

# The Contribution of Recycled and Secondary Materials to Total Aggregates Supply in Great Britain - 2020 Estimates

# Overview



## Introduction

**Construction aggregates are essential for housing, infrastructure including transport and energy networks, commercial and industrial buildings, utilities, schools and hospitals, and are the largest material flow in the economy.**

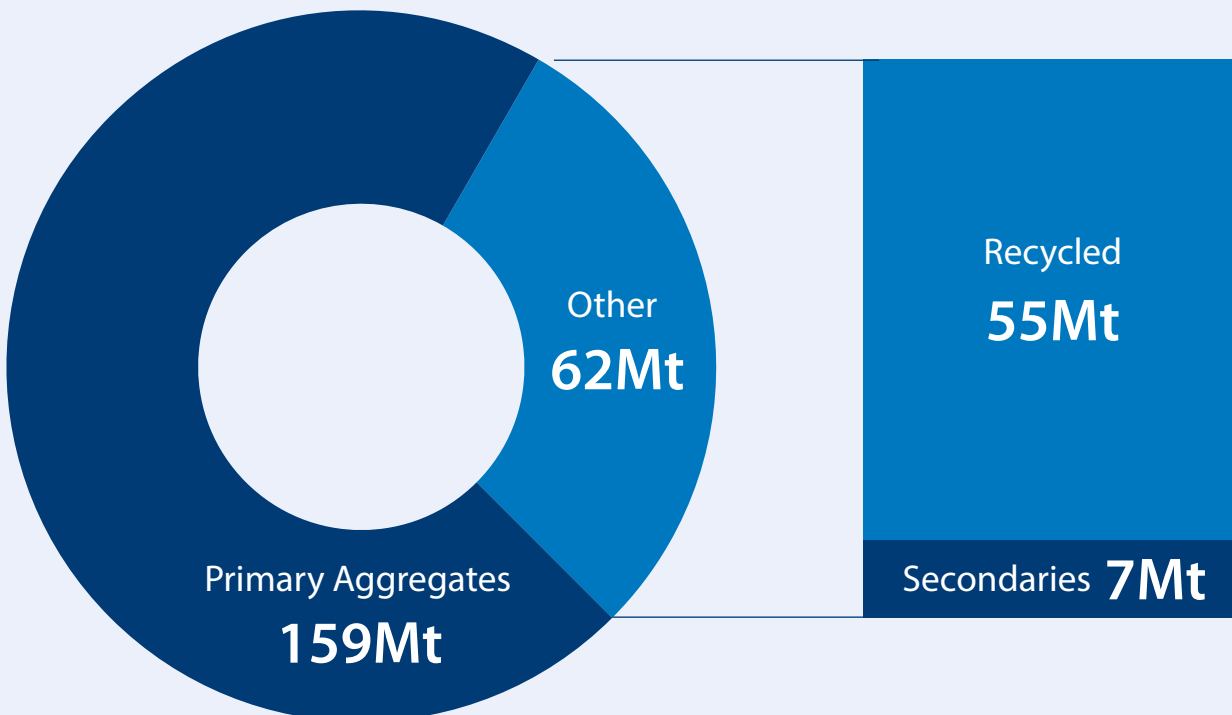
The main components of aggregates supply are primary aggregates, meaning quarried crushed rock and both land-won and marine dredged sand & gravel. A total of 158.6 million tonnes of primary aggregates were produced in the Great Britain in 2020, and a further 22.0 million tonnes produced in Northern Ireland. Primary aggregates are largely recovered from indigenous sources and imports remain limited.

In addition to the extraction of primary aggregates, materials can also be obtained from the recycling of Construction, Demolition and Excavation Wastes (CDEW), or derived from other industrial, production or extractive processes, referred to as secondary aggregates. This can include waste materials derived from the extraction of china clay, ball clay and slate, as well as furnace ash and slag from iron and steel production, which are defined as 'manufactured aggregates' within the BS EN aggregate product standards. Collectively, recycled and secondary aggregates contribute significantly to the total aggregates supply:

***In 2020, total recycled and secondary sources of aggregates accounted for 28% (61.8 million tonnes) of total aggregates supply in Great Britain, a leading position internationally in the use of recycled and secondary aggregates.***

Despite this strong performance, the absence of regularly collected and compiled statistics regarding recycled and secondary aggregate use at all scales, can make it challenging to track the industry's continuing progress. In response, the Mineral Products Association (MPA) has developed a methodology to track the contribution of recycled and secondary aggregates to overall aggregates supply in Great Britain with the aim of addressing this data gap. The methodology used is based on published statistics from third parties whenever possible, combined with a number of tried and tested material-specific assumptions.

