Waste from all sources – Summary data 2016

This release provides a summary of Scottish waste generated and managed in calendar year 2016. The data in this release represents Waste from all sources (WFAS). Further information including definition of terms is included in the methodology and glossary.

Key points

WFAS – 2016 calendar year[1]

- The estimated total quantity of WFAS generated in Scotland in 2016 was 10.79 million tonnes, a decrease of 0.53 million tonnes since 2015.
- The quantity of mixed waste, categorised as Household and similar wastes, generated in 2016 decreased by 1.9% (39,754 tonnes) from 2015. This was accompanied by an increase in the generation of source separated materials such as Animal and mixed food waste (increase of 19,315 tonnes, 6.3%) and Vegetal wastes (increase of 12,093 tonnes, 8.3%).
- The quantity of separately collected Paper and cardboard waste generated decreased in 2016 by 20.5% (24,760 tonnes) from 2015, and by 48.7% (90,727 tonnes) from 2011.
- In 2016, the estimated WFAS recycled was 6.96 million tonnes, which is 683,094 tonnes (10.9%) more waste recycled than in 2015. A contributory factor to this difference is an increase in recycling of Construction and Demolition (C&D) wastes such as Soils. Excluding Soils, there was an increase in recycling of 130,311 tonnes (1.9%) from 2015.
- The quantity of Animal and mixed food waste recycled by composting or anaerobic digestion in 2016 was 259,734 tonnes, which was 26.5% (54,460 tonnes) greater than the amount recycled in 2015 (209,164 tonnes).
- Scottish waste recovered in 2016 was 530,022 tonnes, an increase of 55,690 tonnes (13.2%) from 2015.
- Scottish waste disposed by landfill or disposed by incineration in 2016 was 3.8 million tonnes, a decrease of 463,397 tonnes (10.8%) from 2015.
- The percentage of Scottish waste landfilled in Scotland and elsewhere in 2016 was 32.5% of all waste managed, a decrease of 427,702 tonnes (10.3%) from 2015. This is the lowest landfill rate recorded within the available dataset (2011 – 2016). Data on all waste landfilled in Scotland, including waste generated outwith Scotland, can be found in the Waste Landfilled in Scotland 2016 statistics.

Data for WFAS generated and managed by waste type for 2011 - 2016 and the trends for WFAS generated, recycled and managed is available from WFAS Discover Data tool on Scotland's Environment website. Annual WFAS summary data tables are also available to download in Excel format on SEPA's website.

Enquiries on this publication to: Contact SEPA Communications Department: 01786 452546.

An Official Statistics publication. These statistics have been produced to the high professional standards set out in the Code of Practice for Official Statistics, which sets out eight principles including meeting user needs, impartiality and objectivity, integrity, sound methods and assured quality, frankness and accessibility. More information on the Official Statistics Code of Practice can be found here at http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html

[1] Revisions to historical data updated since the previous publication are detailed in the Revisions Policy section on page 25 of this document.

Table 1. Waste from all sources by waste type - Summary data 2016

Waste type [1]	Generated (tonnes)	Recycled (tonnes)	Recovered (tonnes)	Disposed (tonnes) [2]	Other Management (tonnes) [3]
Spent solvents	52,181	-	505	98	-
Acid, alkaline or saline wastes	5,390	-	-	1	-
Used oils	38,398	-	-	-	-
Chemical wastes	113,031	70	-	1,464	-
Industrial effluent sludges	69,693	3,097	12,929	15,120	-
Sludges and liquid wastes from waste treatment	1,408	86,156	-	6,472	1,310
Health care and biological wastes	28,957	-	-	6,509	-
Metallic wastes, ferrous	239,452	589,981	-	26	-
Metallic wastes, non-ferrous	30,619	90,101	-	0	-
Metallic wastes, mixed ferrous and non-ferrous	163,548	108,083	-	5	-
Glass wastes	155,866	212,904	-	16,829	-
Paper and cardboard wastes	95,762	198,890	-	55	-
Rubber wastes	22,653	-	3,550	43	-
Plastic wastes	43,642	46,621	-	1,484	-
Wood wastes	202,575	111,706	243,311	437	166
Textile wastes	17,500	10	-	6,581	-
Waste containing PCB	150	-	-	-	-
Discarded equipment (excluding discarded vehicles, batteries and accumulators wastes)	54,836	15,970	46	1,501	-
Discarded vehicles	53,471	10,086	-	-	-
Batteries and accumulators wastes	10,809	7,324	-	1	-
Animal and mixed food waste	307,021	281,744	-	8,523	3,408
Vegetal wastes	935,574	708,247	-	7,078	45,584
Animal faeces, urine and manure	81,388	4,617	75,901	135	1,204
Household and similar wastes	2,022,610	8,424	7,209	1,345,570	19,454
Mixed and undifferentiated materials	531,895	3,503	-	36,407	305
Sorting residues	6,346	20,062	156,410	894,840	-
Common sludges	184,545	351,840	30,129	8,602	-
Mineral waste from construction and demolition	1,355,006	983,141	31	82,855	-
Other mineral wastes	115,341	31,816	-	45,264	-
Combustion wastes	119,131	1,652	-	83,765	-
Soils	3,724,486	2,943,709	-	1,022,706	-
Dredging spoils	1,870	1,598	-	-	-
Mineral wastes from waste treatment and stabilised wastes	-	139,433	-	250,375	-
Total	**10,785,154**	**6,960,783**	**530,022**	**3,842,747**	**71,431**

1. The amount of waste recycled may be larger than the amount of waste generated because waste may be generated as mixed waste, for example as 'household and similar wastes' or 'Metallic wastes, mixed ferrous and non-ferrous', and at a subsequent stage it is treated to separate it into its component parts before being recycled. Similarly the amount of waste managed may be less than the amount of waste generated.
2. Waste disposed includes waste landfilled and waste inputs to incineration facilities that have not been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive. Waste recovered includes waste inputs to co-incineration facilities and to incineration facilities that have been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.
3. Other management comprises compost produced at non-PAS certified composting or anaerobic digestion plants.

Table 2. Key figures to support targets specified in Scottish waste policies*

Indicator	Year	Performance	Target / Target year
1. Reduce biodegradable municipal waste sent to landfill	2005	2.16 million tonnes	**< 2.7 million tonnes / 2010** **< 1.8 million tonnes / 2013** **< 1.26 million tonnes / 2020** **0 million tonnes / 2021**
	2006	2.03 million tonnes	
	2007	1.97 million tonnes	
	2008	1.78 million tonnes	
	2009	1.57 million tonnes	
	2010	1.48 million tonnes	
	2011	1.35 million tonnes	
	2012	1.29 million tonnes	
	2013	1.18 million tonnes	
	2014	1.12 million tonnes	
	2015	1.10 million tonnes	
	2016	1.15 million tonnes	
2. Recycling and preparing for reuse of construction and demolition waste‡	2011	94.8%	**70% / 2020**
	2012	92.7%	
	2013	94.6%	
	2014	97.1%	
	2015	98.4%	
	2016	99.1%	
3. Recycling/composting and preparing for re-use of waste from all sources§	*2011 (old method)*	52.9%	**70% / 2025**
	2012 (old method)	50.5%	
	2013 (old method)	57.8%	
	2014 (old method)	54.1%	
	2014	53.5%	
	2015	56.4%	
	2016	61.0%	
4. Percentage of all waste sent to landfill§	2011	43.1%	**< 5% / 2025**
	2012	45.0%	
	2013	38.1%	
	2014	39.6%	
	2015	37.1%	
	2016	32.5%	
5. Reduce waste generated in Scotland	2012	84.0%	**<93% of 2011 baseline / 2017** **<85% of 2011 baseline / 2025**
	2013	92.4%	
	2014	83.2%	
	2015	94.0%	
	2016	89.6%	

* Making Things Last - A Circular Economy Strategy for Scotland (2016).
Figures for the carbon metric impacts of waste, targets and performance are published by Zero Waste Scotland at www.zerowastescotland.org.uk/content/scotland%E2%80%99s-carbon-metric-impact

‡ C&D recycling rates are from data provided to Europe for reporting under the Waste Framework Directive. C&D recycling excludes hazardous waste and soil and stone recycled.

§ The methodology used to calculate recycling tonnages changed in 2014. The figures for 2014 and 2015 have been revised under the new method to take into account waste composted or anaerobically digested at non-PAS certified facilities.

Data and Trends

Waste Generated

- The total quantity of waste generated in Scotland in 2016 was 10.79 million tonnes, a decrease of 0.53 million tonnes (4.7%) since 2015.
- In general, the change in waste generated year on year since 2011 has varied considerably (see Figure 1 below), primarily due to Construction and Demolition (C&D) waste generated, with change in that waste stream ranging from -27.1% to +26.2%. Over the same period, there has been an overall reduction in the Commercial and Industrial (C&I) waste generated, with year on year changes considerably less variable than C&D waste ranging from -12.8% to +9.0%. In comparison, the household waste generated varied by no more than 5% year on year during the same period.
- The generation of C&D waste is sensitive to large regional projects, which accounts for the year on year variation in C&D waste generated. For example in 2015 the increase in Soils generated was partly due to works associated with the St James centre in Edinburgh, and in 2013 almost 400,000 tonnes of Soils were generated and recycled as part of one project in Scotland – a major gas plant construction project.
- When C&D waste is excluded, the waste generation trend has been generally downward for the 2011 – 2016 period (see Figure 2 below).

