is not possible to avoid its generation, the best bet is to recover the materials that makes up the waste in order to reuse them, preferably by recycling them. There are two parts to this: firstly, it is necessary that goods manufacturers improve production methods and, secondly, that consumers adapt their consumption patterns and choose recycled products, more ecological products and those with less packaging.

Municipal wastes are only a small part of the total waste generation, but due to the complexity of their composition and origin (basically coming from each individual household), and their collection and transport, they are a good indicator of the trends in waste generation, as well as of the



effectiveness of waste policies, as they provide the ability to identify if these policies give rise to a decoupling between economic growth and waste generation. Also, municipal waste treatment is an indicator of the compliance of the waste management hierarchy.

Article 22 of Law 22/2011 on Waste and Contaminated Soils, establishes both the objectives for the recycling of domestic and commercial waste, and of the recovery of waste from construction and demolition, that must be achieved before 2020: 50% and 70% respectively. These objectives have been established by the framework Directive 2008/98/CE, with the aim of moving forward towards a recycling society with a high level of efficiency in the use of the resources. These goals must be achieved by the adoption of measures through the plans and programmes implemented by autonomous communities, local bodies, and also by the General Administration of the State.

#### KEY MESSAGES

- The total production of municipal waste has decreased in recent years. Additionally, the production per inhabitant has also decreased, having reached a maximum in 2000. Between 2000 and 2011 the decrease has been of 19.3%, from 658 kg/inhabitant to 531 kg/inhabitant.
- The quantity of waste deposited in landfills (9% between 2000-2011) has been reduced, although it is still the most common treatment system and around 60% of the municipal waste generated in 2011 ended up in landfill.
- The overall rates for recycling and recovery of packaging waste show an almost constant, increasing trend, above the objectives set out by Spanish legislation.
- Spain is, with a paper and cardboard rate close to 80% in 2011, one of the EU countries that recycles the most.

#### INDICATORS

- Urban waste generation
- Urban waste management
- Packaging waste recycling and recovery
- Paper and cardboard recycling



# Urban waste generation

## Municipal waste generation in Spain decreases

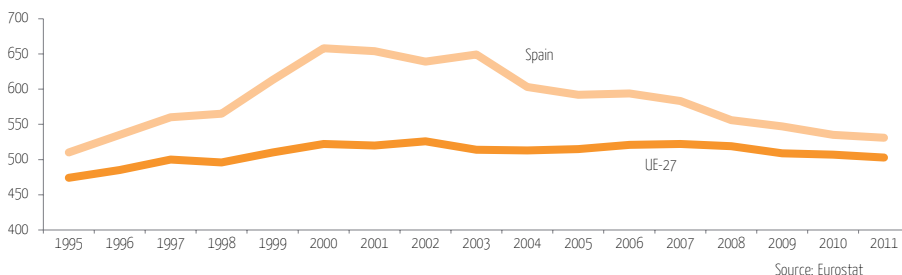
Municipal waste generation in Spain (1,000 tonnes)

2005	2006	2007	2008	2009	2010	2011
25,683.0	26,209.2	26,237.8	25,317.0	25,108.0	23,774.4	22,997.0

Source: MAGRAMA

A decline in municipal waste generation in Spain is evident. In 2011 around 23 million tonnes were collected in the country, 10.5% less than in 2005. 2007 saw the highest municipal waste production of the last six years, with more than 26 million tonnes.

Municipal waste generation (kg/inhab)



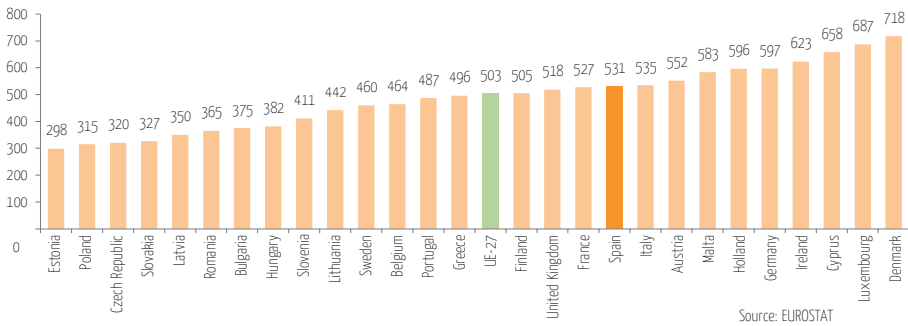
Source: Eurostat

Analysing the quantity per inhabitant within the European context, two trends can clearly be observed in Spain: the increase that occurred between 1995 and 2000, and the decrease that began as of that latter year. In Spain, this fall has been practically continuous, with the exception of an increase experienced in 2003, with the decline reaching 19.3% between 2000 and 2011 and 10.3% between 2005 and 2011.

