

# 2.7

## WASTE



In 2010, the MARM's actions on waste came under the framework of the National Integrated Waste Plan 2008–2015. In parallel, the Government also worked intensely on transposing the Waste Framework Directive into Spanish law.

Information on waste has continued to improve with the updating and creation of new databases on facilities, urban waste, landfill sites and imports–exports, thereby integrating further the information system on these issues. Many initiatives have been launched to promote waste prevention and recycling, such as domestic composting; management of urban waste in rural and island areas; creation of a compost market; and separate collection. An institutional campaign was carried out to reduce the number of single-use shopping bags in circulation and promote a change in consumer habits. This campaign was aimed at all stakeholders (manufacturers, retailers, consumers, etc).

Transposition of the Waste Framework Directive into Spanish law began in 2010. Applying the principle of encouraging stakeholder involvement, several workshops were held with local and regional government, as well as with the Environmental Advisory Council.

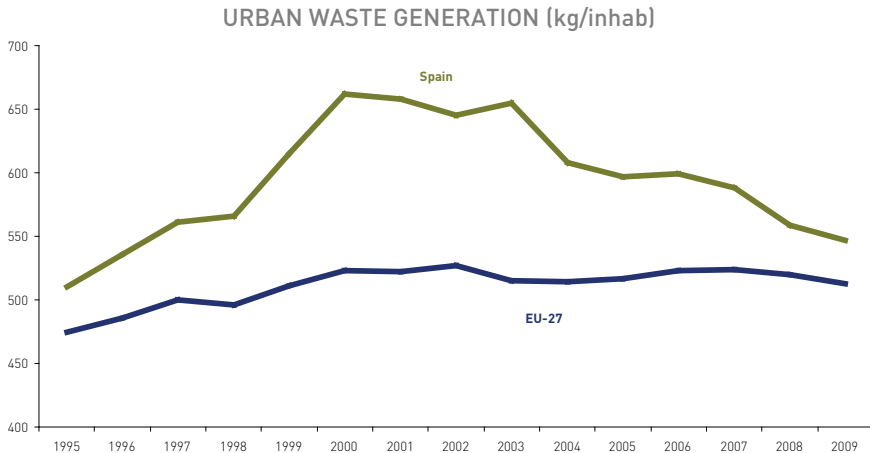


As well as establishing producers' and managers' liabilities, the future Waste Law will simplify administrative procedures, enable electronic applications, and improve traceability throughout the production and management chain. In short, the new law will constitute an advance in waste regulation and will contribute to a more sustainable management model.

INDICATOR	GOAL	TREND
<b>Urban waste generation</b>	Minimise production	Urban waste generation per inhabitant is decreasing
<b>Urban waste management: landfill and incineration</b>	Increase recycling and reduce the quantity of waste landfilled	The quantity of urban waste landfilled per inhabitant is decreasing
<b>Paper and cardboard recycling</b>	Increase the recycling rate	The collection rate is increasing but that of recycling is slowing in comparison with 2008
<b>Glass recycling</b>	Increase the recycling rate	The glass recycling rate rose to 67% in 2009
<b>Packaging waste recycling and recovery</b>	Increase the recycling and recovery rates for used packaging	The recycling and recovery rates continue to increase, exceeding the targets set by RD 252/2006
<b>Sewage sludge production and use</b>	Increase sewage sludge recovery	Use as an agricultural fertiliser is increasing