Figure 1. WFAS generated by waste source in Scotland 2011-2016

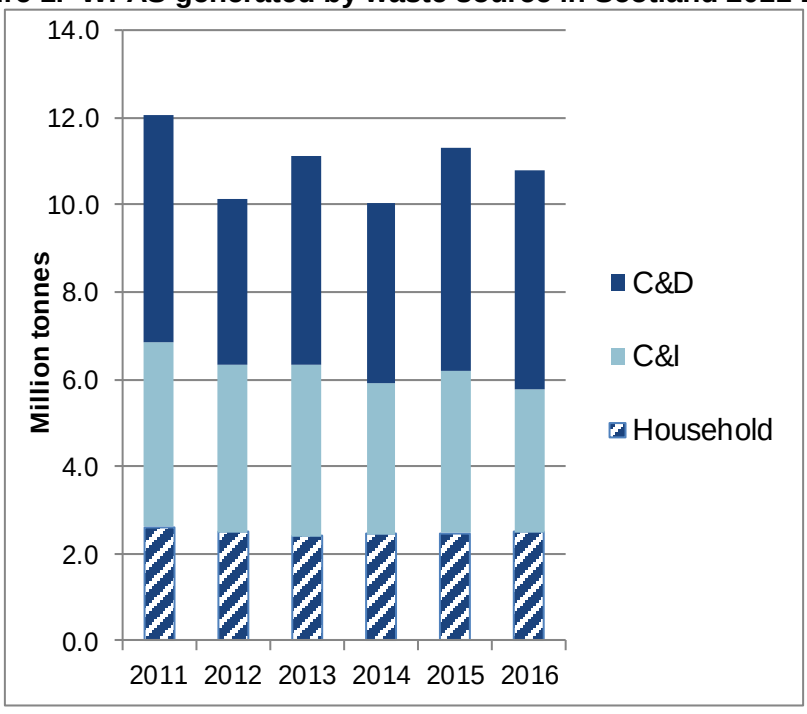
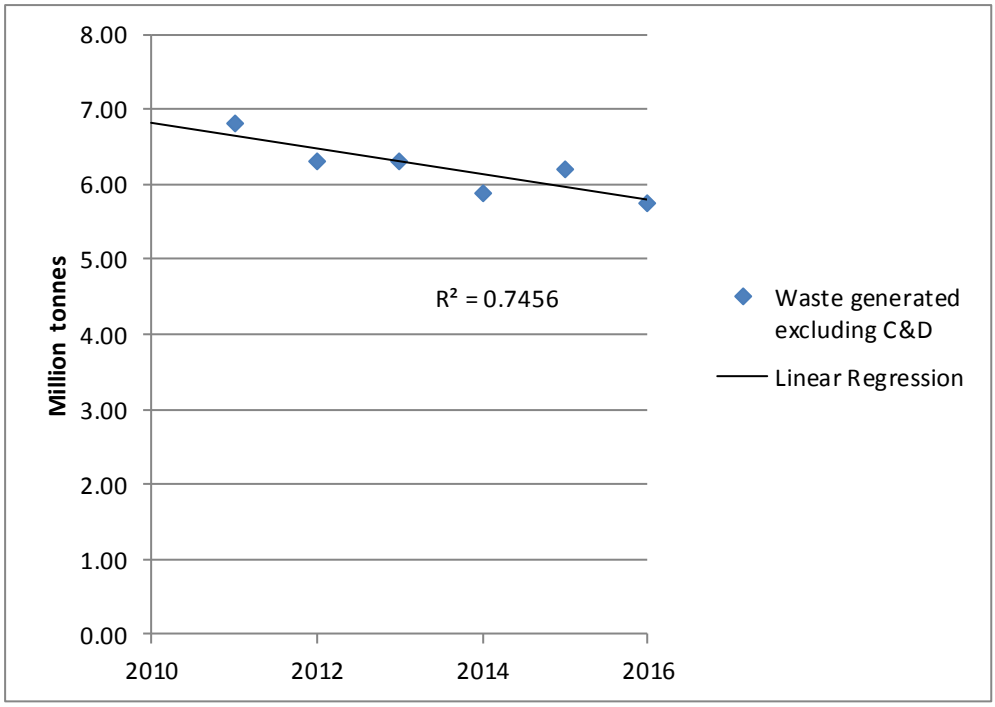


Table 3. Scottish WFAS generated by waste source 2011 - 2016

Year	C&I (tonnes)	C&D (tonnes)	Household (tonnes)	Total waste generated (tonnes)
2011	4,221,723	5,214,153	2,606,759	**12,042,635**
2012	3,817,487	3,800,835	2,500,995	**10,119,317**
2013	3,913,360	4,797,260	2,412,706	**11,123,326**
2014	3,434,560	4,126,921	2,459,559	**10,021,040**
2015	3,745,236	5,102,818	2,468,800	**11,316,854**
2016	3,265,488	5,020,685	2,498,981	**10,785,154**

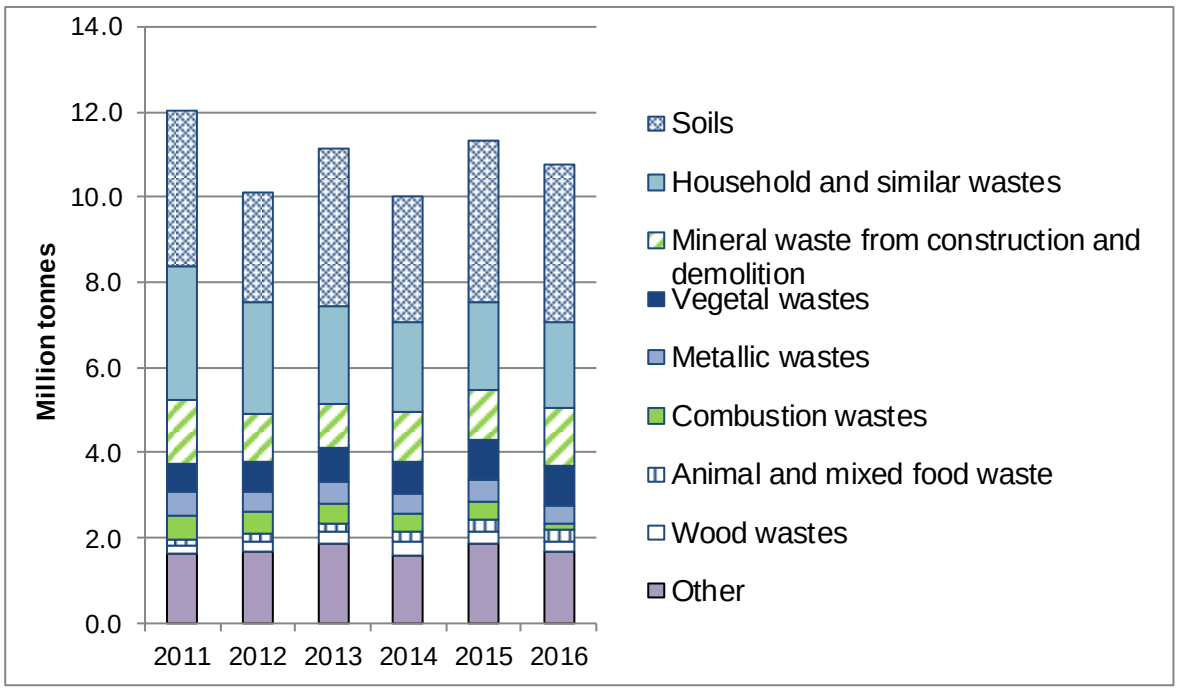
Figure 2. Waste generation trend excluding C&D sources 2011-2016



- The largest waste category generated in Scotland in 2016 was Soils (3.72 million tonnes, 34.5% of all waste generated), followed by Household and similar wastes (2.02 million tonnes, 18.8%) and Mineral waste from construction and demolition (1.36 million tonnes, 12.6%) (see Figure 3 below).
- It should be noted that the category Household and similar wastes shown in Figure 3 below, includes waste generated by businesses as well as households. This category includes waste collected by local authorities and private waste management companies. In 2016, there were 1.41 million tonnes of Household and similar wastes generated by households, and 654,182 tonnes generated by Scottish businesses. The total Household and similar wastes generated has decreased year on year from 3.13 million tonnes in 2011 to 2.02 million tonnes in 2016 (1.11 million tonne decrease, 35.4%). Around one third of this decrease was due to a reduction in Household and similar wastes generated by households and two thirds was due to a decrease in Household and similar wastes generated by business.
- The reduction in Household and similar wastes overall is likely partly due to implementation of general policies targeted at reducing waste, including a legislative duty of care that requires all waste producers to segregate material for recycling, the implementation of source segregated recycling services to the commercial and public

sector as required under the Waste Scotland Regulations (2012), and reduction in frequency of residual waste collections by local authorities.

Figure 3. Scottish waste generated by waste category[1] 2011 - 2016



1. Other comprises waste categories not mentioned individually (see Table 1 on page 2 for full list of waste categories).

Table 4. Scottish waste generated by waste category[1] 2011 - 2016

Waste Category	Year					
	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 (tonnes)	2015 (tonnes)	2016 (tonnes)
Soils	3,674,149	2,580,492	3,682,196	2,951,303	3,763,695	3,724,486
Household and similar wastes	3,132,146	2,613,048	2,276,516	2,101,549	2,062,364	2,022,610
Mineral waste from construction and demolition	1,489,040	1,155,533	1,043,241	1,166,236	1,192,752	1,355,006
Vegetal wastes	654,235	701,703	798,017	788,690	923,481	935,574
Metallic wastes	581,080	481,665	525,182	427,860	549,283	433,619
Combustion wastes	548,233	499,687	457,094	427,559	411,306	119,131
Animal and mixed food waste	172,417	160,050	187,428	245,288	287,705	307,021
Wood wastes	176,586	243,760	286,671	317,464	281,640	202,575
Other	1,614,748	1,683,378	1,866,981	1,595,090	1,844,627	1,685,132
Total	**12,042,635**	**10,119,317**	**11,123,326**	**10,021,040**	**11,316,854**	**10,785,154**

1. Other comprises waste categories not mentioned individually (see Table 1 on page 2 for full list of waste categories).

- Between 2015 and 2016, Combustion wastes generated decreased by 292,175 tonnes (71.0%). This change was primarily due to Combustion wastes no longer being

generated at the Longannet coal power station from the second calendar year quarter of 2016 onwards.

- Separately collected Animal and mixed food waste was generated only from Household and C&I sources and increased from 172,417 tonnes in 2011 to 307,021 tonnes in 2016 (see Figure 4 below), an increase of 78.1%.
- Separately collected Animal and mixed food waste from C&I sources increased in 2016 consistent with the upward trend of this waste category from Household sources (see Figure 4 below). This is also consistent with the implementation of the Waste (Scotland) Regulations 2012 that requires businesses in Scotland to source segregate materials, including food waste in urban areas, and requires local authorities to provide a minimum food waste recycling service to householders.
- It should be noted that the increase in separately collected Animal and mixed food waste does not necessarily indicate an increase in the generation of food waste in Scotland. Rather, it likely indicates that this waste, which was previously disposed with general waste, is now being collected separately for recycling.