**Figure 1. Total aggregates supply (in million tonnes) in Great Britain, 2020 (Source: MPA calculations)**

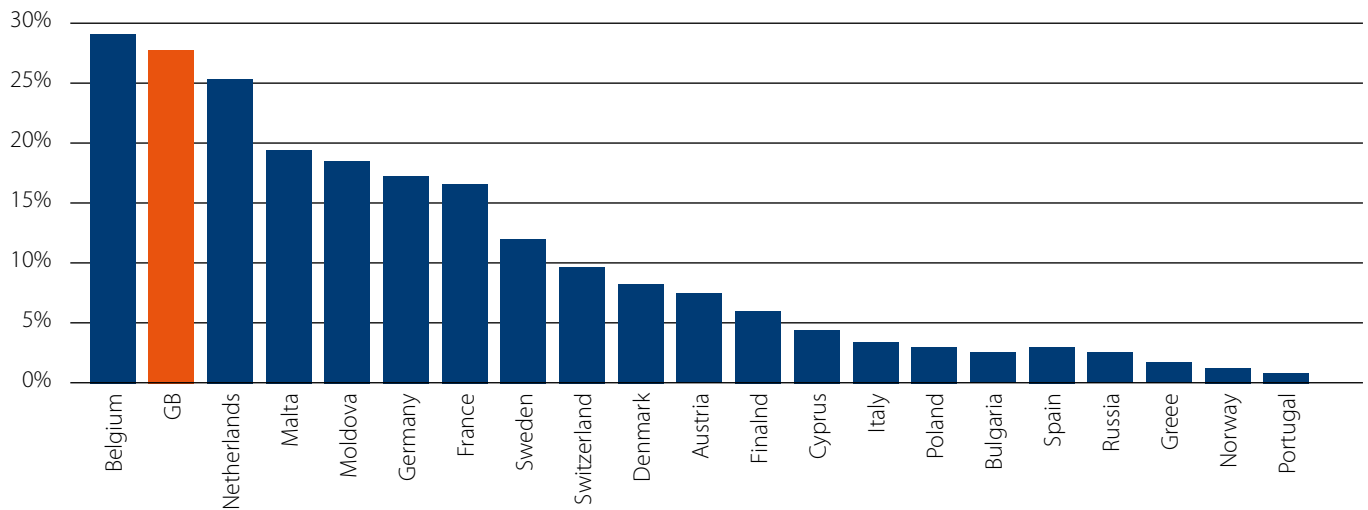




# Overview



**Figure 2. Share of recycled and secondary materials in total aggregates sales, 2020** (Source: UEPG, MPA calculations)



**Table 1. Total aggregates supply in Great Britain, 2016-20** (Source: MPA calculations)

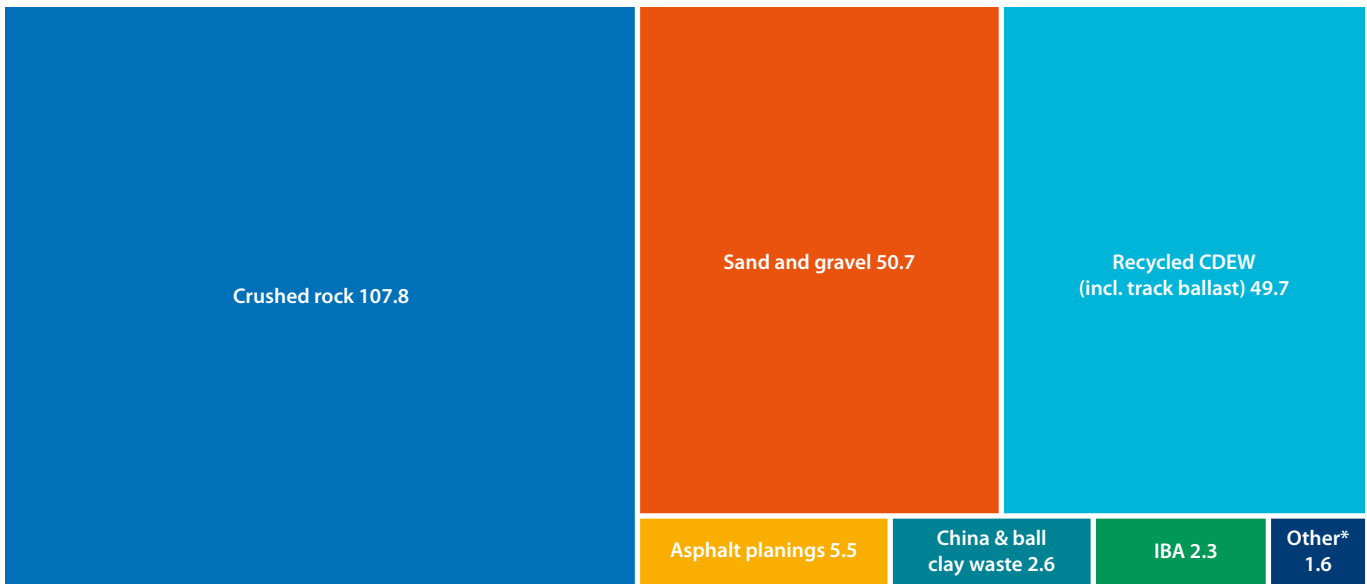
(Million tonnes)	2016 <sup>(1)</sup>	2017 <sup>(1)</sup>	2018 <sup>(1)</sup>	2019	2020
Crushed rock	113.9	114.5	117.3	119.3	107.8
Sand & gravel	63.0	61.8	62.6	57.9	50.7
<b>Total primary aggregates</b>	<b>176.9</b>	<b>176.3</b>	<b>179.9</b>	<b>177.2</b>	<b>158.6</b>
CDEW (incl. railway ballast)	54.1	57.4	57.4	58.4	49.7
Asphalt planings	6.0	6.1	6.1	6.0	5.5
<b>Total recycled aggregates</b>	<b>60.1</b>	<b>63.4</b>	<b>63.5</b>	<b>64.5</b>	<b>55.2</b>
China and ball clay waste <sup>(2)</sup>	2.0	2.5	2.5	2.6	2.6
Colliery spoil	0.0	0.0	0.0	0.0	0.0
Furnace bottom ash (FBA)	0.8	0.1	0.2	0.1	0.1
Incinerator bottom ash (IBA) <sup>(3)</sup>	1.9	1.8	1.8	2.0	2.3
Fly ash	1.1	0.4	0.4	0.3	0.3
Iron and steel slag	0.9	1.1	1.2	1.1	0.9
Slate waste	0.6	0.6	0.6	0.1	0.1
Clay and shale	0.2	0.2	0.1	0.0	0.0
Chalk	0.4	0.4	0.4	0.4	0.3
<b>Total secondary aggregates</b>	<b>7.8</b>	<b>7.0</b>	<b>7.3</b>	<b>6.5</b>	<b>6.6</b>
<b>Total aggregates supply</b>	<b>244.7</b>	<b>246.7</b>	<b>250.7</b>	<b>248.2</b>	<b>220.3</b>
<b>Recycled and secondaries</b>	<b>67.9</b>	<b>70.4</b>	<b>70.7</b>	<b>71.0</b>	<b>61.8</b>
<b>%</b>	<b>28%</b>	<b>29%</b>	<b>28%</b>	<b>29%</b>	<b>28%</b>