With respect to the EU, the waste generated was reduced to a lesser extent between 2005 and 2011 (2.3%). Spain offers figures that are slightly higher per inhabitant and per year compared to the European average, although the efforts for reduction made during recent years have been significantly greater. In 2011, Spain generated 9.7% of all the municipal waste of the EU-27, with 531 kg/inhabitant generated. This was slightly higher than the 503 kg/inhabitant generated in the EU-27, and placed Spain tenth among the EU-27 countries.



### Municipal waste generation (kg/inhab). Year 2011



#### NOTES

- The indicator shows municipal waste generation expressed in kilograms per inhabitant (kg/inhabitant) and refers to waste collected by municipal services or by related services contracted by local councils as part of a municipal waste management system. Most of this waste comes from households, although waste from similar sources, such as retail outlets, offices and public institutions, is also included.
- For compliance with the information requirements of the European Commission and under its criteria, the following are not considered municipal waste: construction and demolition wastes, sewage sludge and end-of-life vehicles.
- Law 22/2011 considers as 'waste' any substance or objects that its owner throws away or has either the intention or obligation to throw away. 'Domestic waste' is considered any waste generated in households as a result of domestic activities and those similar to the above generated by services and industries. This category includes waste electrical and electronic equipment, clothing, batteries and accumulators, furniture and fittings, together with waste and rubble from minor building work and household repairs. The waste generated from cleaning streets, parks, recreational areas and beaches, dead domestic animals and abandoned vehicles will also be considered domestic waste.
- National and European legislation on waste does not include a definition for urban or municipal waste, so in order to comply with the information requirements of the European Commission and Eurostat, municipal wastes are considered to be those generated in households, commerce and services, and includes municipal services: cleaning public streets, parks, recreational areas and beaches, dead domestic animals, with its management being a competence of local bodies or provincial councils, according to article 12, paragraph 5 of the Law 22/2011, of 28 of July, on Waste and Contaminated soils.

#### SOURCES

- Sub-Directorate-General for Waste. Directorate-General for Environmental Quality and Assessment and Natural Environment. Ministry of Agriculture, Food and Environment.
- Eurostat: Sustainable development indicators/Sustainable consumption and production/Resource productivity/ Municipal waste generation and treatment, by type of treatment method.

#### FURTHER INFORMATION

- <http://www.magrama.es>
- <http://www.ine.es>
- <http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators/>



## Urban waste treatment

During the period 2000-2011 the waste per inhabitant deposited in landfill in Spain has been reduced by around 9%, although it continues to be the most used disposal method

Municipal waste treatment in Spain (1,000 tonnes)

Type of treatment	2005	2006	2007	2008	2009	2010	2011
Landfill	12,584.0	15,656.7	14,921.1	14,797.9	14,539.9	14,788.9	14,518.3
Incineration with energy recovery	1,915.0	2,383.1	2,258.0	2,391.6	2,240.6	2,043.8	1,906.5
Recycling (except composting)		3,646.3	3,904.0	3,728.3	3,811.0	4,174.7	3,855.8
Composting		4,523.2	5,154.7	5,112.2	4,516.5	2,767.1	2,716.4

Source: MAGRAMA

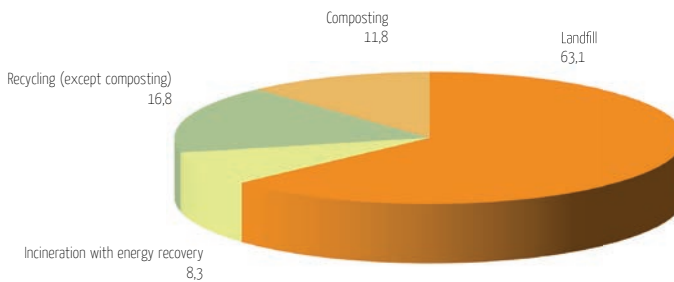
In absolute terms, around 63.1% of the 23 million tonnes of municipal waste generated in Spain in 2011 were sent to landfill. This management system is one of the main challenges being faced in order to decrease this proportion, which over recent years has been around 60%.

Nevertheless, an improvement in waste management through recycling can be seen, increasing from 13.9% of waste in 2006 to 17% in 2011. Composting, as a recycling method, is less in demand and only 12% of municipal waste that year was destined for composting. 28.6% of waste was treated by these two recycling methods, a slightly lower percentage compared to previous years.