Figure 4. Separately collected Animal and mixed food waste generated by waste source 2011 - 2016

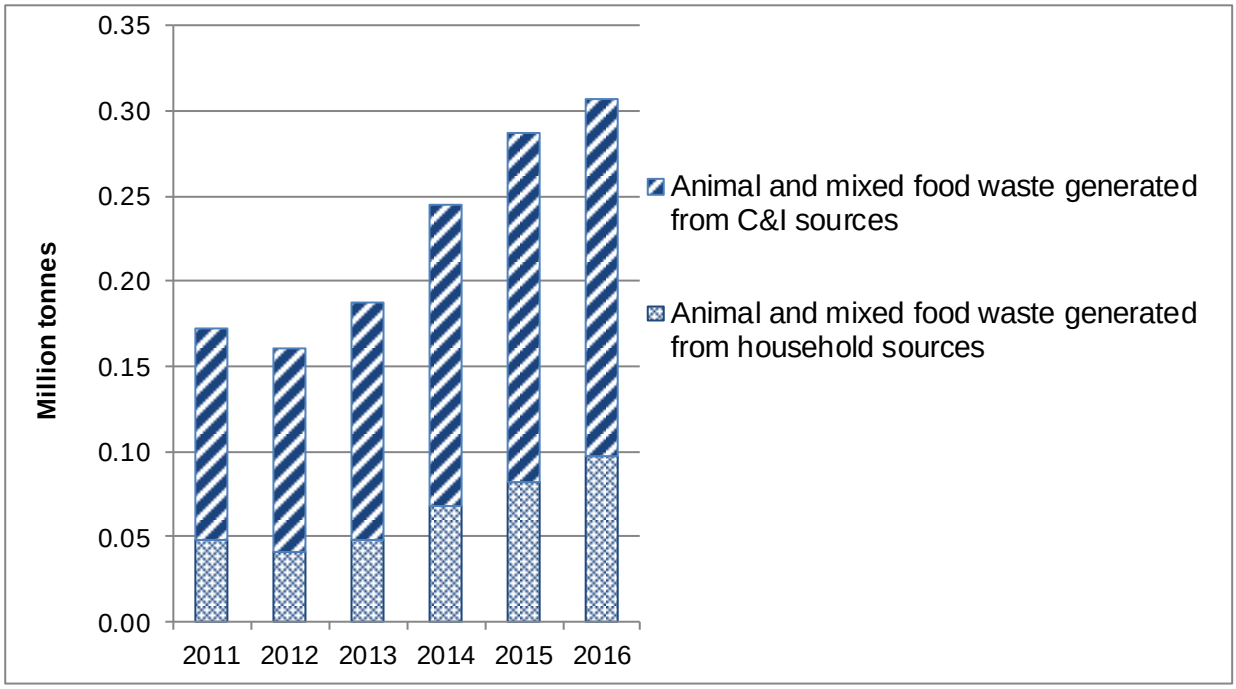


Table 5. Separately collected Animal and mixed food waste generated by waste source 2011 - 2016

Year	C&I (tonnes)	Household (tonnes)	Total (tonnes)
2011	123,907	48,510	172,417
2012	119,235	40,816	160,050
2013	139,918	47,509	187,428
2014	177,424	67,865	245,288
2015	205,301	82,405	287,705
2016	210,095	96,926	307,021

- Between 2015 and 2016, there was a decrease of 24,760 tonnes (20.5%) for separately collected Paper and cardboard generated. This was due to a decrease of 4,523 tonnes from C&I sources and decrease of 20,237 tonnes from household sources. This is part of a longer term trend, with a decrease of 90,727 tonnes (48.7%) of separately collected Paper and cardboard waste generated between 2011 and 2016. C&I sources contributed 38,169 tonnes to this decrease while household sources contributed 52,558 tonnes. Although separate data is not available for the individual paper or cardboard waste streams, the reduction in print media is likely a contributing factor to the decrease in waste Paper and cardboard generated since 2011.

Figure 5. Separately collected Paper and cardboard waste generated by waste source 2011 - 2016

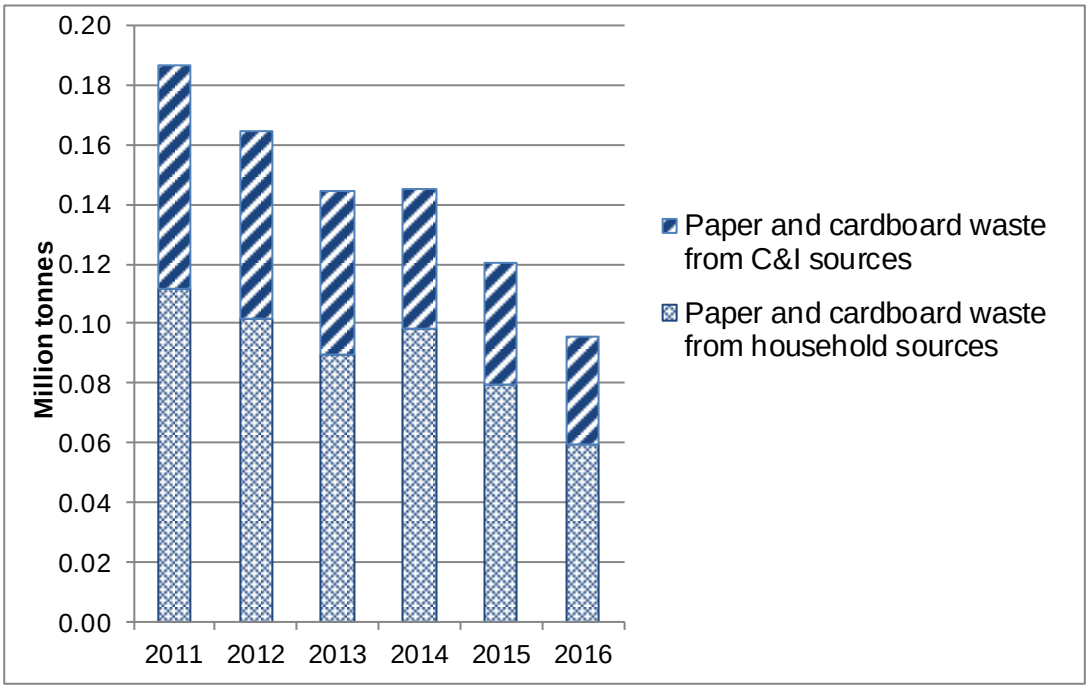


Table 6. Separately collected Paper and cardboard waste generated by waste source 2011 - 2016

Year	C&I (tonnes)	Household (tonnes)	Total (tonnes)
2011	74,555	111,933	186,489
2012	63,042	101,394	164,436
2013	54,678	89,630	144,308
2014	47,176	98,105	145,281
2015	40,909	79,613	120,522
2016	36,386	59,376	95,762

- The total quantity of hazardous waste generated in Scotland was 460,834 tonnes in 2016, a decrease of 59,851 tonnes (11.5%) since 2015 (see Figure 6 below). Overall there has been a decrease of 143,492 tonnes (23.7%) in the generation of Scottish hazardous waste since 2011. As in previous years, most of the hazardous waste generated in 2016 (78.5%, 361,881 tonnes) was from C&I sources.

- In 2016, the main category of hazardous waste generated was Chemical wastes (106,018 tonnes, 23.0% of all hazardous waste) followed by Industrial effluent sludges (52,596 tonnes, 11.4%) and Spent solvents (52,181 tonnes, 11.3%) - see Figure 7 below.

Figure 6. Scottish hazardous waste generated by waste source 2011 - 2016

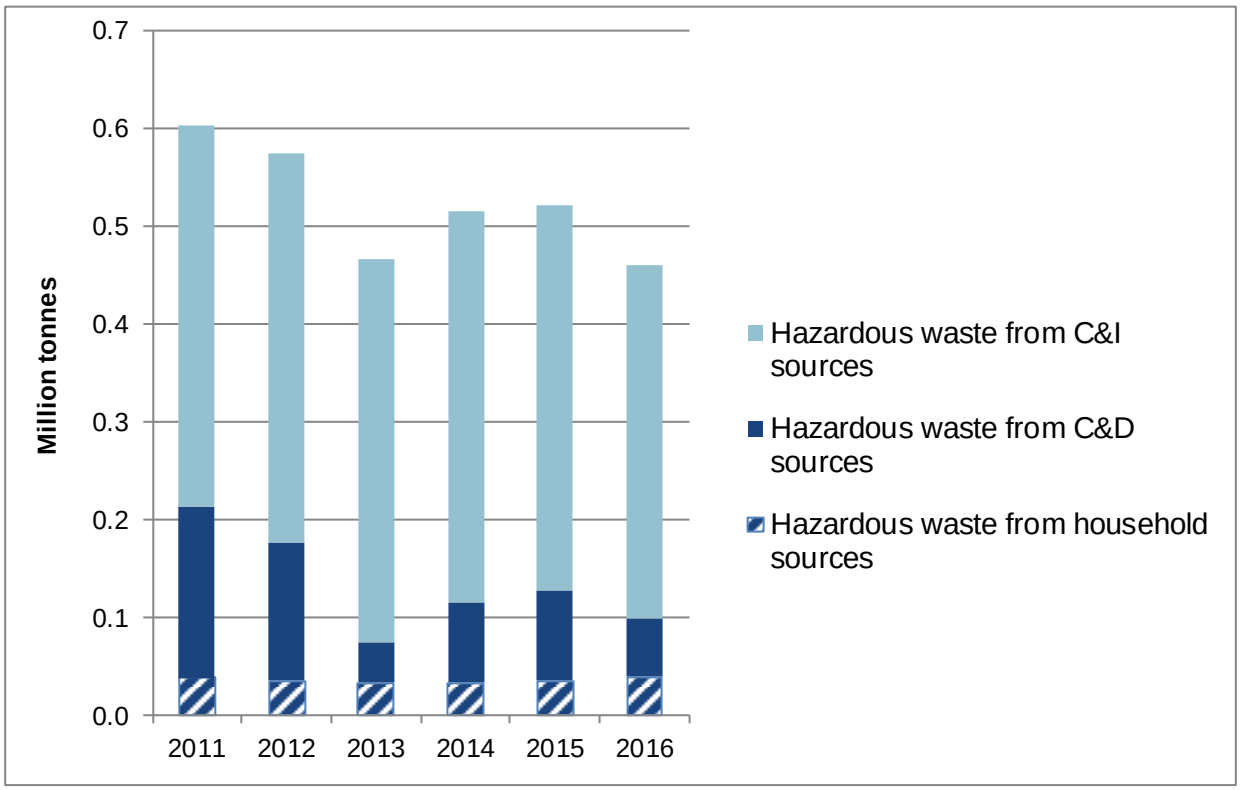


Table 7. Scottish hazardous waste generated by waste source 2011 - 2016

Year	C&I (tonnes)	C&D (tonnes)	Household (tonnes)	Total (tonnes)
2011	391,934	175,067	37,324	604,326
2012	397,075	141,755	35,000	573,829
2013	391,410	41,746	32,368	465,524
2014	401,155	81,583	32,861	515,599
2015	392,873	92,870	34,941	520,685
2016	361,881	60,077	38,876	460,834