Note: <sup>(1)</sup> Includes minor revisions of previous published estimates. <sup>(2)</sup> Devon and Cornwall. <sup>(3)</sup> England and Wales only.

# Overview

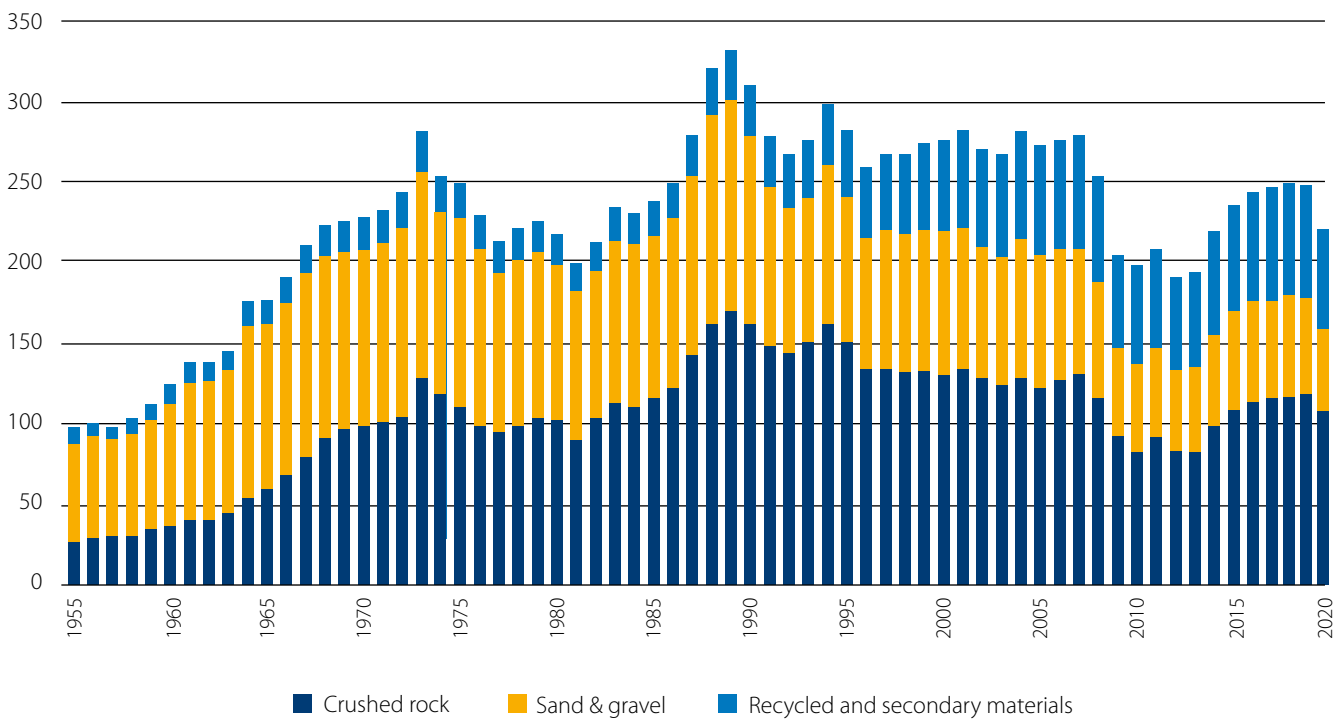


**Figure 3. Total aggregates supply (in million tonnes) in Great Britain, 2020 (Source: MPA calculations)**



\* Includes iron and steel slag, clay and shale, slate waste, chalk, fly ash, FBA and colliery spoils.

