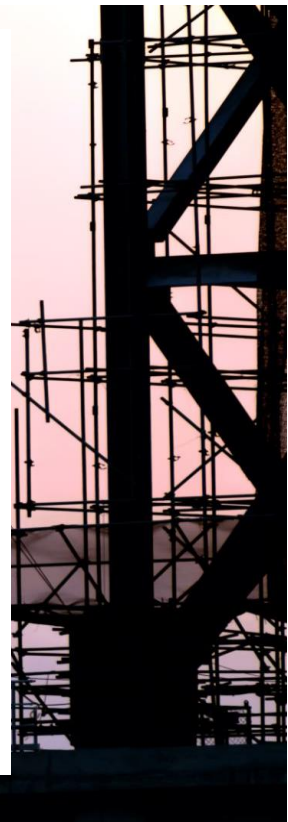
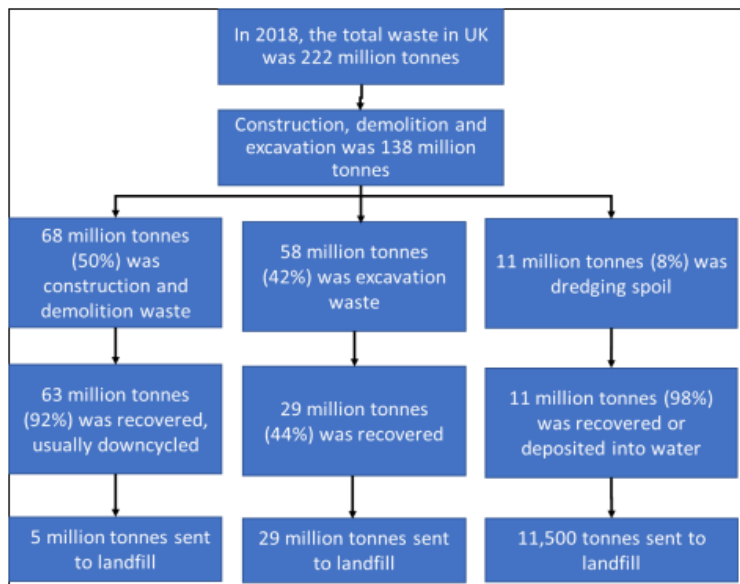


Summary

- The Circular Economy seeks to circulate products and materials at their highest value for as long as possible, eliminating waste.¹
- **Approximately 40% of the waste we send to landfill in the UK is Construction and Demolition Waste (CDW.)** The majority of CDW that avoids landfill, is crushed into aggregate (downcycled.) Tackling CDW will therefore be key to achieving environmental goals and a circular transition.
- Construction materials such as soil and brick attract the lower rate of landfill tax, **at c.£3 per tonne. This rate offers a relatively cheap (and convenient) option for disposal.** It does not recognise the value of the material or provide sufficient incentive toward more sustainable resource management.
- **Barriers must be removed to ensure that reuse and recycling is comparatively cost effective and convenient for businesses,** with financial and regulatory levers incentivising materials to move up the waste hierarchy.
- Recognising the evolved policy context, industry progress, new research and technical capabilities – **it is the right time to review the structure of the landfill tax.**
- **A systems approach is needed,** targeting interventions across the product and project lifecycles, and ensuring support for small businesses and local authorities to support a just transition.



UK construction, demolition and excavation waste



Note: Due to the way waste data is collected there can be anomalies between the total figures.

Source: Construction Products Association, 2022

Introduction

The construction industry generates 62% of the UK's waste. It also accounts for 40% of waste sent to landfill².

Without urgent action on CDW, the UK will not meet key environmental objectives such as net zero greenhouse gas emissions (GHG), zero avoidable waste, and doubling resource productivity by 2050.

The current standard rate of landfill tax is c.£102 per tonne, and the lower rate is c.£3 per tonne.³

This lower rate applies to materials such as soils, rocks and glass, because they have lower potential risk for pollution or GHG.

While it is sensible to offer a lower rate for non-hazardous waste streams, compared to more harmful waste, this is a basic approach which **does not take into consideration the true value of the material being disposed of.**

If we take glass as an example, it can be recycled indefinitely, and every tonne of glass re-melted saves 580kg of emissions⁴ – in many ways, it has potential to be the perfect circular economy material.

Despite this, end-of-life building glass is almost never recycled into glass products.⁵ This is not because there isn't demand, the UK produces 3 million tonnes of glass every year (creating 2 million tonnes of emissions.)

The reason may be that, **at just £3 per tonne, and with less need to separate materials – landfill simply presents a relatively cheap and convenient option for disposal.**

Fiscal levers – a perverse incentive to landfill?