Figure 7. Scottish hazardous waste generated by waste category 2011 - 2016

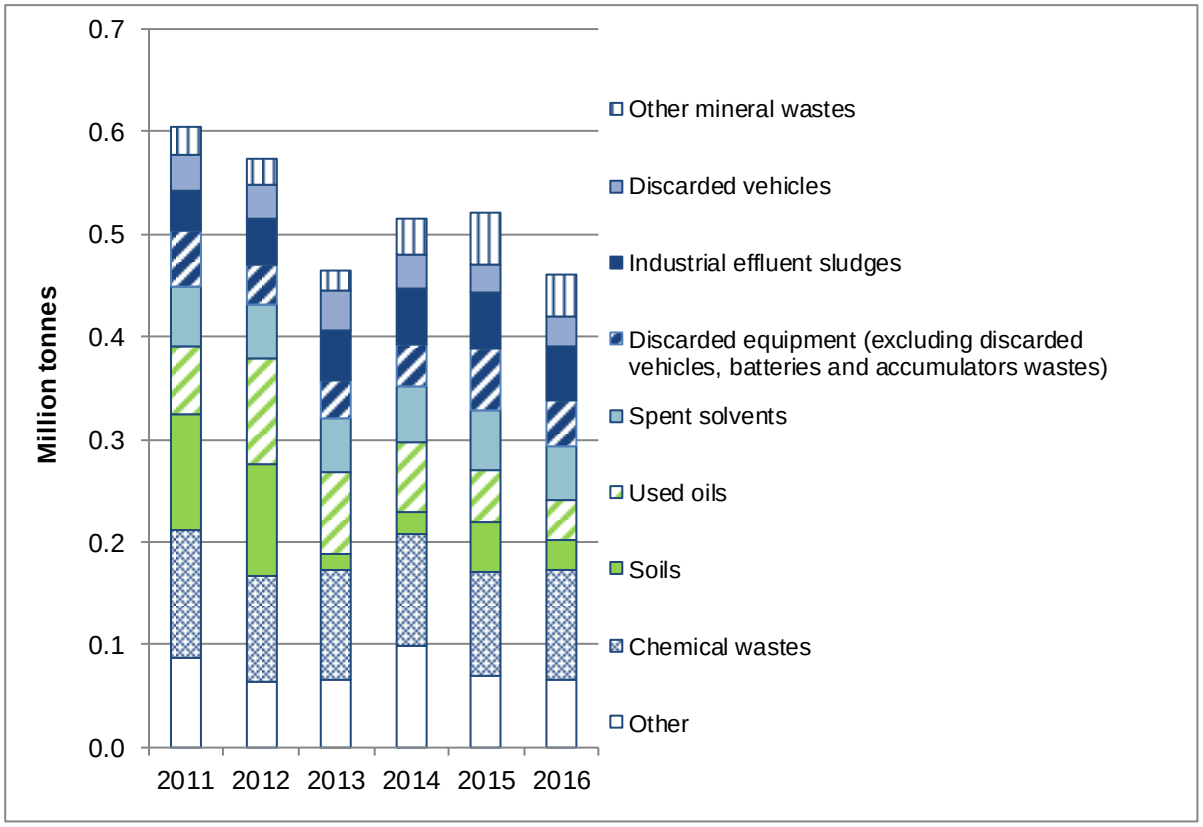


Table 8. Scottish hazardous waste generated by waste category 2011 - 2016

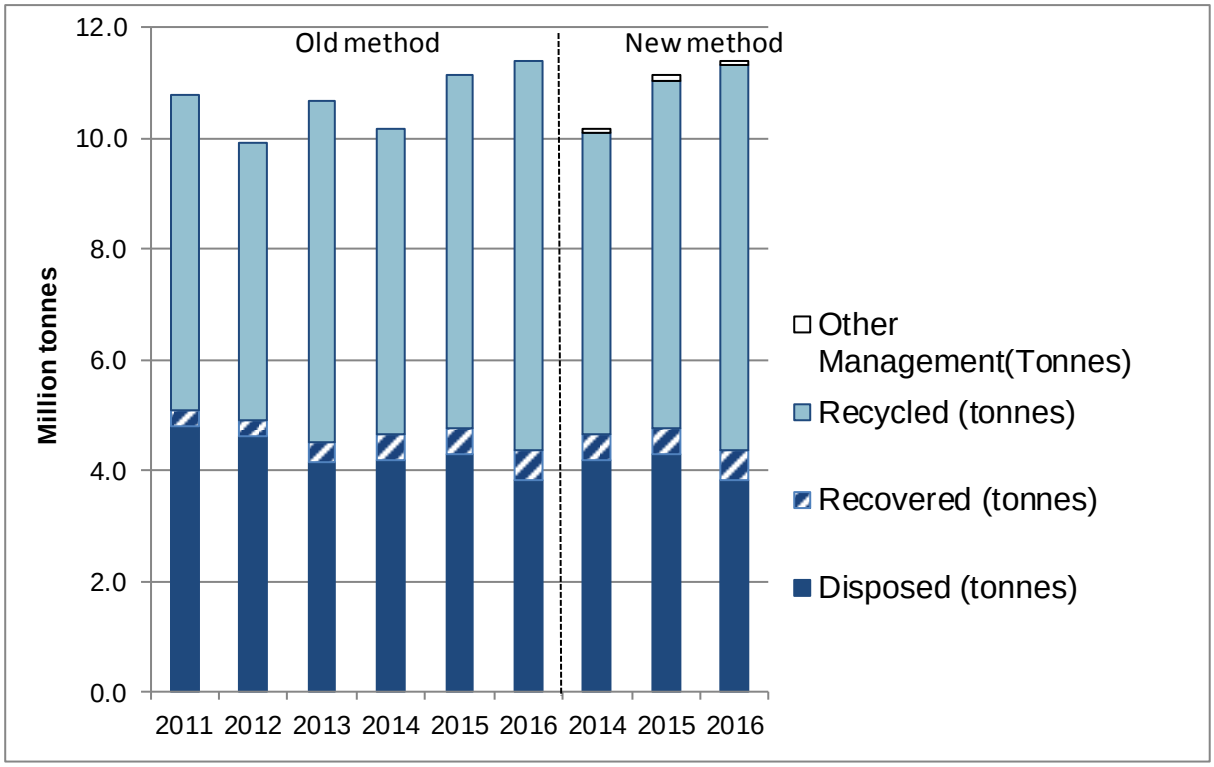
Waste Type	Year					
	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 (tonnes)	2015 (tonnes)	2016 (tonnes)
Other mineral wastes	27,346	24,492	20,389	35,278	49,902	41,505
Discarded vehicles	34,432	34,396	38,003	32,811	27,375	28,307
Industrial effluent sludges	38,104	44,350	48,995	55,117	55,217	52,596
Discarded equipment (excluding discarded vehicles, batteries and accumulators wastes)	55,820	39,568	37,360	40,100	59,278	45,862
Spent solvents	57,357	51,987	52,021	55,278	59,726	52,181
Used oils	67,614	102,564	81,068	67,438	49,176	38,398
Soils	111,458	108,851	15,686	22,204	48,402	29,931
Chemical wastes	125,971	103,373	106,647	109,439	101,916	106,018
Other	86,224	64,247	65,354	97,934	69,692	66,035
Total	**604,326**	**573,829**	**465,524**	**515,599**	**520,685**	**460,834**

Waste Managed

- In 2016, the total amount of Scottish waste recorded as recycled, recovered, disposed, or managed by other management[2] was 11.40 million tonnes
- Waste types managed do not necessarily correspond to the waste types generated. This is because waste may change form following collection and final management. For example, in 2016 there were only 6,346 tonnes of Scottish waste generated in the Sorting residues category. However, in the same period there were 1.07 million tonnes of Sorting residues recorded as managed, primarily disposed by landfill (0.85 million tonnes), incinerated by disposal (40,467 tonnes) and incinerated by recovery (148,587 tonnes). Sorting residues are typically produced as the result of the mechanical treatment of waste. A treatment plant may take waste inputs such as Mixed and undifferentiated materials (including co-mingled materials such as mixed packaging waste) and Household and similar waste. It can then produce products that can be reused or recycled, such as metal, plastic or glass, and also produces reject material that is disposed. Consequently, the tonnage of these materials will be different in the waste generated tables compared to the waste managed tables.
- In 2016, the total amount of Scottish waste managed was 11.40 million tonnes which was 0.62 million tonnes (5.7%) more than the amount of waste generated (see Table 3 on page 5). In historical publications the gap between waste managed and waste generated was larger, with the waste generated typically between 15% - 30% greater than waste managed. SEPA produced more robust methodology for estimating C&I data generated (introduced with the 2011 publication) and for C&D waste aggregates recycled (introduced with 2014 publication and applied to historical data). With these new methodologies the difference between waste generated and waste managed is more variable, ranging from 10.4% less waste generated than managed in 2011 to 5.7% more in 2016. For further information, please refer to the quality report on SEPA's website.
- In 2016, the total amount of Scottish Plastic wastes generated which were recycled was 46,621 tonnes. Of this, 35,215 tonnes (75.5%) was sent to England for recycling. Only 5,702 tonnes (12.2%) of the Scottish Plastic wastes produced were sent directly outwith the EU for recycling but it is not clear from the available data how much of the Scottish Plastic wastes sent to England may ultimately be exported to the EU or beyond.

[2] Other management comprises waste composted or anaerobically digested at facilities not accredited to the BSI PAS 100 or PAS 110 standard.