**Figure 4. Total aggregates supply (in million tonnes) in Great Britain, 1955-2020 (Source: ONS AMRI surveys, BGS 2021b, MPA calculations)**



# Definitions & Methodology



## Definitions

**Primary aggregates** are minerals that are extracted for aggregates use. Minerals can only be dug where they lie. In 2020, crushed rock represented 68% of the total volume of primary aggregates produced, with sand and gravel quarries and marine dredged sand and gravel making up the remainder of total primary aggregate supply.

Whilst local and regional markets may be highly dependent on a particular type or source of aggregate as a consequence of the geological availability or the need for specific construction products, the total market is mostly supplied from domestic sources. Aggregates imports account for less than 5% of the domestic market in volume terms.

**Recycled aggregates** are materials derived from construction, demolition and excavation wastes (CDEW) which are reprocessed and/or re-used as an aggregate for construction purposes whenever possible. The definition used in this document includes only the hard inert materials, defined as the non-hazardous materials which would generally be suitable for recycling into aggregates. This definition includes railway ballast but excludes asphalt planings, which are accounted for separately. The soft non-hazardous CDEW recovered as recycled soils are entirely excluded.

**Secondary aggregates** are by-products of other industrial, production or extractive processes, which can be used as an aggregate for construction purposes. These include blast furnace iron and steel slags, incinerator bottom ash, fly ash, furnace bottom ash, china clay, slate and chalk waste, as well as colliery spoils. Collectively, these materials make an important contribution to total aggregates supply and depending on their quality and composition can be

used as replacement construction aggregates, in the manufacture of concrete and concrete products, and in a range of other construction applications. It should be noted that secondary aggregates are defined as manufactured aggregates within the BS EN aggregate product standards.

## Methodology and assumptions

All estimates for CDEW and secondary aggregates are based on historical statistics from detailed research commissioned by a predecessor to the current Department for Levelling Up, Housing and Communities, the former Department for Communities and Local Government (DCLG 2007a, 2007b) and WRAP (2010), which provided data for the years 2005 and 2008.

It is generally assumed that all CDEW which can be recycled as aggregates is being used, with limited opportunity for a significantly higher share of CDEW in aggregates markets. Research by DCLG into CDEW markets suggests that this was already the case in 2005, indicating that very little evidence was found of hard construction and demolition waste which could be recycled into aggregate being landfilled as waste (DCLG 2007a).

Using the information available, MPA estimates the contribution of recycled and secondary aggregates to total aggregates supply from 2009 onwards using a range of material specific assumptions, which are detailed in the following sections. It should be noted that the devolved administrations may publish recycling data based on activities in their own jurisdictions. As a consequence, locally reported recycling rates may differ from the estimates for Great Britain presented in this document.



# Constituents of Supply



## Primary Aggregates (Crushed Rock, Land-won and Marine Sand and Gravel)

Historical statistics on non-energy mineral production in Great Britain are available from the Annual Mineral Raised Inquiry (AMRI) surveys, previously carried out by the Office for National Statistics (ONS). This includes data on extracted sales of chalk, clays, crushed rock, dolomite, granite, limestone, peat, ore minerals, salt, sandstone, sand & gravel, slate and other minerals, together with employment for each quarry type. The last annual survey available covers data for the year 2014 after which government withdrew funding.

Statistics on primary aggregates sales are also available from the Aggregate Mineral (AM) survey, which covers England and Wales only, and is prepared by the British Geological Survey (BGS) for the Ministry of Housing, Communities and Local Government (now the Department of Levelling Up, Housing and Communities) and the Welsh Government. The latest surveys available provides national and regional sales patterns, inter-regional flows, transportation, consumption and permitted reserves for primary aggregates in England and Wales. Whilst this survey is typically carried out on a 4-yearly basis, it can sometimes be delayed through lack of funding. The latest surveys cover data for the years 2014 and 2019.

There are no other official sources of statistics for primary aggregates production. Thanks to its wide industry representation, MPA is nonetheless able to use information collected from its producer members to fill the gaps in the data. MPA collects sales volumes statistics on a quarterly basis for a range of mineral products, including primary aggregates sales in Great Britain. This survey is based on a consistent sample of producer members and represented 74% of total sand and gravel sales and 79% of total crushed rock sales in Great Britain in 2014 when compared to the AMRI surveys. Given this significant representation, it is possible to use the MPA market trends as a reasonable proxy for annual changes in total primary aggregate sales in Great Britain for more recent years.

The methodology followed uses the total primary aggregates sales as published in the AMRI surveys up to the year 2013, and a combination of the AM survey data (2014, 2019) and the trends in MPA members' sales to estimate the total primary aggregates market in Great Britain over 2014-20. These estimates are also provided to the BGS for the annual publication of the UK Minerals Yearbook (see BGS 2021a for the latest).