# Urban waste generation

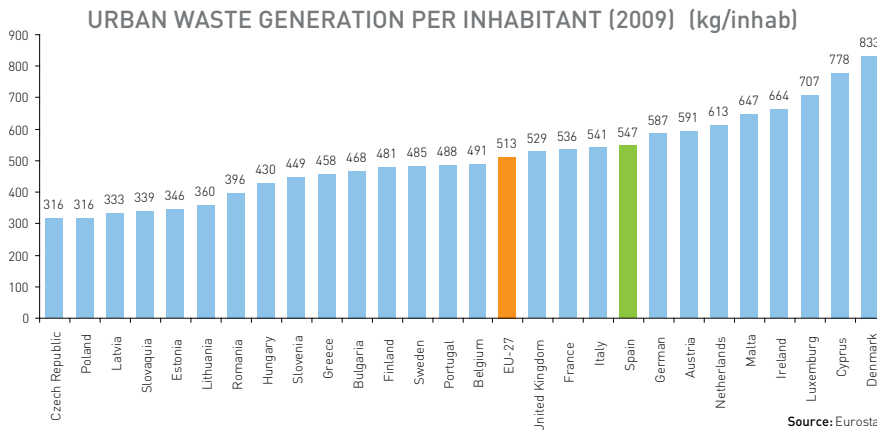
In 2009, urban waste generation in Spain stood at 547 kg/inhabitant, continuing the downward trend started in 2003



Source: Eurostat

Across the EU-27, average urban waste generation per inhabitant totalled 513 kg. In Spain, the average was 547 kg/inhabitant, 2.15% lower than in 2008. Between 2000 and 2009, urban waste generation in Spain fell by 17.4%, the second-biggest reduction in the EU-27 after Estonia (which recorded a decrease of almost 25%).

In 2009, Spain was ranked ninth in Europe by volume of urban waste generated per inhabitant, a similar position to the previous year.



Source: Eurostat

According to the information available to the MARM, an estimated 24 million tonnes of urban waste were collected in Spain in 2008. Of this volume, 17.4% was collected separately from containers located on public thoroughfares and from recycling points. Comparison with the 2007 data shows a 2% increase in the volume of urban waste collected. Although there was a slight decrease in the quantity of mixed waste collected, there was also a fairly significant increase (17.5%) in the total amount of waste collected separately, indicating public commitment to this issue.

#### URBAN WASTE (tonnes)

	2005	2006	2007	2008
Total urban waste collected	22,353,152	23,648,032	23,562,199	24,049,826
Separately collected paper, glass, lightweight packaging and organic matter	2,133,435	2,519,340	2,668,897	3,430,066
Mixed waste	19,657,827	20,431,260	19,993,461	19,858,348
Other separately collected waste	561,890	697,432	899,841	761,448

The data on urban waste compiled by the MARM from data provided by Spain's regional governments only include figures for domestic-type urban waste collected from households, small retailers, offices, schools, etc.

'Other separately collected waste' includes, among others, bulky waste and waste electrical and electronic equipment and even rubble from minor building work. These types of waste represent a high percentage of the total tonnage collected at recycling points. This information is only available for the regional governments that provided data.

Source: MARM.

#### NOTES

- The indicator shows urban waste generation, expressed in kilograms per inhabitant (kg/inhab), and refers to waste collected by municipal services (or by similar services contracted by local councils) and processed by waste management systems. Most of this waste originated from households, although waste from similar sources, such as retail outlets, offices and public institutions, is also included.
- According to Law 10/1998, on waste, urban or municipal waste is "waste generated in private households, retail outlets, offices and services, as well as all waste similar to that produced in the aforementioned places or activities and that is not classified as hazardous."
- Mixed waste is defined as household waste and items generated by private households, retail outlets, offices and services, or during the cleaning of public thoroughfares.
- Separately collected waste is the product of separate collection of fermentable organic matter and recyclable materials, as well as that of any other separate collection system that permits retrieval of recoverable materials contained in waste.