Landfill tax has had some considerable success. When it was introduced in 1996 only around 30% of CDW was reused or recycled.⁶ Today, c.92% of CDW is recovered – a level which has been relatively static over the last decade.⁷

However, over this period the policy context has evolved. Environmental objectives have changed, yet the structure of the tax has remained broadly the same. The Government recently accepted that the lower rate no longer provides enough incentive to support the shift in behaviour which is required.⁸

Landfill is not the only tax which influences more sustainable resource management. The Aggregate Levy continues to sit at just c.£2 per tonne, relatively unchanged since its introduction over twenty years ago.

Tax reliefs or financial rewards should be considered, as well as ringfencing any revenue generated by tax increases to reinvest in programmes which will support SME's to adopt circular practices - or exploit economic opportunities presented by circular transition.

Essentially fiscal (and regulatory) levers should stimulate the type of behaviour we want to see – the lower rate of landfill tax is not currently doing this, but it should not be reviewed in isolation.

What behaviour do we want to see?

In a circular economy, **we want to see products preserved as close to their finished state as possible – maintaining their value and quality.**

While the c.92% recovery rate for CDW appears positive, the majority of this recovered material is downcycled - typically crushed into aggregate to pack out roads.⁹

While downcycling is preferable to landfill, it transforms quality materials into something of lesser value which can only then be used in a lower grade application.

It does nothing to capitalise on the energy or emissions which went into the production of that high quality product, and little to tackle the demand for more materials. Downcycling and disposing of useful resources is not sustainable.

However, when choices are made which require road construction (or similar such projects) aggregate for these schemes needs to come from somewhere – and using crushed construction waste is preferable to using more virgin materials. Efforts must be made to ensure material which can be reused, does not become aggregate for the wrong reasons.

For businesses, downcycling waste on site is considered to be almost zero cost. It can make major infrastructure projects such as roadbuilding appear more commercially viable. Business models and projections for construction and infrastructure projects aren't designed to evaluate the full ecological cost of losing quality materials from the economy.

A progressive move by Government to help address this would be adopting an ecological metric for the UK – such as that developed by the Stockholm Resilience Centre.

To better evaluate the type of behaviour change we want to achieve, it is helpful to consider the end goal - the type of circular resource flow we are aiming for;

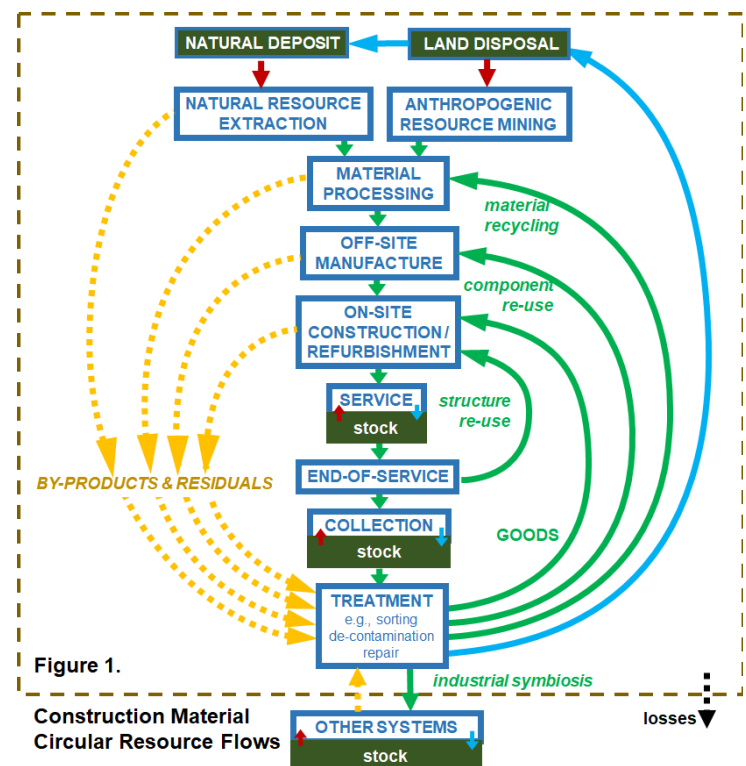


Figure 1.

A Spotlight on... Financial modelling.

The Centre have produced a new accounting sustainability tool for decision makers, including businesses, to calculate and compare the impact of using circular economy principles, compared to BAU models.

The tool can be used at all stages of the project cycle to assess NPV- and could factor in any changes to tax levers.



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Digging a little deeper...

In assessing the case for changes to landfill tax, it is worth taking a closer look at soil – as it makes up 58% of material sent to landfill in the UK. In 2021, only 1.5% of landfilled soil was actually hazardous.