**Table 2. Primary aggregates production in Great Britain**

(Source: ONS AMRI, BGS 2021b, MPA calculations)

(Million tonnes)	Crushed rock	Sand and gravel	Primary aggregates
2005	121.9	82.4	204.3
2008	115.1	72.1	187.2
2009	91.1	55.7	146.8
2010	82.3	54.3	136.6
2011	90.9	55.0	145.9
2012	82.9	50.0	132.9
2013	82.4	51.9	134.4
2014	98.4	56.1	154.6
2015	108.2	61.8	170.0
2016	113.9	63.0	176.9
2017	114.5	61.8	176.3
2018	117.3	62.6	179.9
2019	119.3	57.9	177.2
2020	107.8	50.7	158.6

## Construction, Demolition and Excavation Wastes (CDEW incl. Railway Ballasts)

Historical data for England for the years 2005 and 2008 are available from the former Department for Communities and Local Government (DCLG, 2007a) and WRAP (2010). According to these two reports, the total production of recycled aggregates in England reached 42.1 million tonnes in 2005 and 43.5 million tonnes in 2008. These tonnages include hard inert CDEW, that is, materials which would generally be suitable for processing into aggregates. This definition includes railway ballast but excludes asphalt planings which are accounted for separately. Recycled soils are excluded.

Based on the England estimates, MPA assumed a further 4.0 million tonnes of recycled aggregates produced in Scotland and 3.0 million tonnes in Wales, resulting in a total of 49.1 million tonnes of recycled aggregates in 2005 in Great Britain.

The estimate for Great Britain 2008 is obtained using the England trend recorded over 2005-08, leading to a total production of recycled aggregates of 50.8 million tonnes in 2008.

There has been no further information published on recycled aggregates at national level since the WRAP report in 2010. Remarkably, given the growing focus on the importance of the circular economy and the need to ensure waste is recovered back into the value chain, robust data on arisings of CDEW is difficult to obtain and a standard methodology has not been adopted nationally. This is despite





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construction waste being identified by government as the largest waste flow in the national economy. Projections from 2009 onwards are based on the assumption that the trends in general construction activity should be a good indicator for the trend in the amount of demolition work taking place, and therefore of the generation of CDEW.

**Table 3. European waste codes for hard inert CDEW**

(Source: WRAP 2010)

EWC code 3	Description
17.01.01	Concrete
17.01.02	Bricks
17.01.03	Tiles and ceramics
17.01.07	Mixture of concrete, bricks, tiles and ceramics
17.05.08	Track ballast
10.12.08	Waste ceramics, bricks, tiles and construction products (after thermal processing)
17.02.02	Glass waste
19.12.09	Minerals (incl. sand, stones from waste treatment)

**Table 4. Hard inert CDEW in Great Britain**

(Source: WRAP 2010, ONS 2021, MPA calculations)

	Construction output (Annual %)	Hard inert CDEW (Million tonnes)
2005	-2.4	49.1
2008	-2.6	50.8
2009	-13.2	44.1
2010	8.5	47.8
2011	1.0	48.3
2012	-7.2	44.8
2013	1.6	45.5
2014	9.9	50.0
2015	3.8	51.9
2016	4.1	54.1
2017	6.1	57.4
2018	0.0	57.4
2019	1.8	58.4
2020	-15.0	49.7

## Asphalt planings

According to the European Asphalt Pavement Association (EAPA, 2014), asphalt materials are almost unique among construction products in that they can be 100% recycled, and in many cases re-used directly back into the application and even the site from which they have been extracted. The availability of asphalt planings is therefore closely linked to general road maintenance.

A total of 8.0 million tonnes of asphalt arisings were available in the UK in 2005 (DCLG, 2007b), 5.6 million tonnes (70%) of which occurred in England. To obtain a Great Britain total, MPA assumed an equal split of the difference between the UK and England to represent Scotland, Wales and Northern Ireland (0.8 million tonnes each), meaning total arisings of 7.2 million tonnes in Great Britain in 2005. No further direct sources of information on the size of the asphalt planings market at national level could be identified. As a result, from 2008 onward, MPA assumed total asphalt planings to follow the trend in MPA asphalt sales, a proxy for general road maintenance activity.

**Table 5. Asphalt planings in Great Britain**

(Source: DCLG 2007b, MPA calculations)

	Asphalt sales (Annual %)	Asphalt planings (Million tonnes)
2005	3.6	7.2
2008	-4.0	6.4
2009	-17.5	5.3
2010	6.0	5.6
2011	4.2	5.8
2012	-16.9	4.8
2013	3.9	5.0
2014	8.8	5.5
2015	6.5	5.8
2016	3.5	6.0
2017	0.2	6.1
2018	0.7	6.1
2019	-0.8	6.0
2020	-8.6	5.5



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## China and Ball Clay waste

A major source of secondary aggregates are the by-products derived from the extraction and processing of china and ball clay. To obtain one tonne of saleable china clay, up to nine tonnes of other materials are generated. Most of this waste can be used as general fill for both engineering purposes or to recycle land, or as other aggregate uses after crushing and screening, such as in concrete and as building sand.

In 2005, china clay quarries in the South West of England (Devon and Cornwall) produced 19.6 million tonnes of waste arisings, 2.6 million tonnes (13.4%) of which were re-used as aggregates (DCLG 2007b). After 2005, data availability is very limited. The BGS provides annual statistics on sales volumes of china and ball clay sales in England<sup>1</sup>, which show a total of 1.5 million tonnes produced in 2019 (BGS 2021a). As this data is for total sales, not just for waste materials, an estimation of china and ball clay waste production is therefore needed.