#### SOURCES

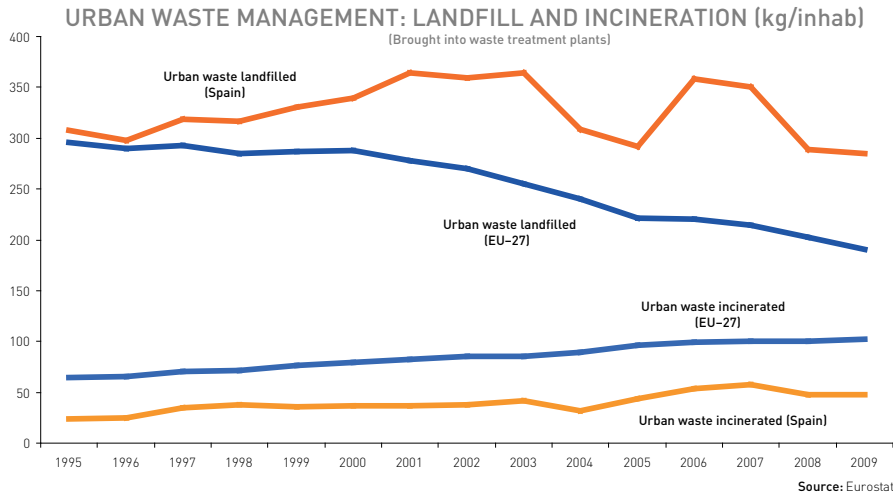
- Eurostat: Sustainable development indicators/Sustainable consumption and production/Resource productivity/Municipal waste generated
- Sub-Directorate-General for Sustainable Production and Consumption. Directorate-General for Environmental Quality and Assessment, MARM.

#### FURTHER INFORMATION

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

## Urban waste management: landfill and incineration

Landfill of urban waste has decreased, while incineration has increased in line with the EU-27 average, although the rates are slowing in both cases

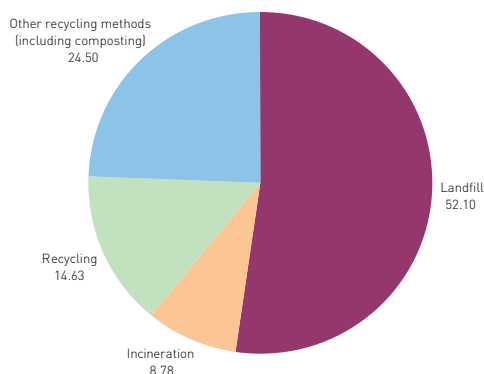


The European trend in urban waste landfill and incineration, expressed as kg per inhabitant, displays a continued decrease in landfill and an increase in incineration. During the period 1995–2009, landfill dropped by 35.5%, while incineration rose by 56.9% (EU-27).

In Spain, the total decrease in the amount of urban waste landfilled over the same period stood at 7.5%, while incineration increased by practically 100%. In absolute terms, Spain landfilled 285 kg/inhab in 2009, while the figure for the EU-27 was 191 kg/inhab. Meanwhile, it incinerated 48 kg/inhab, as opposed to 102 kg/inhab for the EU-27. Therefore, it is necessary to take steps to reduce waste generation and minimise landfill. To achieve these goals, it is essential to increase separate collection for recycling.

The breakdown of waste treatment and disposal systems in 2009 is shown in the graphic below. Grouping the two types of recycling in the graphic together reveals that they accounted for 39.1% of treated waste. During the period 1995–2009, the increase in both management methods multiplied by 5.9, rising from 36 to 214 kg/inhab.

## URBAN WASTE MANAGEMENT (%) (2009)



The table below shows the quantity of waste sent to urban waste treatment plants in Spain by treatment type (t/year). It does not include a breakdown of the number of inhabitants that generated the waste.

## URBAN WASTE PROCESSING IN TREATMENT AND DISPOSAL FACILITIES (t/year)

Facility type		2005	2006	2007	2008
TREATMENT	Packaging sorting plants	330,638	606,200	559,271	547,621
	Separately collected organic-matter composting plants	243,921	160,017	161,781	460,408
	Sorting and composting plants	6,455,248	6,991,541	7,249,622	8,199,049
	Sorting, biometanisation and composting plants	1,123,818	1,168,565	1,041,153	1,579,922
DISPOSAL	Incineration plants				2,057,017
	Landfill sites (including waste refused by treatment plants)	243,921	160,017	161,781	16,125,342

Source: MARM

## NOTES

- The indicator shows the relationship between the amount of waste treated at the various facilities and the number of inhabitants in Spain each year, factors that need to be taken into consideration when interpreting the indicator's results.
- See notes for the previous indicator.