For its part, incineration with energy recovery maintained its proportion of total waste seen over recent years (between 9.1% and 8.3%).



### Municipal waste treatment. Year 2011 (%)



Source: MAGRAMA

In relative terms (kg/inhabitant), the distribution of municipal waste managed by the different treatment systems shows, according to Eurostat, a situation similar to absolute values, although it does not coincide with the overall situation in which land fill was also the destination for the largest amount of waste per inhabitant.

### Distribution of the destination of municipal waste generated in Spain per inhabitant and year (%). 2011

Landfill	57.8
Incineration with energy recovery	9.0
Recycling	15.1
Composting	17.9

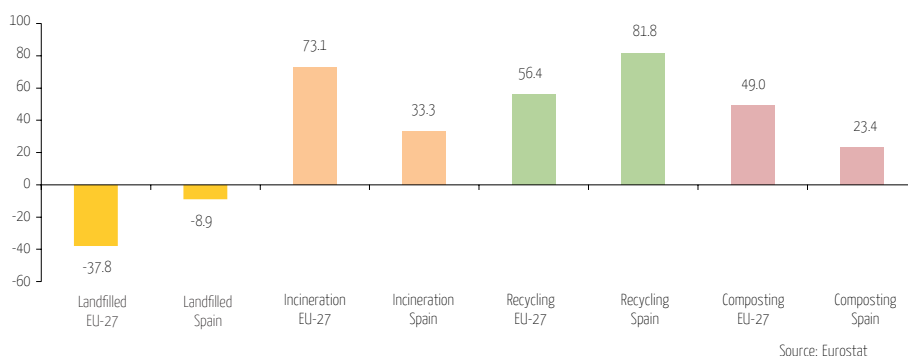
Source: MAGRAMA

The trend seen in the Eurostat figures relating to waste management and treatment per inhabitant is positive. Concerning the period 2000-2011, the municipal waste per inhabitant sent to landfill in Spain decreased almost 9%, a lower amount than the 37.8% reduction experienced as an average within the EU-27. This reduction occurred together



with an increase in the different treatment systems, with the growth of incineration with energy recovery being notable across the EU, increasing by more than 73% and, in Spain, of recycling, which has increased by 81.8%.

Variation of municipal waste treatment within the EU-27 and Spain (kg/inhabitant). 2000-2011



Source: Eurostat

#### NOTES

- The indicator shows the quantity of waste sent to the different treatment systems in absolute terms. Also the variation during the period 2000-2011 in relative terms per inhabitant referenced to Spain and the EU-27.
- See notes for the previous indicator.

#### SOURCES

- Sub-Directorate-General for Waste. Directorate-General for Environmental Quality and Assessment and Natural Environment. Ministry of Agriculture, Food and Environment.
- Eurostat: Sustainable development indicators/Sustainable consumption and production/Resource productivity/Municipal waste generation and treatment, by type of treatment method

#### FURTHER INFORMATION

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- <http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators>

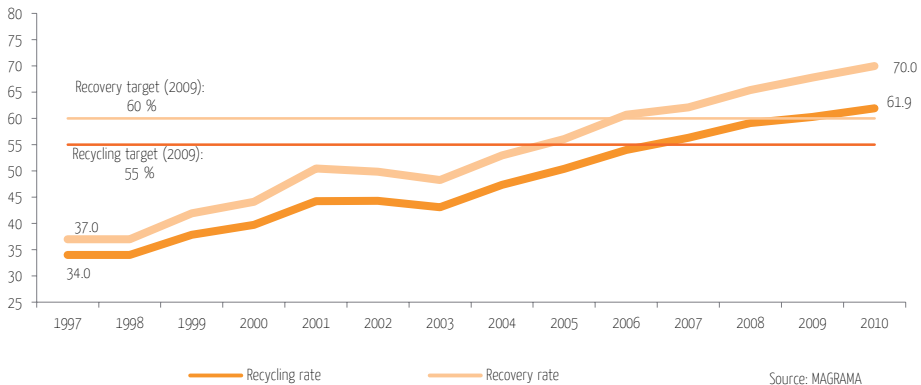




## Packaging waste recycling and recovery

*Packaging waste recycling and recovery rates are still growing. Since 2007 they have been above the established overall targets*

Global rate of recycling and recovery waste packaging (%)



The overall rates for packaging waste recycling and recovery show a practically constant growth trend, being above the targets established by the legislation. In 2006 the recovery rate was 60.7%, with the a target of 60% having been set for no later than 30 June 2008. Therefore, by 2006 this overall target had already been met. In 2010 the rate was 70%.