According to the Kaolin and Ball Clay Association (KABCA), each tonne of china clay typically produces up to 9.0 tonnes of waste arisings<sup>2</sup>, whilst the ratio of waste to production for ball clay is variable but generally in the order of 1.0 to 1.5<sup>3</sup>.

Whilst using these ratios should in theory make it possible to estimate the size of china and ball clay waste produced each year between 2005 and 2020, in practice this is complicated by the fact that the production of secondary aggregates from clay waste also involves the processing of significant historic stockpiles. Consequently, a direct relationship between the rates of primary clay production at any one time and the production of secondary aggregates cannot be assumed. Furthermore, not all of the waste will necessarily be suitable for aggregate usage.

An alternative basis for the estimation of china and ball clay waste used as aggregates is therefore needed. Nearly all clay arisings in Great Britain occur in only two counties in South West England, in Devon and Cornwall. The annual Local Aggregate Assessment reports for these two counties include published sales volumes for secondary aggregates produced from china and ball clay waste each year. For instance, in Devon an estimated 561,000 tonnes of secondary aggregates were sold in 2020, 95% of which originated from china and ball clay workings, the remaining from slate waste. In Cornwall, a total of 2.1 million tonnes of secondary aggregates were sold in 2020, nearly all<sup>4</sup> of which were derived from china clay waste. Overall, this indicates that, in 2020, approximately 2.6 million tonnes of clay waste were used as aggregates in Great Britain.

<sup>1</sup> There are no china or ball clay workings in Wales, Scotland and Northern Ireland.

<sup>2</sup> <https://kabca.org/what-is-kaolin.php>

<sup>3</sup> <https://kabca.org/what-is-ball-clay.php>

<sup>4</sup> The difference is accounted for by a small volume of slate waste.

**Table 6. China and ball clay waste used as aggregates in Great Britain** (Source: DCLG 2007b, Devon County Council, Cornwall Council, MPA calculations)

	Clay waste used as aggregates (Million tonnes)
2005	2.6
2008	2.8
2009	1.7
2010	1.6
2011	2.1
2012	2.0
2013	2.1
2014	2.0
2015	2.0
2016	2.0
2017	2.5
2018	2.5
2019	2.6
2020	2.6

## Colliery Spoil

Colliery spoil has historically been used as a source of secondary aggregates, mostly as fill for engineering purposes or to reclaim land. It is generally obtained from deep coal mining. There were an estimated 1.0 million tonnes of colliery spoil used as aggregates in England in 2005 (DCLG, 2007b).

There is no other information available from which form an estimate of the size of the market post-2005. A conservative baseline can be derived by using the England estimate for 2005 as starting point and projecting the volumes forward to 2020 based on the trend in deep mined coal production, as published by Department for Business, Energy & Industrial Strategy (BEIS). Production of deep mining coal ceased in 2015 when the last deep coal mine in the UK, Kellingley Colliery in North Yorkshire, closed.

**Table 7. Colliery spoil used as aggregates in Great Britain** (Source: DCLG 2007b, BEIS 2021, MPA calculations)

	Deep mined coal output (Million tonnes)	Colliery spoil used as aggregates (Million tonnes)
2005	9.6	1.0
2008	8.1	0.8
2009	7.5	0.8
2010	7.4	0.8
2011	7.3	0.8
2012	6.2	0.6
2013	4.1	0.4
2014	3.7	0.4
2015	2.8	0.3
2016	0.0	0.0
2017	0.0	0.0
2018	0.0	0.0
2019	0.1	0.0
2020	0.1	0.0



# Constituents of Supply



## Furnace Bottom Ash (FBA)

FBA originates from the combustion process at coal-fired power stations. It can be used as a lightweight aggregate in the manufacture of building blocks and structural lightweight fill material. There were approximately 1.2 million tonnes of total FBA arisings in Great Britain in 2005, 90% (1.1 million tonnes) of which were used as aggregates (DCLG, 2007b).

More recent data for total sales of FBA in Great Britain<sup>5</sup> is provided by the UK Quality Ash Association (UKQAA), to which we apply the same 90% ratio for aggregate use. Where annual volumes are missing, MPA provided an estimate based on the general trend in construction activity.

It should be noted that the continual decline in the production of FBA in Great Britain in recent years reflect coal power station closures, with low output offset by some imports. For the year 2020, the UKQAA estimated that just 70,497 tonnes of FBA were produced in Great Britain and used as aggregates, down from over 900,000 tonnes in 2013.

<sup>5</sup> Whilst this data is for the UK rather than Great Britain, the survey does not identify any operational coal-fired power stations based in Northern Ireland.

**Table 8. FBA used as aggregates in Great Britain**

(Source: DCLG 2007b, UKQAA, ONS 2021, MPA calculations)

	Total FBA sales (Million tonnes)	Construction output (Annual %)	Used as aggregates (Million tonnes)
2005	1.2	-2.4	1.1
2008	0.9	-2.6	0.8
2009	0.7	-13.2	0.6
2010	0.7	8.5	0.6
2011	0.8	1.0	0.7
2012	1.0	-7.2	0.9
2013	1.0	1.6	0.9
2014	0.8	9.9	0.7
2015	-	3.8	0.7
2016	-	4.1	0.8
2017	0.1	6.1	0.1
2018	0.3	0.0	0.2
2019	0.1	1.8	0.1
2020	-	-15.0	0.1

- Not available.