## SOURCES

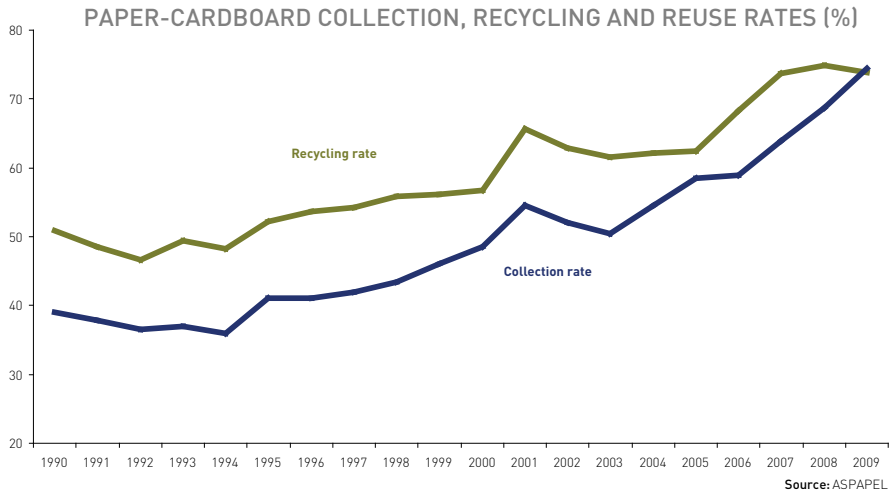
- Eurostat/Sustainable development indicators/Sustainable consumption and production/Resource productivity/Municipal waste generated/Municipal waste treatment, by type of treatment method.
- Sub-Directorate-General for Sustainable Production and Consumption. Directorate-General for Environmental Quality and Assessment, MARM.

## FURTHER INFORMATION

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

## Paper and cardboard recycling

Paper and cardboard collection and recycling rates rose to 74% in 2009



In 2009, 4.6 million tonnes of cardboard and paper were recycled. This is 7.5% less than in 2008, when almost 5 million tonnes were recycled.

Although there was a 15.6% drop in paper and cardboard consumption in 2009, the collection rate stood at 74.4%. This was an increase of 8.14% on 2008 and continued the rising trend. This collection rate positions Spain on a par with Europe's most advanced countries, like Germany, the Netherlands and the Nordic nations.

The recycling rate stood at 73.9%, slightly below the 2008 figure (74.9%), maintaining the deceleration that began the previous year when the strong growth recorded between 2005 and 2007 came to an end. However, ASPAPEL's forecast for 2010 predicts an increase in the recycling rate to 79.1%. Meanwhile, in 2009 the utilisation rate was 80.6%, which means that over 8 kg of recovered paper were used in every 10 kg of paper produced.

It is worth noting that according to the REPARCAR 2009 Annual Report, over 80% of paper and cardboard recovered was processed by certified Environmental Management Systems, showing the sector's strong commitment to environmental sustainability.

According to the Survey on the Collection and Treatment of Waste carried out by the INE in 2008, the quantity of separately collected paper and cardboard stood at 24 kg/inhab, 3.7% less than in 2007. By autonomous community, the highest levels of separate collection were recorded in Navarre (50.9 kg) and the Balearic Islands (45 kg).

According to the progress report on the European Declaration on Paper Recovery published by the European Recovered Paper Council (ERPC), the paper recycling rate in Europe rose from 66.7% in 2008 to 72.2% in 2009, exceeding the 66% target set for 2010.