The recycling rate in 2007 was 56.3%. The target set was for between a minimum of 55% and a maximum of 80% of packaging waste to be recycled by 31 December 2008. Therefore, in 2007 the global target set for the end of 2008 had already been met. Likewise, the recycling rate has continued to grow, reaching 61.9% in 2010.

The recycling and recovery rates in 2010 by material type are shown below. In 2008 the objectives set by the legislation on recycling were met, not only at global level but also for each one of the materials. The recycling rates have continued to increase in a satisfactory manner, with the exception of glass, that in 2010 presented a rate slightly lower than the 60% rate established.





Tasas de reciclado y valorización de residuos de envases (%). 2010

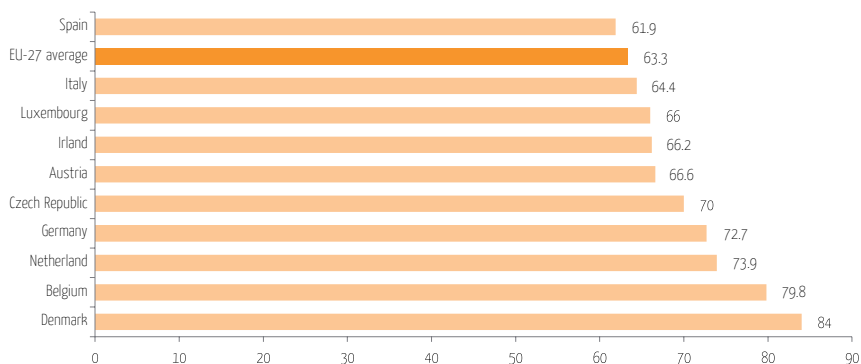
	Glass	Plastic	Paper and board	Metals	Wood	Total
Recycling rate	59.8	29.2	76.1	70.7	56	61.9
Recovery rate	59.8	51.1	81.6	70.7	73.3	70

Source: MAGRAMA

For several years now Spain has been ranked fifth in terms of packaging waste generation, behind Germany, France, Italy and UK and, in 2010, the country generated 9.4% of total EU-27 packaging waste. That year these five countries produced 73.4% of all EU-27 packaging waste.

Concerning the recycling rate, in 2010 Spain occupied the tenth position among the EU-27 countries, with a rate of 61.9%, slightly lower than the EU-27 average of 63.3%. Denmark, with a rate of 84% was the leading country that year.

Packaging waste recycling rate within the EU-27. Year 2010 (%).  
Ten countries that recycle the most



Source: EUROSTAT



In 2011 Ecoembes had more than 12,000 companies in its Integrated Management System and managed 1,844,665 t of packaging waste. In general, the main sectors are: principally food, followed by drinks, then hygiene and beauty. 20.8% of the companies in the system were from Catalonia, 13.7% from Valencia, 12.2% from Madrid and 11.7% from Andalusia.

#### NOTES

- The recycling and recovery rate is calculated by comparing the number of tonnes recycled and recovered for their energy value (measured at the point of entry into the recycling and recovery process) with the total packaging waste generated, taken to be equal to the total amount placed on the market. It is assumed that the quantities of reusable packages from previous years that become waste will balance out the reusable packages placed on the market during that year, but that continue to be reused.
- The data on packaging waste refers to domestic, commercial and industrial packaging.
- Packaging waste is regulated in Spain by Law 11/1997, of 24 of April, on Packaging and Packaging Waste, and Royal Decree 782/1998, of 30 April, approving the Regulation on the development and enforcement of Law 11/1997.
- Targets established:
  - Recovery: no later than 30 June 2008 a minimum of 60% of packaging waste by weight to be recovered or incinerated with energy recovery.
  - Recycling: no later than 31 December 2008 between a minimum of 55% and a maximum of 80% of packaging waste by weight to be recycled.
  - Recycling by materials: no later than 31 December 2008 the following recycling targets for the materials contained in packaging must be met: 60% by weight for glass, 22.5% by weight for plastics, 60% by weight for paper and board, 50% by weight for metals and 15% by weight for wood.
- Ecoembalajes España, S.A (Ecoembes) is a non-profit public limited company whose purpose is to design and implement systems for the selective collection and recovery of used packages and packaging wastes, with the aim of guaranteeing compliance with the reduction, recycling and recovery targets defined in the Law 11/1997.

#### SOURCES

- Sub-Directorate-General for Waste. General Directorate for Environmental Quality and Assessment. Ministry of Agriculture, Food and Environment.
- Eurostat/Sustainable development indicators/Sustainable consumption and production/Resource productivity/Municipal waste generated/Municipal waste treatment, by type of treatment method.