## Incinerator bottom ash (IBA)

IBA is the output of municipal solid waste incineration. It may contain glass, ceramic, bricks, concrete, grit and stone in addition to clinker, ash and metals. It is generally recycled in a number of construction applications to replace primary aggregates, including as fill material or for road paving, concrete or construction blocks.

The Environmental Services Association (ESA) indicates that approximately 1.0 million tonnes of IBA are produced in England and Wales each year. In 2011, about 86% (0.9 million tonnes) of IBA was reused as aggregates, with the remainder including the recovery of metals and hazardous materials.

With no further information available, this volume is carried over for the years 2005-12. From 2013 however, it is possible to use information published as part of the Environment Agency (EA) Pollution Inventory datasets for England and Wales, focussing on "wastes transferred off-site for disposal or recovery." Consolidating the data available for non-hazardous bottom ash and slag results in 1.2 million tonnes of IBA produced in 2013, 86% of which (1.1 million tonnes) is assumed to have been reused as aggregates. This methodology is applied over 2013-20.

**Table 9. IBA used as aggregates in England and Wales**

(Source: DCLG 2007b, ESA, Environment Agency, MPA calculations)

	IBA (ESA) (Million tonnes)	IBA <sup>(1)</sup> (EA) (Annual %)	Used as aggregates (Million tonnes)
2005	1.0	-	0.9
2008	1.0	-	0.9
2009	1.0	-	0.9
2010	1.0	-	0.9
2011	1.0	-	0.9
2012	1.0	-	0.9
2013	-	1.2	1.1
2014	-	1.6	1.3
2015	-	1.8	1.6
2016	-	2.2	1.9
2017	-	2.1	1.8
2018	-	2.1	1.8
2019	-	2.3	2.0
2020	-	2.7	2.3

<sup>(1)</sup> Includes EWC 10 01 01, 10 01 15 and 19 01 12.  
- Not available.



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## Fly Ash

Fly ash is the output from the combustion process at coal-fired power stations. As a fine material, fly ash can be used in the manufacture of concrete and cement, as well as an unbound secondary fill material, such as for the construction of embankments.

The production of fly ash is linked to the UK's energy mix, increasing when more coal is burnt, and levelling off or decreasing when other energy sources take primacy, such as gas. Between 4.0 and 7.0 million tonnes of fly ash were produced each year between 1999 and 2014 and there are believed to be significant deposits of this material located adjacent to traditional coal-fired power station sites.

Survey data for ash sales and utilisation in the UK is produced by the UKQAA. Whilst the data is presented on a UK-basis, there are no operational coal power stations based in Northern Ireland, so that volumes are representative of Great Britain. The latest detailed data on fly ash end-use cover the year 2014 and shows that out of a total 4.6 million tonnes of fly ash sold, 1.0 million tonnes (21.2%) was used as secondary aggregates in the manufacture of concrete blocks, AAC blocks and as engineering fill. More recent information show that just under 1.5 million tonnes of fly ash were sold in the Great Britain in 2019. Assuming the same end-use share as in 2014 would indicate a total of 0.3 million tonnes of fly ash used as secondary aggregates.

Table 10. Fly ash used as aggregates in Great Britain (Source: UKQAA, ONS 2021, MPA calculations)			
	Total fly ash sales <sup>(1)</sup> (Million tonnes)	Share used as aggregates <sup>(2)</sup> (%)	Volume used as aggregates <sup>(3)</sup> (Million tonnes)
2005	6.2	29.0	1.8
2008	5.5	17.9	1.0
2009	4.5	22.0	1.0
2010	5.0	26.3	1.3
2011	5.3	11.7	0.6
2012	6.0	13.8	0.8
2013	5.8	17.3	1.0
2014	4.6	21.2	1.0
2015	4.8	-	1.0
2016	5.0	-	1.1
2017	1.8	-	0.4
2018	1.7	-	0.4
2019	1.5	-	0.3
2020	1.3	-	0.3

<sup>(1)</sup> Data from UKQAA not available for the years 2015-16 and 2020. Estimated by MPA using the trend in construction activity.  
<sup>(2)</sup> Including the manufacture of concrete blocks, AAC blocs and as engineering fill materials. Not available from 2015.  
<sup>(3)</sup> Based on the 2014 share from 2015 onwards.

## Iron and Steel Slag

In 2005, 1.0 million tonnes of iron and steel slag were used as aggregates in England, which represented two thirds of total UK production (DCLG, 2007b). More recent data is available as part of a biennial survey carried out by Euroslag, for which the MPA collects UK numbers from its members.

The survey provides information on the total production of iron and steel slag as well as on end uses, including slag used as aggregates for road construction and other end uses such as cement production, hydraulic engineering, fertilisers, uses in metallurgy and other uses such as for glass making.

All numbers provided are for the UK rather than GB, but there are no significant steel making works in Northern Ireland.

For the missing gap year, it is assumed that the volumes are equal to the average of the previous and following years.