Figure 8. Scottish waste managed[1, 2, 3 4] in 2011-2016



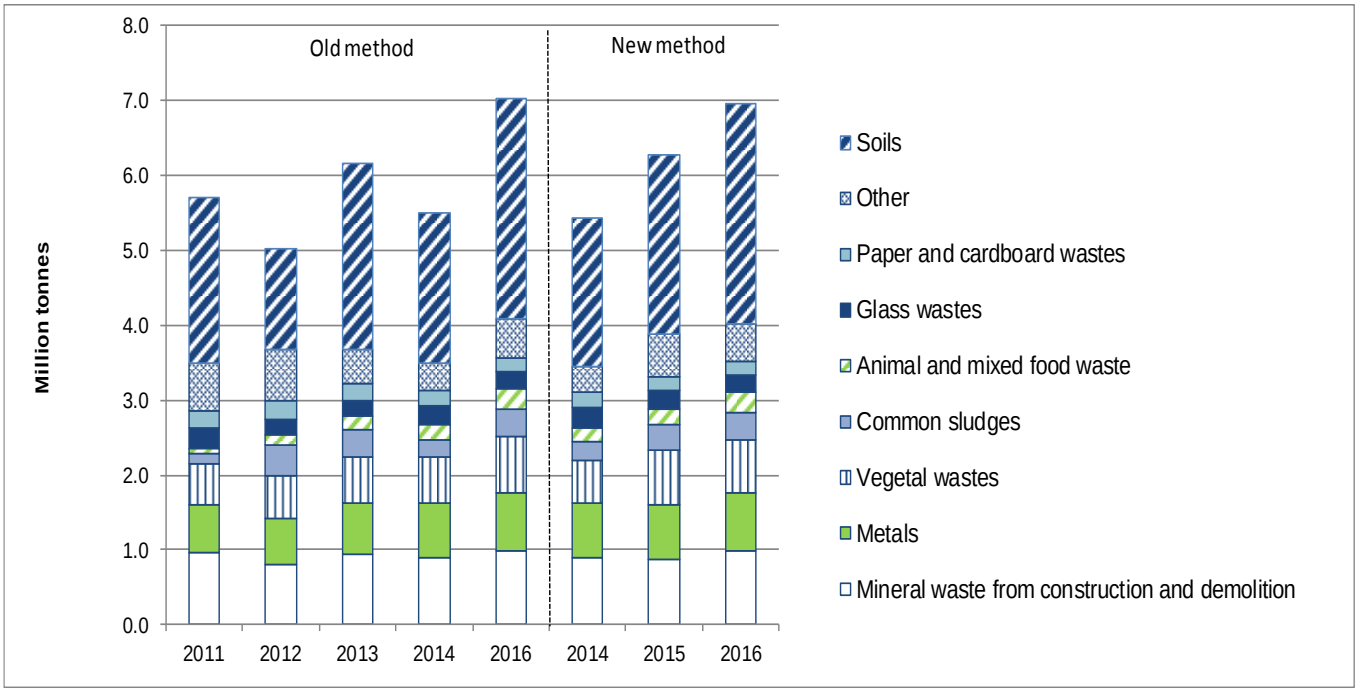
1. Recycled includes waste recycled, reused and waste composted. Disposal includes incineration by disposal and waste landfilled. Recovered includes incineration with energy recovery and co-incineration.
2. Waste managed is final management and excludes interim facilities.
3. From 2014 the total waste recycled was measured using a new methodology (New Method), which excluded figures for waste composted that did not reach the quality standards set by PAS 100/110. In the Old Method, all waste composted was included in the recycling figures regardless of PAS quality standard.
4. Other management comprises compost produced at non-PAS certified composting or anaerobic digestion plants.

Table 9. Scottish waste managed[1, 2, 3 4] in 2011-2016

Year	Recycled (tonnes)	Recovered (tonnes)	Disposed (tonnes)	Other Management (Tonnes)	Total (Tonnes)
2011	5,708,360	269,479	4,812,817	0	10,790,656
2012	5,017,850	293,009	4,631,777	0	9,942,636
2013	6,165,454	333,435	4,171,775	0	10,670,664
2014 - Old Method	5,503,644	489,553	4,182,846	0	10,176,044
2015 - Old Method	6,359,083	474,332	4,306,030	0	11,139,445
2016 - Old Method	7,032,214	530,022	3,842,747	0	11,404,983
2014 - New Method	5,441,025	489,553	4,182,846	62,619	10,176,044
2015 - New Method	6,277,690	474,332	4,306,030	81,393	11,139,445
2016 - New Method	6,960,783	530,022	3,842,747	71,431	11,404,983

1. Recycled includes waste recycled, reused and waste composted. Disposal includes incineration by disposal and waste landfilled. Recovered includes incineration with energy recovery and co-incineration.
2. Waste managed is final management and excludes interim facilities.
3. From 2014 the total waste recycled was measured using a new methodology (New Method), which excluded figures for waste composted that did not reach the quality standards set by PAS 100/110. In the Old Method, all waste composted was included in the recycling figures regardless of PAS quality standard.
4. Other management comprises compost produced at non-PAS certified composting or anaerobic digestion plants.

Figure 9. Scottish waste recycled[1, 2, 3] by waste category 2011 – 2016



1. Recycled includes waste recycled, reused and waste composted. Disposal includes incineration by disposal and waste landfilled. Recovered includes incineration with energy recovery and co-incineration.
2. Waste managed is final management and excludes interim facilities.
3. From 2014 the total waste recycled was measured using a new methodology (New Method), which excluded figures for waste composted or anaerobically digested that did not reach the quality standards set by PAS 100/110. In the Old Method, all waste composted or anaerobically digested was included in the recycling figures regardless of PAS quality standard.

Table 10. Scottish waste recycled[1, 2, 3] by waste category 2011 – 2016

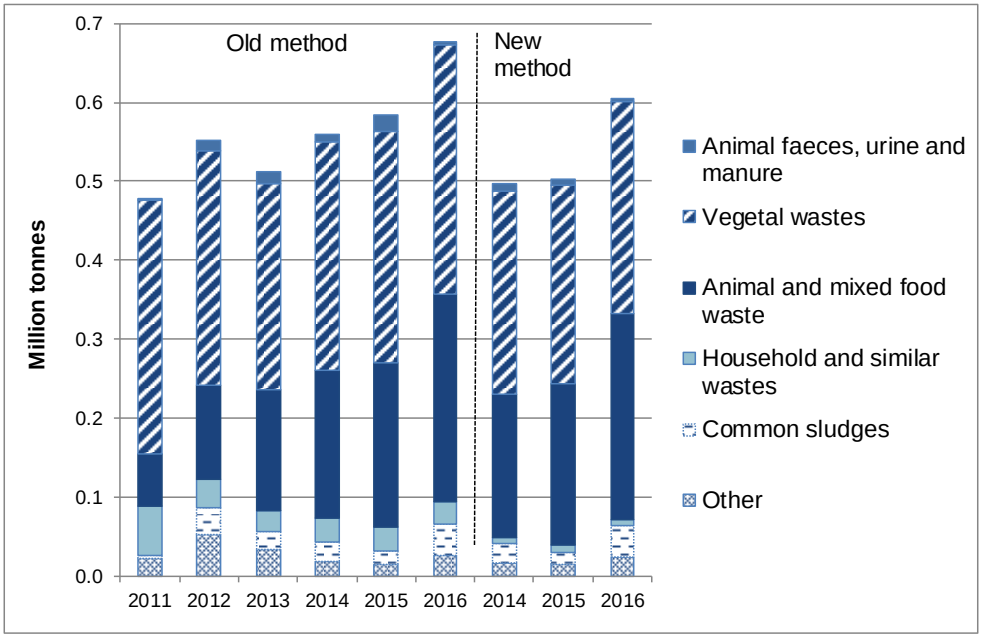
Waste Category	Year								
	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 – Old Method (tonnes)	2015 – Old Method (tonnes)	2016 – Old Method (tonnes)	2014 - New Method (tonnes)	2015 - New Method (tonnes)	2016 - New Method (tonnes)
Soils	2,218,276	1,344,982	2,492,680	2,001,169	2,390,926	2,943,709	2,001,169	2,390,926	2,943,709
Other	642,687	681,952	442,708	364,393	609,613	514,583	339,420	573,759	492,145
Paper and cardboard wastes	213,725	244,521	232,114	205,939	185,787	198,890	205,939	185,779	198,890
Glass wastes	276,774	214,635	218,508	265,218	242,087	212,904	265,218	242,087	212,904
Animal and mixed food waste	71,573	127,753	176,633	192,957	224,122	285,151	187,537	220,232	281,744
Common sludges	132,449	403,278	367,864	237,614	328,751	351,840	237,614	328,751	351,840
Vegetal wastes	540,004	581,506	611,754	607,081	772,058	753,831	574,855	730,417	708,247
Metals	649,597	618,286	681,980	722,680	722,584	788,164	722,680	722,584	788,164
Mineral waste from construction and demolition	963,273	800,937	941,212	906,593	883,154	983,141	906,593	883,154	983,141
Total	**5,708,360**	**5,017,850**	**6,165,454**	**5,503,644**	**6,359,083**	**7,032,214**	**5,441,025**	**6,277,690**	**6,960,783**

1. Recycled includes waste recycled, reused and waste composted. Disposal includes incineration by disposal and waste landfilled. Recovered includes incineration with energy recovery and co-incineration.
2. Waste managed is final management and excludes interim facilities.
3. From 2014 the total waste recycled was measured using a new methodology (New Method), which excluded figures for waste composted or anaerobically digested that did not reach the quality standards set by PAS 100/110. In the Old Method, all waste composted or anaerobically digested was included in the recycling figures regardless of PAS quality standard.

Waste Recycled

- For the 2016 calendar year, the total tonnage of waste recycled was 6.96 million tonnes.
- In 2016, the waste category with the largest amount recycled was Soils (2.94 million tonnes, 42.3% of all waste recycled) followed by Mineral waste from construction and demolition (983,141 tonnes, 14.1%) (see Figure 9 above).
- The 6.96 million tonnes of waste recycled in 2016 was an increase of 683,094 tonnes (10.9%) from the 6.28 million tonnes recycled in 2015. This difference was primarily due to recycling of Soils (increase of 552,783 tonnes, 23.1%) and Mineral waste from construction and demolition (increase of 99,987 tonnes, 11.3%). These wastes are primarily from the C&D sector, which varies considerably year on year depending on construction activities and major projects in the country.
- In 2016, there were 605,614 tonnes of organic wastes recycled in composting or anaerobic digestion facilities (see Figure 10 below). This is an increase of 102,580 tonnes (20.4%) from the 503,034 tonnes of organic wastes recycled by composting or digestion in 2015.
- Prior to 2014, all wastes composted or anaerobically digested (AD) were included in the recycling figures, regardless of the PAS standard of the composting or AD facilities. Over the longer term, using the Old Method, the composting or anaerobic digestion of Animal and mixed food waste increased from 66,501 tonnes in 2011 to 263,142 tonnes in 2016, an increase of 295.7% (196,641 tonnes). The increasing trend in food waste recycling corresponds to the roll-out of separate food waste collections under the Waste Scotland Regulations (2012).
- In 2016, the tonnage of Animal and mixed food waste recycled by composting or anaerobic digestion (259,734 tonnes) was 15.4% less than the tonnages generated (307,021 tonnes). The difference is due to some of the Animal and mixed food waste generated, such as sludges from washing and cleaning of fish processing waste, being disposed as a mixed waste.