#### NOTES

- 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, publishing houses, printers and large retail outlets), separate collection (from blue containers and door-to-door collection from small retailers) and specific collection (from offices, public buildings, recycling points, etc.). After being cleaned and sorted into different grades, the recovered paper is used as a raw material by the papermaking 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 then 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 manufactured.
- In the Survey on the Collection and Treatment of Waste carried out in 2008 (INE, press release of 20 October 2010), separately collected waste is defined as the product of separate collection of fermentable organic matter and recyclable materials, as well as that of any other separate collection system that permits retrieval of recoverable materials contained in waste. It does not include waste recovered in screening and sorting plants.

#### SOURCES

- Data provided by the ASPAPEL.
- REPACAR, 2010. *Memoria de actividades REPACAR 2009*.

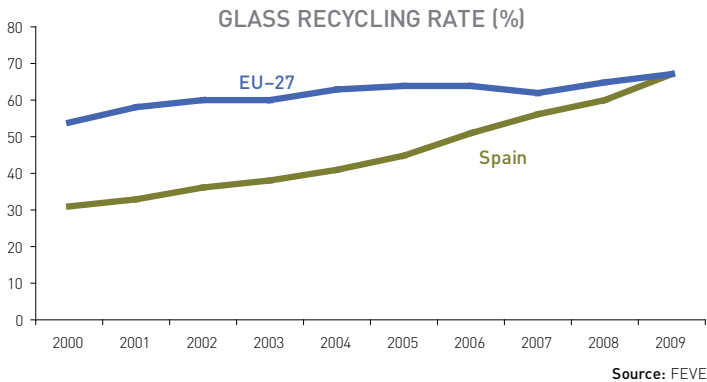
#### FURTHER INFORMATION

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



## Glass recycling

The glass recycling rate continues to rise, reaching 67% in 2009



Glass is 100% recyclable, which reduces raw material and energy consumption and, therefore, reduces greenhouse gas emissions. Recycling is recognised as the next best option in environmental terms after prevention and re-use. It is worth highlighting that the glass recycling industry helps to create and ensure economic growth and local employment. Therefore, it is one of the keys to developing a low-carbon green economy.

According to information submitted by the MARM to the European Commission, in 2008 the container glass recycling rate was 60%, thereby reaching the target set by Directive 2004/12/EC. In 2000, this rate was 31%, showing that it has doubled in eight years.

According to the Survey on the Collection and Treatment of Waste carried out by the INE in 2008, the average quantity of glass recycled in Spain stood at 14.9 kg/inhab, 8.3% more than in 2007. According to the same survey, Navarre and the Basque Country jointly recorded the highest figures at 24.4 kg per person.

In 2009, according to the European Container Glass Federation (FEVE), over 67% of container glass was collected for recycling in the EU (over 11 million tonnes), prolonging the positive trend seen in recent years (the proportion stood at 66% in 2008). Spain achieved a similar recycling rate (67.1%), positioning itself in line with the European average.

ECOVIDRIO is the non-profit organisation responsible for managing recycling of container glass waste in Spain. It operates in all of the sectors related to glass

recycling (bottling and packaging, and container manufacture and recovery). In 2009, a total of 2,573 companies were signed up with Ecovidrio, 118 more than in 2008. Apparent consumption of container glass, however, was slightly lower than in 2008, falling to 1,563,000 tonnes (from 1,614,000 tonnes in 2008 and 1,672,000 tonnes in 2007).

Its social indicators, included in the 2009 Annual Report, summarise its management of container glass collection. Among others, these include the following figures:

- Population covered by a container-glass collection service: 99.67% (very similar to that in previous years).
- Number of municipalities with separate glass collection: 7,881.
- Number of containers installed (total for Spain): 164,503.
- Ratio of population provided with containers: one container per 284 inhabitants.
- Glass collected per inhabitant: 15.25 kg/inhab.