**Table 11. Iron and steel slag used as aggregates in Great Britain**  
(Source: DCLG 2007b, Euroslag, MPA calculations)

	Iron and steel used as aggregates (Million tonnes)
2005	1.5
2008	1.8
2009	1.4
2010	0.9
2011	1.1
2012	1.3
2013	1.6
2014	1.8
2015	1.4
2016	0.9
2017	1.1
2018	1.2
2019	1.1
2020	0.9



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## Slate waste

Information is available on slate deliveries for fill and other construction uses in Great Britain as published by the Department for Business, Energy and Industrial Strategy (BEIS). The data for the year 2020 are not available due to lower-than-normal response rates as sites and/or site offices closed due to Covid-19 restrictions. The MPA estimates for 2020 is therefore based on the change in construction activity, where output declined by 15% on an annual basis.

**Table 12. Slate waste used as aggregates in Great Britain**

(Source: BEIS 2021b, MPA calculations)

	<b>Slate waste for fill and other uses</b> (Million tonnes)
2005 <sup>(1)</sup>	0.9
2008 <sup>(1)</sup>	0.7
2009	0.6
2010	0.6
2011	0.7
2012	0.6
2013	0.7
2014	0.6
2015	0.5
2016	0.6
2017	0.6
2018	0.6
2019	0.1
2020 <sup>(2)</sup>	0.1

<sup>(1)</sup> MPA estimates. BEIS data for the years 2005 and 2008 are not available due to confidentiality reasons.  
<sup>(2)</sup> 2020 data not available; Estimates based on the trend in construction activity.

## Clay and Shale

Information is available from the BGS and includes clays and shale for construction and other uses up to 2019. As the data for 2020 was not yet available at the time of writing, it has been assumed to be negligible, unchanged from 2019.

**Table 13. Clay and shale used as aggregates in Great Britain**

(Source: BGS 2021a)

	<b>Clay and shale for construction and other uses</b> (Million tonnes)
2005	1.2
2008	1.5
2009	1.1
2010	0.8
2011	0.7
2012	0.5
2013	0.9
2014	0.6
2015	0.0
2016	0.2
2017	0.2
2018	0.1
2019	0.0
2020	0.0

## Chalk

The AMRI surveys (ONS) included data on the annual volumes of chalk for construction use excluding cement up to 2014 in Great Britain, after which funding was withdrawn. The last year of data shows that a total of 3.3 million tonnes of chalk were produced, 423,000 tonnes of which were used for construction purposes other than cement. Historically, the share of chalk for construction use excluding cement has been relatively stable, ranging from 7% to 13% over 2002-14 (average: 9.6%).

As no other information is available from 2015 onwards, estimates have been computed based on alternative sector data produced by the BGS. In 2019, a total of 129.3 million tonnes of "chalk, igneous rock, limestone, dolomite and sandstone" were produced in the UK (BGS, 2021a). Within this, chalk production has represented 3.2% of the total on average between 2008-14.

Based on this share, the total chalk production in the UK is estimated at 4.1 million tonnes in 2019. In addition, the production of chalk from Northern Ireland is thought to be relatively small, with England accounting for 44 of the 48 mineral workings identified across the UK (BGS, 2021a).

Of these 4.1 million tonnes, a long-term average of 9.6% for construction use excluding cement points to a total of 397,000 tonnes of chalk that have been used as secondary aggregates in 2019.

As the data for 2020 was not yet available at the time of writing, it is assumed to have followed the trend in construction activity.

**Table 14. Chalk for construction use in Great Britain**

(Source: ONS AMRI, BGS 2021a, ONS 2021, MPA calculations)

(Million tonnes)	<b>Chalk, igneous rock, limestone, dolomite and sandstone</b>	<b>Chalk only</b>	<b>Constructional use</b>	<b>MPA estimates: Chalk for construction use</b>
2005	168.0	7.1	0.8	0.8
2008	151.3	5.9	0.5	0.5
2009	124.3	4.0	0.5	0.5
2010	121.6	3.6	0.3	0.3
2011	123.3	4.0	0.3	0.3
2012	108.7	3.5	0.3	0.3
2013	110.3	3.5	-	0.3
2014	126.4	3.3	0.4	0.4
2015	119.9	-	-	0.4
2016	126.2	-	-	0.4
2017	126.8	-	-	0.4
2018	130.9	-	-	0.4
2019	129.3	-	-	0.4
2020	-	-	-	0.3



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## The mineral products and quarrying industry contribution to the UK:



**400mt**

GB production of aggregates and manufactured mineral products (GB)



**4 times**

The volume of energy minerals produced in the UK including oil, gas and coal



**£16bn**

Annual turnover for the Minerals and Mineral Products industry (UK)



**£5.8bn**

Gross value added generated by the industry (UK)



**£597bn**

Annual turnover of the industries we supply (UK)



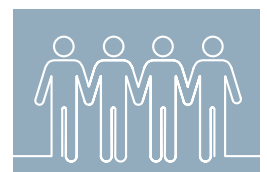
**£172bn**

Value of construction, output, our main customer (UK)



**81,000**

People employed in the industry (UK)



**3.5m**

Jobs supported through our supply chain (UK)

The Mineral Products Association is the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.

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Mineral Products: essential for schools... hospitals... homes... roads... railways  
... energy supply... airports... ports... food... water... agriculture