Figure 10. Scottish organic waste recycled[1] by composting or anaerobic digestion 2011 - 2016



1. From 2014 the total waste recycled was measured using a new methodology (New Method), which excluded figures for waste composted or anaerobically digested that did not reach the quality standards set by PAS 100/110. In the Old Method, all waste composted or anaerobically digested were included in the recycling figures regardless of PAS quality standard.

Table 11. Scottish organic waste recycled[1] by composting or anaerobic digestion by waste category 2011 - 2016

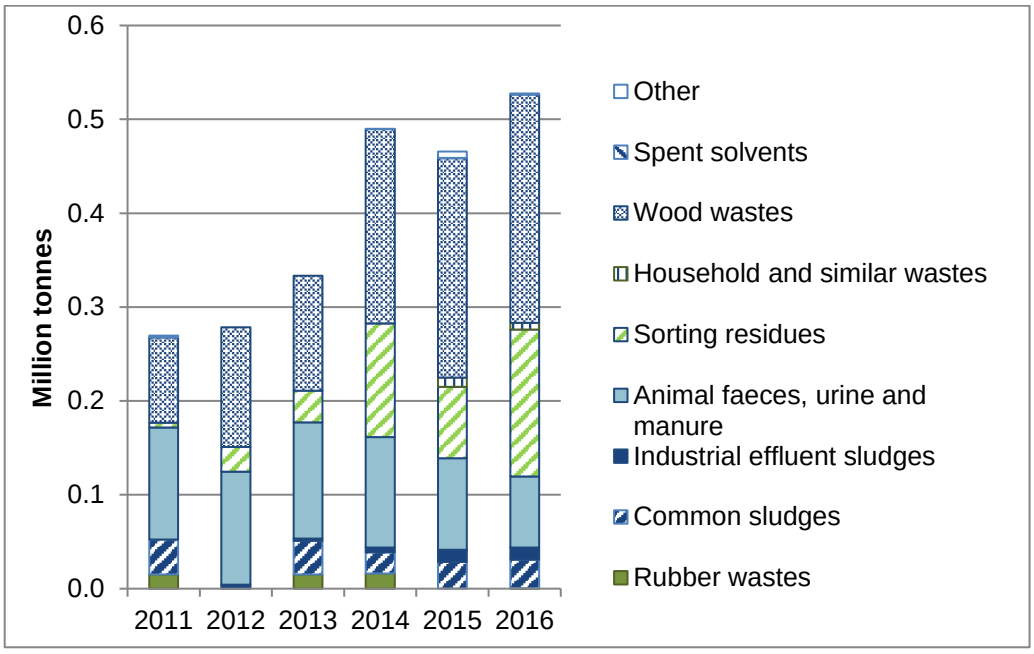
Waste Category	Year								
	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 - Old Method (tonnes)	2015 - Old Method (tonnes)	2016 - Old Method (tonnes)	2014 (tonnes)	2015 (tonnes)	2016 (tonnes)
Vegetal wastes	321,721	296,333	261,760	289,370	293,020	315,833	257,145	251,379	270,249
Animal and mixed food waste	66,501	119,496	152,469	188,436	209,164	263,142	183,015	205,274	259,734
Common sludges	5,160	33,256	23,204	23,351	15,665	39,447	23,351	15,665	39,447
Household and similar wastes	60,593	37,352	26,812	30,255	29,981	27,868	7,503	9,365	8,414
Animal faeces, urine and manure	150	12,738	15,201	9,727	21,368	4,857	9,615	7,552	3,653
Other	21,518	52,339	33,066	18,984	15,229	25,899	16,874	13,800	24,118
Total	**475,643**	**551,514**	**512,513**	**560,122**	**584,427**	**677,045**	**497,504**	**503,034**	**605,614**

1. From 2014 the total waste recycled was measured using a new methodology (New Method), which excluded figures for waste composted or anaerobically digested that did not reach the quality standards set by PAS 100/110. In the Old Method, all waste composted or anaerobically digested were included in the recycling figures regardless of PAS quality standard

Waste Recovered By Incineration

- In 2016, there were 527,082 tonnes of waste recovered by incineration with energy recovery or co-incineration. This is an increase of 61,344 tonnes (13.2%) from 2015. This follows the longer term trend of an increase in waste recovery, with an increase of 257,602 tonnes (95.6%) of waste recovered since 2011.
- The largest waste type recovered in 2016 was Wood wastes (243,311 tonnes, 46.2% of all waste recovered) followed by Sorting residues (156,410 tonnes, 29.7%).
- The increase of 80,462 tonnes (105.9%) in the amount of Sorting residues recovered from 2015 to 2016 is almost exclusively due to these wastes being sent to Europe for recovery instead of being disposed of in the UK by incineration (see 'Waste Disposed' section below). In 2016, more Sorting residues were managed at European facilities accredited to the R1 recovery standard.

Figure 11. Scottish waste recovered by incineration[1] by waste category 2011 - 2016



1. Waste recovered includes waste inputs to co-incineration facilities and to incineration facilities that have been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.

Table 12. Scottish waste recovered by incineration[1] by waste category 2011 – 2016

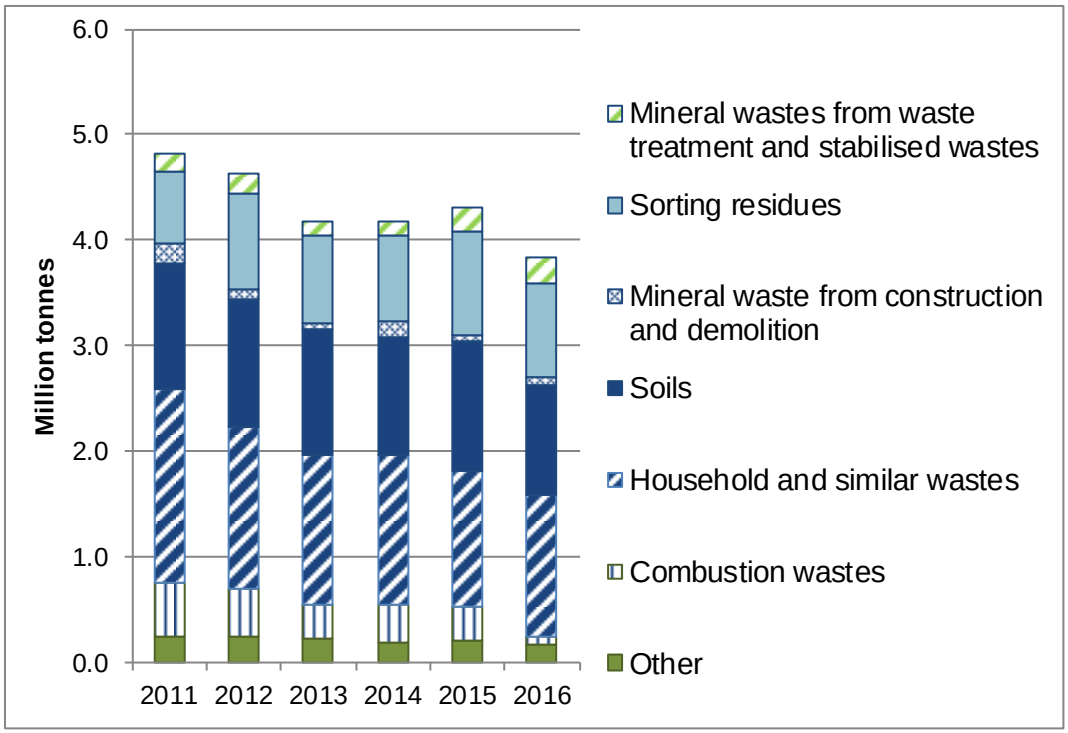
Waste Category	Year					
	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 (tonnes)	2015 (tonnes)	2016 (tonnes)
Wood wastes	90,616	127,621	122,523	206,895	233,616	243,311
Sorting residues	5,192	26,089	33,759	121,214	75,949	156,410
Animal faeces, urine and manure	119,309	120,509	123,748	117,431	97,731	75,901
Common sludges	37,200	0	36,060	22,430	28,417	30,129
Industrial effluent sludges	0	4,252	2,319	5,295	12,985	12,929
Household and similar wastes	0	0	0	0	9,749	7,209
Rubber wastes	15,235	0	15,025	16,183	0	610
Spent solvents	0	0	0	0	565	505
Other	1,927	0	0	104	6,727	77
Total	**269,479**	**278,470**	**333,435**	**489,553**	**465,738**	**527,082**

1. Waste recovered includes waste inputs to co-incineration facilities and to incineration facilities that have been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.

Waste Disposed

- In 2016, there were 3.8 million tonnes of waste disposed by landfill or incineration. This is a decrease of 463,397 tonnes (10.8%) from 2015. This follows the longer term trend of a decrease in waste disposal, with a decrease of 970,184 tonnes (20.2%) of waste disposed compared with 2011.
- The waste type with the largest amount disposed in 2016 was Household and similar waste (1.35 million tonnes, 35.0% of all waste disposed) followed by Soils (1.02 million tonnes, 26.6%) and Sorting residues (894,840 tonnes, 23.3%) as depicted in Figure 12 below.

Figure 12. Scottish waste disposed[1] by waste category 2011 - 2016



1. Waste disposed includes waste landfilled and waste inputs to incineration facilities that have not been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.

Table 13. Scottish waste disposed[1] by waste category 2011 – 2016

Waste Category	Year					
	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 (tonnes)	2015 (tonnes)	2016 (tonnes)
Household and similar wastes	1,817,999	1,528,431	1,415,035	1,414,079	1,270,273	1,345,570
Soils	1,202,936	1,217,230	1,197,673	1,131,116	1,237,837	1,022,706
Sorting residues	697,780	909,820	822,253	800,280	972,489	894,840
Mineral wastes from waste treatment and stabilised wastes	156,868	191,285	134,874	145,413	233,680	250,375
Combustion wastes	511,179	453,593	318,714	364,589	333,996	83,765
Mineral waste from construction and demolition	178,606	95,700	60,451	152,154	60,980	82,855
Other	247,449	235,718	222,774	175,216	196,775	162,522
Total	**4,812,817**	**4,631,777**	**4,171,775**	**4,182,846**	**4,306,030**	**3,842,633**

1. Waste disposed includes waste landfilled and waste inputs to incineration facilities that have not been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.