#### NOTES

- The glass recycling rate is defined as the ratio between the quantity of glass collected and apparent glass consumption (calculated by adding the quantity imported to the quantity produced and then deducting exports).
- ECOVIDRIO conducts the entire process of glass recycling for subsequent manufacture of container glass (collection, treatment and final recycling, a process that takes place within the same year). This refers only to container glass (hollow glass), and does not include other types of glass, such as window panes, car windows, laminated glass, etc. (flat glass).
- Glass is collected from two sources: **glass contributed by the public**, which is glass collected in containers (green bottlebanks) located on public thoroughfares, and **glass of other origin**, which is obtained from packaging plants, waste-sorting plants, the hotel and catering sector and other private and public organisations.

#### SOURCES

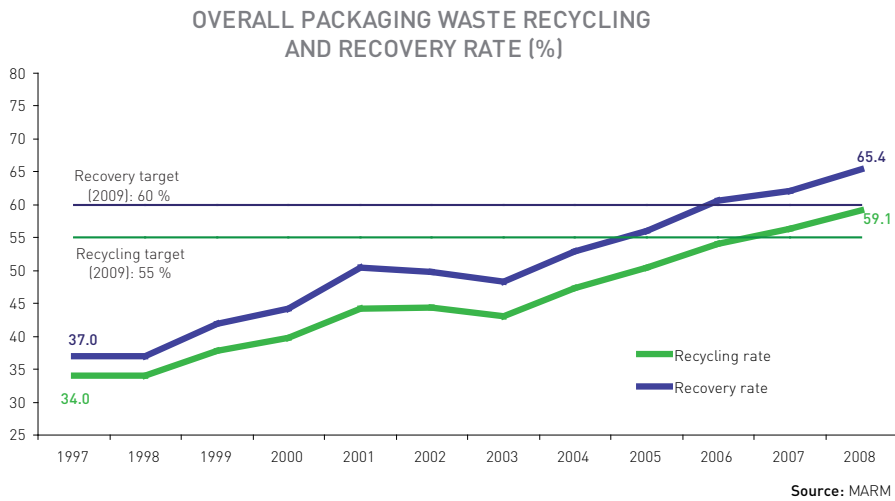
- FEVE.
- ECOVIDRIO, 2010. *Informe Anual 2009*.

#### FURTHER INFORMATION

- <http://www.marm.es>
- <http://www.ecovidrio.es>
- <http://www.feve.org>

# Packaging waste recycling and recovery

Packaging waste recycling and recovery rates in Spain exceed the 2009 targets



Since 2003, packaging waste recycling and recovery rates have maintained a continually upward trend and, since 2007, they have exceeded the overall targets set by Directive 2004/12/EC, which came into force on 31 December 2008.

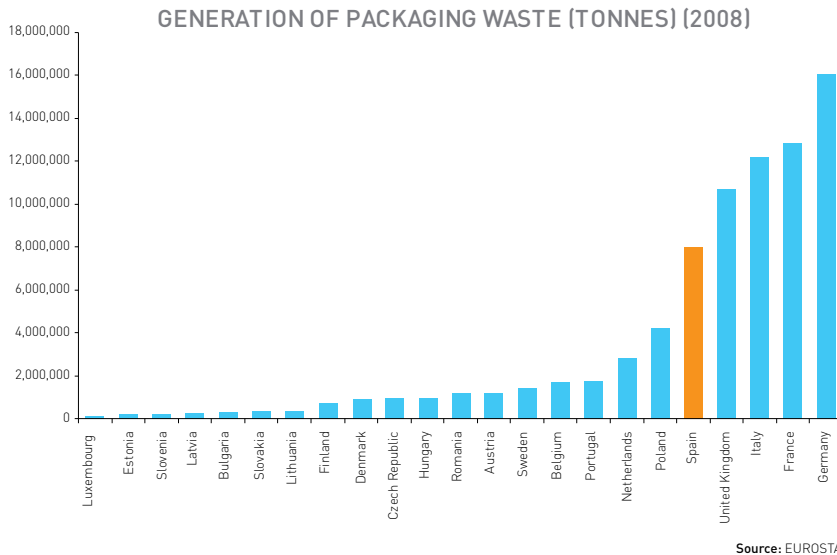
In 2008, the packaging waste recycling rate stood at 59.1% and the recovery rate stood at 65.4%, while the 2009 targets for both were 55% and 60%, respectively. The specific targets set for each material type (glass, plastic, paper and cardboard, metal and wood) were also all exceeded in 2008. The recycling and recovery rates are shown below:

**PACKAGING WASTE RECYCLING AND RECOVERY RATES (%) 2008**

	Glass	Plastic	Paper and cardboard	Metals	Wood	Total
Recycling rate	60.0	24.4	73.4	67.8	58.2	59.1
Recovery rate	60.0	40.0	78.3	69.3	68.2	65.4

Source: MARM

In relation to the EU, in 2008 Spain was ranked fifth in terms of packaging waste generation with over 8 million tonnes, behind the United Kingdom, Italy, France and Germany.



Household packaging made of materials other than glass is managed by the Ecoembes Integrated Management System (IMS), which in 2009 consisted of 12,175 packaging companies (accounting for over 90% of containers placed on the market). According to the IMS, a total of 1,326,876 tonnes were recovered and saved from landfill (70.1% of packaging made by firms signed up to the IMS). Of this amount, 1,232,168 tonnes of packaging were recycled (65.1% of lightweight packaging and cardboard and paper packaging managed by Ecoembes) and 94,708 tonnes were recovered for their energy value. Spain has more than 420,000 packaging waste containers on its public thoroughfares, serving almost 45 million people — over 280,000 yellow containers for lightweight packaging (plastic bottles, cartons and cans), and over 140,000 blue containers (for paper and cardboard).

#### NOTES

- Ecoembalajes España, S.A. (Ecoembes) is a non-profit public limited company whose purpose is to design and implement systems with which to separate and recover used packaging and packaging waste in order to ensure compliance with the reduction, recycling and recovery targets set out in Law 11/1997 of 24 April on packaging and packaging waste.
- 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 quantity of reusable packaging from previous years that becomes waste will balance out the reusable packaging placed on the market in that year and then subsequently reused.
- The data on packaging waste refers to domestic, commercial and industrial packaging.

#### SOURCES

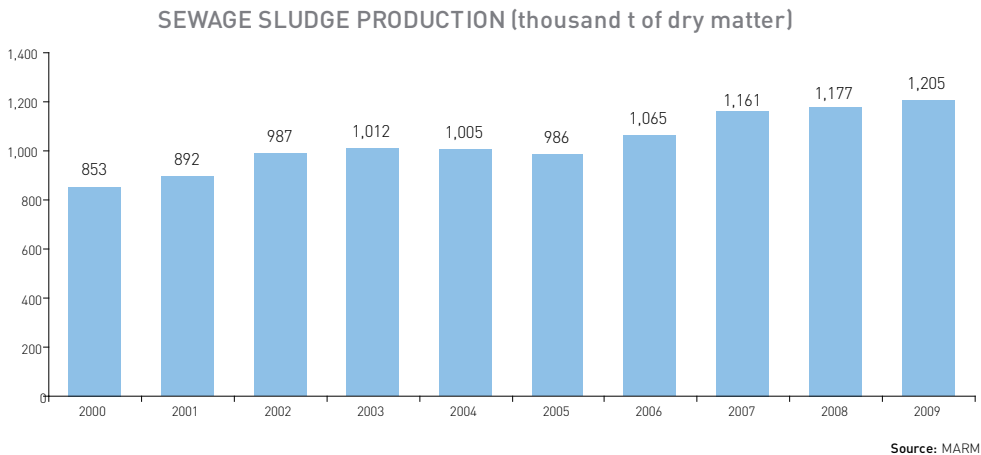
- MARM, 2011. Information provided by the Sub-Directorate-General for Sustainable Production and Consumption.
- Ecoembalajes España, S.A. (Ecoembes). Ecoembes press pack 2011.