#### FURTHER INFORMATION

- <http://www.magrama.es>
- <http://www.ecoembes.com>
- <http://epp.eurostat.ec.europa.eu>

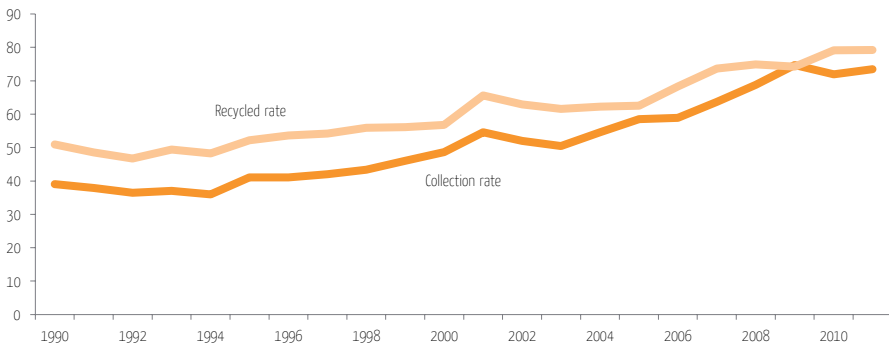




## Paper and cardboard recycling

*The paper and cardboard collection rate increased in 2011, while the recycling rate was similar to that of 2010*

Paper and cardboard collection and recycling rates (%)



Source: ASPAPEL and REPACAR

The 2011 annual monitoring report of the European Recovered Paper Council reported the rate for recycled paper within the EU as being 70.4%. The total quantity of collected and recycled paper was maintained at around 58 million tonnes. Over the period 1998-2011 this increased by 18 million tonnes. In total 13 of the EU-27 countries have a recycling rate over 70% (with Spain being one of them), while 12 are above 60%.

The quantity of paper and cardboard recovered in Spain in 2011 was 4,722 million tonnes, an increase of 1.8% with respect to 2010. The collection rate increased in 2011, to reach 73.5% of the paper consumed in Spain. The recycling rate maintained almost identical values to 2010, with a small increase of 0.1%: going from 79.1% in 2010 to 79.2% in 2011. Spain is one of the leading European countries in relation to the management and recycling of paper and cardboard waste.

The advance figures for 2012 for paper recovery, given by the Spanish Recovered Paper Association, suggest a fall of 3.6% in the recovered paper and cardboard production in Spain, reaching 4,551 million tonnes. It is estimated that the collection rate increased slightly, to



73.9%. Spanish recovered paper production is destined for internal consumption, which in 2012 was 3,841 million tonnes (85% of Spanish production).

The National Statistics Institute estimates that 31.2 kg/inhabitant of paper and board were collected in 2010 (32.9% more than in 2009). Asturias, with 85 kg/inhabitant, is the autonomous community with the highest values of selective collection of paper and cardboard, followed by the Basque Country with 77.8 kg/inhabitant and Catalonia with 60.4 kg/inhabitant.

#### NOTAS

- The collection rate, which is expressed as a percentage, indicates the ratio between the quantity of paper recovered and the quantity of paper and cardboard consumed. Used paper and cardboard are recovered for recycling by various means: industrial collection (from companies, publishers, printers and large retail outlets), selective collection (through blue containers and 'door to door' collection from small retail outlets) and specific collection (from offices, public building, recycling points, etc.). After being cleaned and sorted into different grades, the recovered paper is used as raw material by the paper industry to produce new paper.
- The recycling rate for waste paper and cardboard is calculated as the ratio between the quantity of paper recovered and apparent consumption of paper and cardboard. Apparent consumption is calculated by adding the quantity imported to the quantity produced and deducting exports.
- The utilisation rate, which is expressed as a percentage, is calculated as the ratio between the quantity of paper recovered and the quantity of paper produced.
- In the Survey on the Collection and Treatment of Waste for 2009 (INE, press release of 26 October 2011), selectively collected waste is defined as the product of the separate collection of fermentable organic materials and recyclable materials, as well as that of any other separate collection system that permits the separation of recoverable materials content in wastes. It does not include waste recovered in screening and sorting plants.

#### SOURCES

- Spanish Recovered Paper Association, 2012. Activities memorandum REPACAR 2011.

#### FURTHER INFORMATION

- <http://www.magrama.es>
- <http://www.ine.es>
- <http://www.repacar.org>
- <http://www.aspapel.es>
- <http://www.paperrecovery.org/>
- <http://www.cepi.org/>