Soil is a non-renewable resource. Once it's gone, it's gone. The volume of soil we lose to landfill each year is ten times greater than the volume we lose through erosion in all of England and Wales.

Compacting of waste at landfill destroys soil structures, the lack of air hinders decomposition, and the impermeable layer of the landfill cells restricts any nutrient benefit that may exist from returning it to the ground. There is no viable reason why valuable soil, particularly topsoil, should be degraded in such a way – particularly while we continue to extract more.

In construction, carefully reusing soil can avoid it being designated a waste material – and bring it back to beneficial use, helping green spaces and increasing biodiversity.

It is positive that the Government have committed to publishing a revised Code of Practice for construction soil to reduce the amount sent to landfill, alongside other schemes – such as the Soil Re-Use Depot Pilot planned for 2026.

Government should now consider what the optimal policy environment is for implementation of their proposed changes – exploring the risk that the relatively low rate of landfill tax applying to soil could mean businesses are less likely to engage with schemes such as the re-use depot, inhibiting the success of the pilot.

Future behaviour will be driven as much by what is not only cheaper, but more convenient. It must be cheaper and easier to transport soil to recycling and reuse centres than it is to landfill. There are complexities to unpick here, such as storage costs, improving data capability, and initiatives for separation of soil to ensure it can be re-used in an appropriate manner (or geographical area.)

Netherlands

Landfill tax is \$33, or \$0.4 if delivered to a site which needs the soil. Organisations can pay a flat fee charge of \$1200 to the soil bank to match them to a demanded site – if they cannot find their own; Providing a funded service which targets quantity.

New York

Landfill tax is \$60, or the Clean Soil Bank can be used for free as long as the soil has been tested (businesses cover transportation costs.)

Flanders

Lowest landfill tax band is \$30, and soil reuse depots are \$20 dollars.

One of the most established models of soil reuse, which makes landfill the least favourable option and favours separation and sorting. In 2020 the landfill rate was 1%. There is an additional incineration tax.

The need for a systemic approach.

Without taking a systems wide approach, there is a risk of pursuing policies which appear to encourage circularity – but actually produce perverse outcomes.

Landfill tax is an example of this. There are compelling reasons to increase rates, but a risk that this would be punitive to SME's or place a disproportionate burden on responsible businesses.

It risks increasing waste crime such as fly tipping which causes social as well as environmental issues, at a time when nearly a fifth of waste in England is already managed illegally,¹⁰ costing the economy c£1bn per year. Waste crime also places further financial and resource burdens on local authorities.

Equally, increasing landfill rates when there are not appropriate alternatives in place – such as widely available and cost-effective reuse and recycling facilities, risks appearing to businesses as merely an attempt to increase tax revenue.

To identify and mitigate against unintended outcomes, a holistic view is needed. One which not only seeks to reduce landfill and improve waste management, but supports resources to move up the waste hierarchy, tackling the amount of waste the industry actually generates in the first place.

A Spotlight on.... Land and Soil

The Centre have supported publication of a [paper](#) which argues that circular construction can deliver reductions in land take and ecological benefits by reducing demand for #rawmaterials and #wastegeneration.

A new report '*Introduction of a soil reuse and storage system in England*' will be published in 2024, supported by the Environment Agency.



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There are a number of policy levers that Government could take forward to achieve this, (see right.)

A systemic approach recognises that Circular Economy policy is interdisciplinary by its very nature – it cuts across investment decisions, transport, infrastructure, levelling up, procurement, and much more.

There is significant economic opportunity for businesses and potential for green job creation, which should be supported by skills programmes delivering high-quality relevant training.

To manage this multiplex of change enablers, Government could consider introducing a new Circular Economy Act, to provide a framework for transition.

Reduce waste at source	Move materials up the Waste Hierarchy	Improved waste management
<p>Decreasing the volume of waste the industry generates in the first place - restrict demolition, embed circular design including design for deconstruction, planning reform, procurement which prioritises reuse, commitment to no net land take.</p>	<p>Create a buoyant secondary market; Sufficient infrastructure to make recycling and reuse easier, and cheaper, than alternatives; confidence in materials through a quality assurance framework and independent control organisation. Consider impact of transport and storage costs, which are significant for construction materials, and appropriate end of waste criteria.</p>	<p>At landfill, consider how separation of non-toxic materials can be incentivised to enable targeting of specific materials – particularly higher value material in significant quantities. This could include more detailed guidelines for soil and stone reuse, and stronger requirements for processing material before the lower rate applies.</p>

To achieve a circular economy we also need to understand where materials are in the market - and how they are being used. Until now, this has been difficult.