- The vast majority (99.3%) of waste landfilled in Scotland in 2016 was of Scottish origin, and the bulk of Scottish waste that was managed by disposal to landfill was landfilled in Scotland (99.6%). This document reports on the Scottish waste that was managed by disposal to landfill. For more information on the trends and commentary for waste that was landfilled in Scotland in 2016, including waste generated outwith Scotland, please see the Waste Landfilled in Scotland 2016 statistics.
- Scottish waste disposed to landfill in 2016 was 3.71 million tonnes, a decrease of 427,702 tonnes (10.3%) from the 4.13 million tonnes landfilled in 2015. This is consistent with the longer term trend of decreasing disposal to landfill (see Figure 13 below), with 3.30 million tonnes (47.1%) less waste disposed to landfill in 2016 than in 2005.
- As depicted in Figure 14 below, there were 41,876 tonnes of Scottish Hazardous waste disposed to landfill in 2016, which amounts to 1.1% of all Scottish waste landfilled. The bulk of Scottish hazardous waste landfilled was Other mineral wastes, which primarily comprises insulating materials such as asbestos (22,085 tonnes, 52.7% of all hazardous waste landfilled), followed by Soils (15,859 tonnes, 37.9%).

Figure 13. Scottish waste disposed to landfill by waste category 2005 - 2016

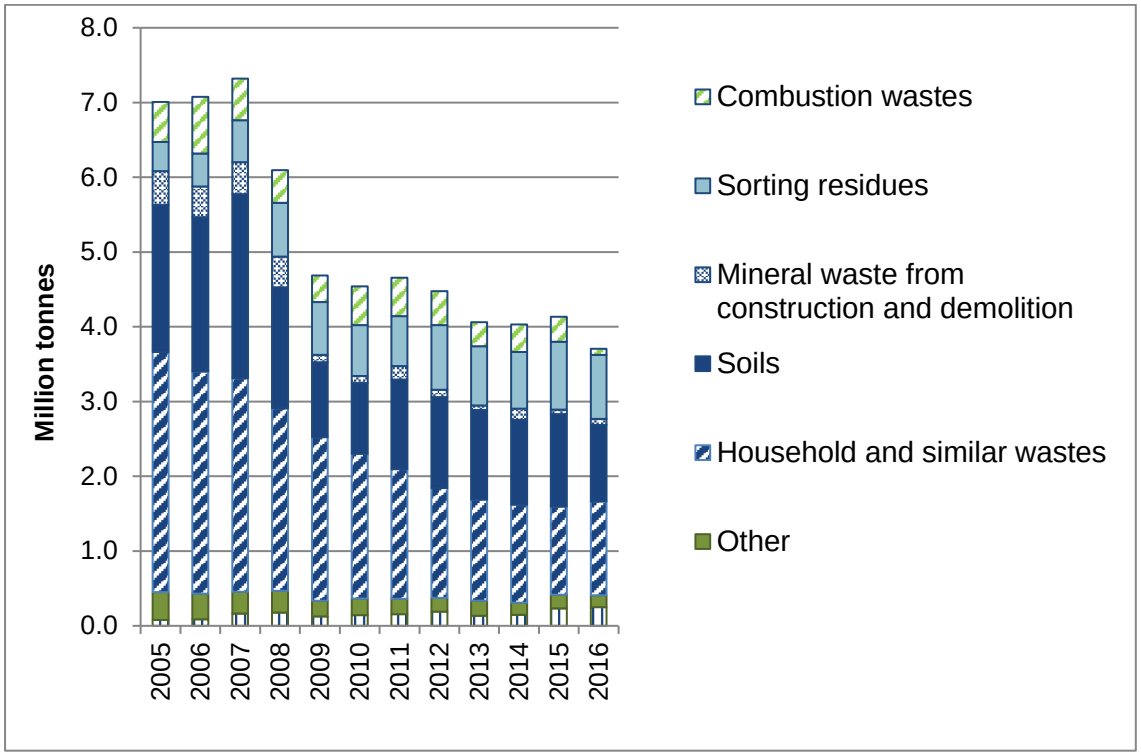


Figure 14. Scottish hazardous waste disposed to landfill by waste category 2005 - 2016

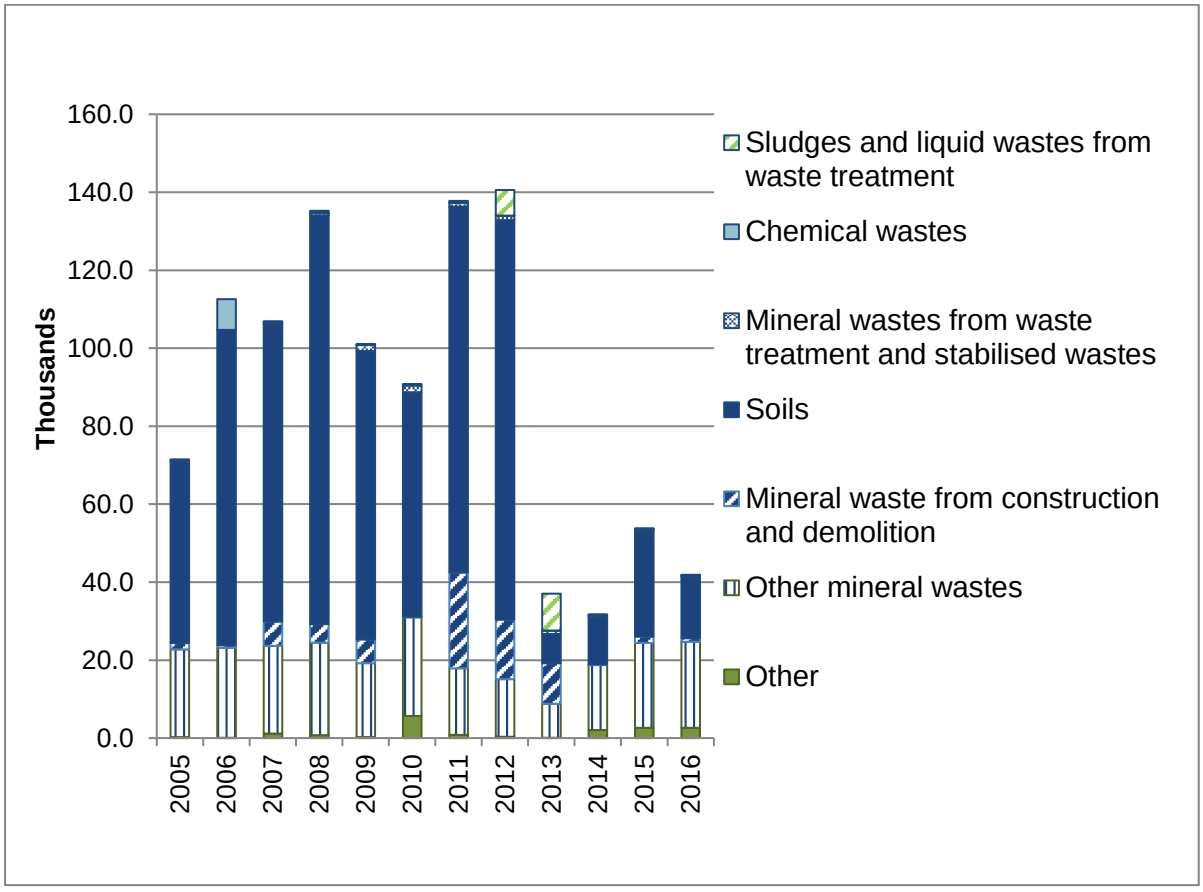


Table 14. Scottish waste disposed to landfill by waste category 2005 - 2016

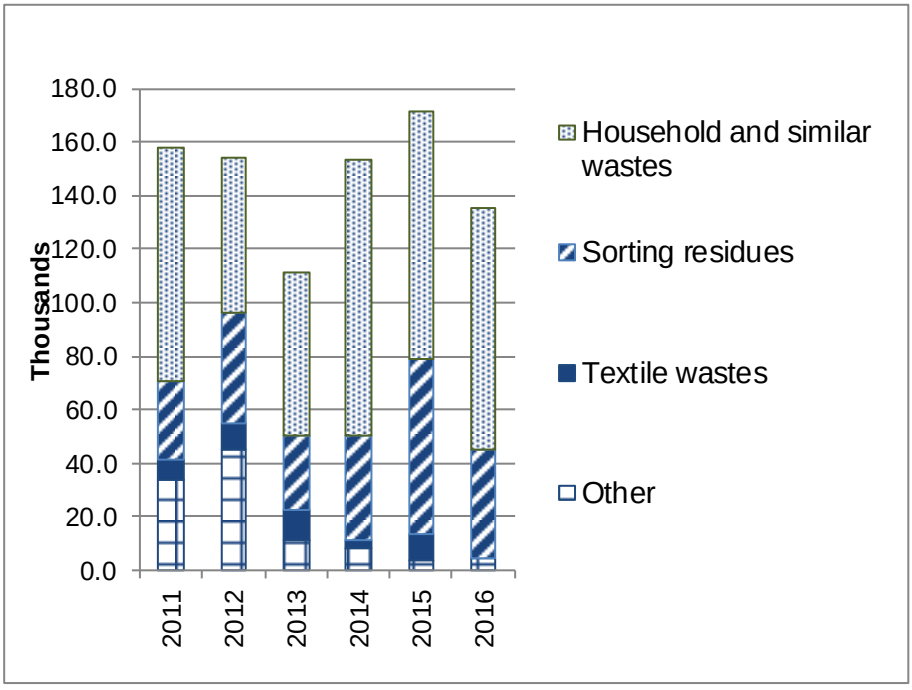
Waste Category	Year											
	2005 (tonnes)	2006 (tonnes)	2007 (tonnes)	2008 (tonnes)	2009 (tonnes)	2010 (tonnes)	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 (tonnes)	2015 (tonnes)	2016 (tonnes)
Household and similar wastes	3,211,792	2,971,314	2,857,236	2,438,260	2,191,014	1,938,768	1,730,846	1,470,698	1,353,671	1,311,328	1,178,202	1,254,924
Soils	1,965,986	2,064,745	2,464,810	1,619,925	999,198	943,141	1,202,936	1,217,230	1,197,673	1,131,116	1,237,837	1,022,706
Sorting residues	390,914	441,827	560,868	717,022	708,176	677,837	668,129	868,224	794,755	760,714	906,706	854,373
Combustion wastes	532,420	758,621	555,924	436,725	353,903	521,327	511,179	453,593	318,714	364,589	333,996	83,765
Mineral waste from construction and demolition	456,289	411,431	426,459	413,372	100,578	97,696	178,606	95,700	60,414	150,913	60,961	82,855
Mineral wastes from waste treatment and stabilised wastes	79,464	88,267	164,963	176,634	124,431	143,225	156,868	191,285	134,874	145,413	233,680	250,375
Other	370,010	341,992	288,818	292,988	209,739	221,232	206,389	181,144	200,227	165,411	183,569	158,251
Total	**7,006,875**	**7,078,197**	**7,319,077**	**6,094,926**	**4,687,039**	**4,543,226**	**4,654,954**	**4,477,873**	**4,060,329**	**4,029,484**	**4,134,951**	**3,707,249**