#### FURTHER INFORMATION

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

## Sewage sludge production and use

Use of sewage sludge as an agricultural fertiliser is rising, while the amount landfilled is falling

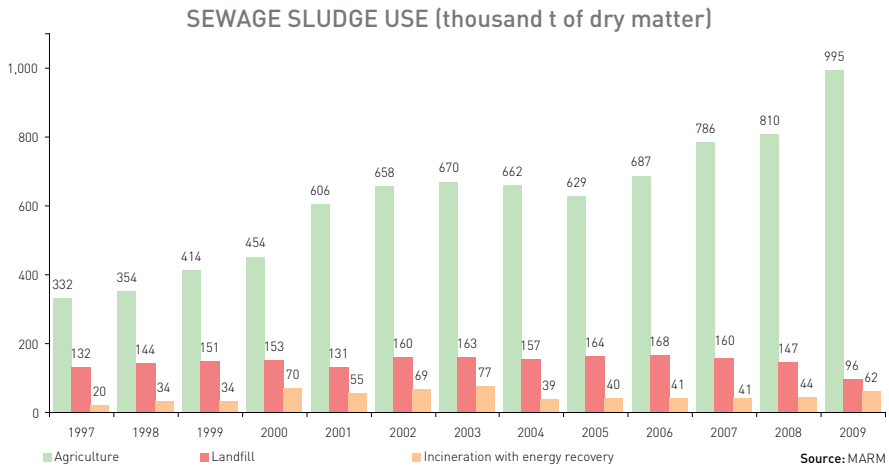


Rising wastewater treatment (in 2009, 83% of pollutant load was treated, in accordance with Directive 91/271/EEC) is exacerbating the problems associated with the storage and management of the sewage sludge generated in wastewater treatment processes. After the wet content has been reduced and the sewage sludge has been treated (if applicable), it is principally used in agriculture, incinerated to recover its energy value or disposed of in landfill sites.

In 2009, Spain's treatment plants generated 1,205,124 tonnes of sewage sludge, 2.4% more than in 2008. Of this amount, 82.6% was used as fertiliser in agriculture, 7.9% was disposed of in landfill sites and 5.1% was incinerated to recover its energy value.

Over the period 2000–2009, sewage sludge generation rose by 41.2%, with agricultural use being the only one to increase (119.1%). All the other uses decreased — landfill fell in this period by 37.5% and incineration with energy recovery decreased by 12.3%.

In relation to 2008, agricultural use increased by 22.8%, landfill decreased by 34.9% and incineration rose by 40.0%.



Much of Spain's agricultural land could benefit from sewage sludge, providing it is used in accordance with the legislation in place and that appropriate fertilisation plans are drawn up that take into account sewage sludge composition and crop needs when calculating the amount to apply. Use on agricultural land should be conducted correctly, paying special attention to the method and moment of application in each case (depending on the terrain, distance from water courses, rainfall forecasts, etc). If applied in this way, it is possible to improve soil structure and nutrient content while also protecting the environment and human health.

#### NOTES

- Directive 86/278/EEC of 12 June 1986, on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture, employs the following terms:
  - “residual sludge from sewage plants treating domestic or urban waste waters and from other sewage plants treating waste waters of a composition similar to domestic and urban waste waters;”
  - “residual sludge from septic tanks and other similar installations for the treatment of sewage;”
  - “residual sludge from sewage plants other than those referred to in (i) and (ii);” (this sludge can only be used in agriculture under the conditions of usage regulated by the Member State affected).

#### SOURCES

- National Sewage Sludge Register. Sub-Directorate-General for Means of Agricultural Production. MARM (specific query).

#### FURTHER INFORMATION

- <http://www.marm.es>