However, the introduction of digital waste tracking and improved understanding of material flows will change the game in the coming years. There are emerging production techniques which reduce carbon, new evidence around reuse potential of ‘waste’ materials, moves from standards agencies to alter requirements to meet net zero (e.g. the forthcoming BS 8500:2023) and commitments to improve demand-side measures to grow the reuse market in the Industrial Decarbonisation Strategy.

To capitalise on this progress, the time may now be ripe to review the lower rate of landfill tax. A medium rate could be considered, or phased implementation of changes from 2026> to support ambitions set out in the 2023 Waste Prevention Programme – and ensure there is sufficient time to work with industry and devolved administrations, and put in place sufficient alternatives to landfill.

Any changes to fiscal and regulatory levers must, however, be part of a raft of measures which seek to drive change across the product lifecycle and project lifecycle – i.e. reducing demolition, assurance for recycled materials, design for deconstruction. Digital tools and systems, such as for waste tracking, must be robust to ensure we are acting on accurate information (and protecting against fraud.) In future, this could mean we have accurate enough material flow data to use causal loop diagrams to better understand how the system will respond to policy changes such as landfill – to identify risks, opportunities, and better prepare for change.



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A Spotlight on...

- UK CE Hub’s pilot project on data traceability and transparency in the circular economy has concluded. This will form the basis of a new framework, creating a pioneering data pooling network.
- A new Bayesian Material Flows Analysis (MFA) has been developed which can model the flow of aggregates within the economy – even with significant data gaps.

- Innovations in design for deconstruction include new designs for demountable structures and lightweight reusable walls.
- New evidence on how ‘waste’ products can be repurposed in production, with a focus on durability and longevity, including a more circular concrete made with recycled concrete aggregate.

What next?

Complementary to considerations for reviewing landfill tax rates, this Briefing puts a spotlight on a number of research projects and outputs produced by the [Circular Economy Centre for Construction Materials \(ICEC-MCM\)](#) – more detail on which can be found on our website.

The Centre has additional research in progress, which could further build the evidence base for policy change – or support how any changes are implemented in future.

This includes a tool to assess long term economic impacts of circular economy interventions along the MCM supply chain, and their indirect impact on other sectors in the economy – through which, when ready, we may be able to test assumptions relating to landfill.

To keep updated with progress on this, and other projects, please [join our mailing list](#), get in touch directly – or follow us on socials.

Further details

Find us on socials:

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ENDNOTES

1. [Ellen Macarthur Foundation - Circular Economy Introduction](#)
2. [UK Waste Statistics - DEFRA](#)
3. [Landfill Tax Rates from 2013 \(Gov.uk\)](#)
4. [British Glass - Recycling](#)
5. [UKGBC - Building Glass into a Circular Economy](#)
6. [House of Commons Library Research Briefing 96/103 'Landfill' 1996](#)
7. [Construction Products Association: How much construction waste is there \(2022\)](#)
8. [HMT Consultation Response: Landfill Tax Review \(Mar 2023\)](#)
9. [Cousins \(2022\) What a waste- Changing constructions throwaway culture](#)
10. [Environment Agency \(2023\) Survey suggests almost a fifth of waste is illegally managed.](#)

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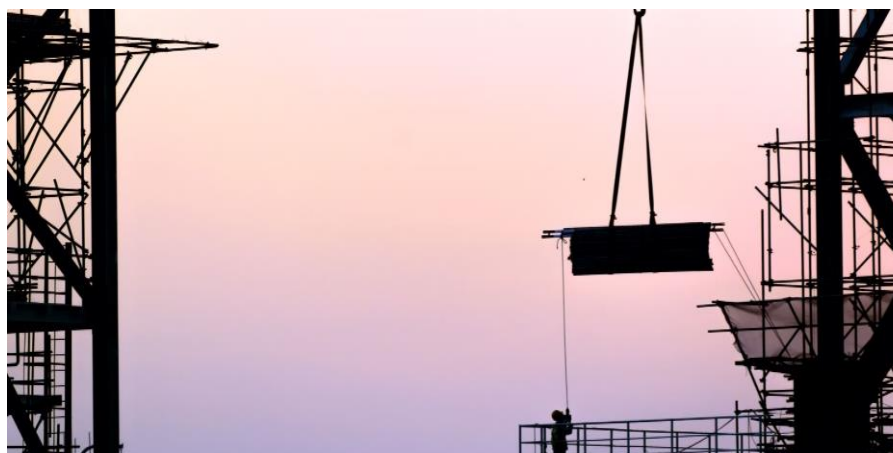
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