Table 15. Scottish hazardous waste disposed to landfill by waste category 2005 - 2016

Waste Category	Year											
	2005 (tonnes)	2006 (tonnes)	2007 (tonnes)	2008 (tonnes)	2009 (tonnes)	2010 (tonnes)	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 (tonnes)	2015 (tonnes)	2016 (tonnes)
Soils	46,766	80,851	76,120	104,669	73,987	57,530	93,805	102,497	7,509	12,147	27,210	15,859
Other mineral wastes	22,537	23,115	22,538	23,753	18,960	25,284	17,027	14,777	8,681	16,606	21,721	22,085
Mineral waste from construction and demolition	1,585	626	6,182	4,724	6,110	139	24,580	15,211	10,418	192	1,637	890
Mineral wastes from waste treatment and stabilised wastes	191	15	535	661	1,535	1,754	1,033	1,101	845	341	402	178
Chemical wastes	3	7,842	149	276	115	363	128	36	34	250	34	80
Sludges and liquid wastes from waste treatment	0	0	205	428	137	0	357	6,596	9,446	3	120	128
Other	245	85	1,149	746	243	5,706	850	378	112	2,098	2,652	2,657
Total	**71,328**	**112,534**	**106,877**	**135,257**	**101,087**	**90,776**	**137,782**	**140,594**	**37,045**	**31,639**	**53,776**	**41,876**

- Scottish waste disposed by incineration in 2016 was 135,384 tonnes, a decrease of 35,695 tonnes (20.9%) from the 171,079 tonnes disposed in 2015. The largest waste category disposed by incineration in 2016 was Household and similar wastes (90,646 tonnes, 67.0% of total), followed by Sorting residues (40,467 tonnes, 29.9%). Sorting residues disposed by incineration decreased by 25,316 tonnes (38.5%) between 2015 and 2016; most of this decrease is due to these wastes being sent to energy recovery facilities in Europe instead of being disposed in the UK.

Figure 15. Scottish waste disposed by incineration[1] by waste category 2011 – 2016



1. Waste disposed by incineration comprises waste inputs to incineration facilities that have not been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.

Table 16. Scottish waste disposed by incineration[1] by waste category 2011 – 2016

Waste Category	Year					
	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 (tonnes)	2015 (tonnes)	2016 (tonnes)
Household and similar wastes	87,153	57,733	61,364	102,750	92,071	90,646
Sorting residues	29,650	41,596	27,499	39,566	65,783	40,467
Textile wastes	6,960	9,723	11,597	3,015	9,536	0
Other	34,100	44,851	10,987	8,031	3,690	4,271
Total	**157,863**	**153,904**	**111,447**	**153,362**	**171,079**	**135,384**

1. Waste disposed by incineration comprises waste inputs to incineration facilities that have not been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.

DATA USES, FEEDBACK, REVISIONS POLICY, METHODOLOGY, GLOSSARY OF TERMS AND MEASURES, AND REFERENCES

User Statement

Data on WFAS generation and management are collected to monitor policy effectiveness, particularly the commitments in the Zero Waste Plan, Safeguarding Scotland's Resources, and Scotland's Circular Economy Strategy and to support policy development. The data are also used to meet legislative reporting targets on recycling targets set out in the Waste Framework Directive (2008/98/EC) and Commission Decision establishing rules and calculation methods for verifying compliance with the targets set in the Waste Framework Directive (2011/753/EU) and to supply data for the Waste Statistics Regulation (2002/2150/EC). The data are used extensively by local and central government, the waste industry, researchers and the public as well.

Feedback

We welcome feedback on the data from all users including how and why the data is used. This helps us to understand the value of the statistics to external users. Please see our contact details at the bottom of the first page of this notice or e-mail: waste.data@sepa.org.uk.

Revisions Policy

SEPA will provide information about any revisions made to published information in this release and the associated datasets. Revisions could occur for various reasons, including when data from third parties is unavailable or provisional at the time of publishing or if there are subsequent methodological improvements or refinements.

The figures are accurate at the time of publication. However the data may be updated if further revisions are necessary. Normally these revisions will be published concurrent with the next release.

Revisions undertaken since the 2015 publication include:

C&I Dataset: Data has been revised for all years between 2011 and 2015 using a more robust aggregation tool. The revision takes into account any amendments of source data such as SEPA site returns data since the original publication. The overall methodology however remains unchanged. Differences in published data to that of the previous publication is shown in Table 15 below. In general, the C&I waste generated figures have increased.

C&D Dataset: Data has been revised for all years between 2011 and 2015 using a more robust aggregation tool. The revision takes into account any amendments of source data such as SEPA site returns data since the original publication. The overall methodology however remains unchanged. Differences in published data to that of the previous publication is shown in Table 15 below. In general, the C&D waste generated figures have decreased.

Table 17. Differences in the WFAS Generated in this Publication compared to Previous Publication

Year	Waste Source	Last Published	This Publication
2011	C&D	5,337,281	5,214,152
2011	C&I	4,025,733	4,221,780
2011	Household	2,606,759	2,606,759
2012	C&D	3,819,510	3,800,836
2012	C&I	3,639,627	3,818,032
2012	Household	2,500,995	2,500,995
2013	C&D	5,265,035	4,797,644
2013	C&I	3,662,432	3,915,171
2013	Household	2,412,706	2,412,706
2014	C&D	4,448,497	4,128,228
2014	C&I	3,310,131	3,436,319
2014	Household	2,459,559	2,459,559
2015	C&D	5,563,169	5,102,874
2015	C&I	3,599,063	3,752,211
2015	Household	2,468,800	2,468,800

Methodology

Data is taken from licenced and permitted waste site returns and exempt activity returns submitted to SEPA, from accredited reprocessor returns, from voluntary returns provided by waste sites on the industry source of data provided to SEPA, from voluntary returns provided by aggregate producers on the quantity of waste used to produce an aggregate product, and from all 32 Scottish local authorities using the web-based reporting tool WasteDataFlow.

From 2014, composted wastes that do not reach the quality standards set by PAS 100/110 do not contribute to the waste composted figures. For 2016, such wastes have been considered to be subject to other management, outside of recycling, recovery or disposal. Further details on the methodology used to produce the figures are provided in the annual Waste Data Quality Reports on SEPA's web site. Please note that WFAS figures published by countries within the UK may be based on alternative calculation methodologies and as such the figures may not be directly comparable.

As the tonnages of waste managed do not equal the tonnages of waste generated, the recycling and landfill rates referred to in this document (see Table 2 on page 3) are all relative to the total waste managed rather than waste generated. For further information, please refer to the quality report on SEPA's website.

Glossary of terms

BSI PAS 100 / 110 – a national compost benchmark that specifies the minimum requirements for the process of composting, the selection of material from which compost is made, and standards for the compost product quality. PAS 100 is applicable to composting facilities while PAS 110 is applicable to anaerobic digestion facilities. The use of this standard to improve the quality of compost in Scotland became part of Scottish Government policy in 2011, with 2014 being the first year it has been applied to the household official statistics. Organic wastes recycled that do not meet this standard have not been included in recycling statistics from 2014 onwards (see Old Method and New Method).

Co-incineration facility – an incineration facility in which the main purpose is the generation of energy or production or material products (e.g. cement) and which uses waste as an additional fuel. Note that co-incineration facilities are not eligible to qualify for R1 energy recovery efficiency as specified in the EU Waste Framework Directive.

C&D Waste – waste from the construction and demolition industry

C&I Waste – waste from commercial and industrial sources. Includes waste from business and industrial premises in Scotland, but excludes waste from the construction and demolition industry.

EWC Code – European Waste Catalogue waste code.

Hazardous Waste – waste with hazardous properties which may render it harmful to human health or the environment. Hazardous waste is also called Special Waste in Scotland as defined in the Special Waste Regulation 1996 (and amendments)

New Method – the methodology used from 2014 onwards to calculate the total waste recycled which does not include waste composted and/or anaerobically digested that did not reach the quality standards set by PAS 100/110.

Old Method – the methodology used until 2014 to calculate the total waste recycled which included all waste composted and/or anaerobically digested regardless of PAS quality standard.

Other Management – waste managed by methods outside of recycling, recovery or disposal. For 2016 this comprised exclusively waste composted at facilities not accredited to the BSI PAS 100/110 standard.

Recycling rate –waste recycled as a percentage of all waste managed. Note that total waste generated is not used to calculate the recycling rate as it does not equal total waste managed due to differences in methodologies used to calculate the report the data.

Waste disposed - waste landfilled and waste inputs to incineration facilities that have not been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.

Waste generated - is waste that directly arises from Scottish business' and households during the reporting year. C&I waste generated are estimated using data from licensed/permitted site returns and complex exempt activity return. C&D waste generated are estimated using data from licensed/permitted site returns, complex exempt activity returns and aggregate survey data. Household waste generated is taken from all 32 Scottish local authority returns using the web-based reporting tool WasteDataFlow (WDF). Waste generated does not include waste that does not directly arise from the business, for example waste that is taken in by a business from another business and subsequently disposed is excluded from the waste generation.

Waste disposed by incineration – waste inputs to incineration facilities that have not been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.

Waste landfilled –includes waste from all sources that is disposed of to landfill sites instead of being recycled or recovered. This includes incinerator ash, plus any recycling and composting rejects that occur during collection, sorting or further treatment that are landfilled.

Waste managed - includes all wastes recycled, disposed, recovered and managed by other management within the relevant reporting year.

Waste recovered by incineration – waste inputs to co-incineration facilities and to incineration facilities that incinerate mixed municipal waste and have been demonstrated to meet the R1 energy recovery efficiency specified in the EU Waste Framework Directive.

Waste recycled - includes recyclable materials that have been recycled or reused and also biodegradable materials that have been composted or anaerobically digested. From 2014, the composting figures using the new calculation methodology do not include any waste composted that has not reached the quality standards set by PAS 100/110.

WFAS – waste from all sources. This includes waste from commercial and industrial sources, construction and demolition sources and household sources.