

A photograph of three construction workers wearing hard hats and high-visibility safety vests. One worker in the foreground is seen from the back, another in the middle is on a mobile phone, and a third on the right is holding a tablet. The image has a green color overlay and abstract geometric shapes.

ENVIRO360

Driven by data, **powered by change**

**A REVOLUTION IN
CONSTRUCTION SITE
WASTE MANAGEMENT**

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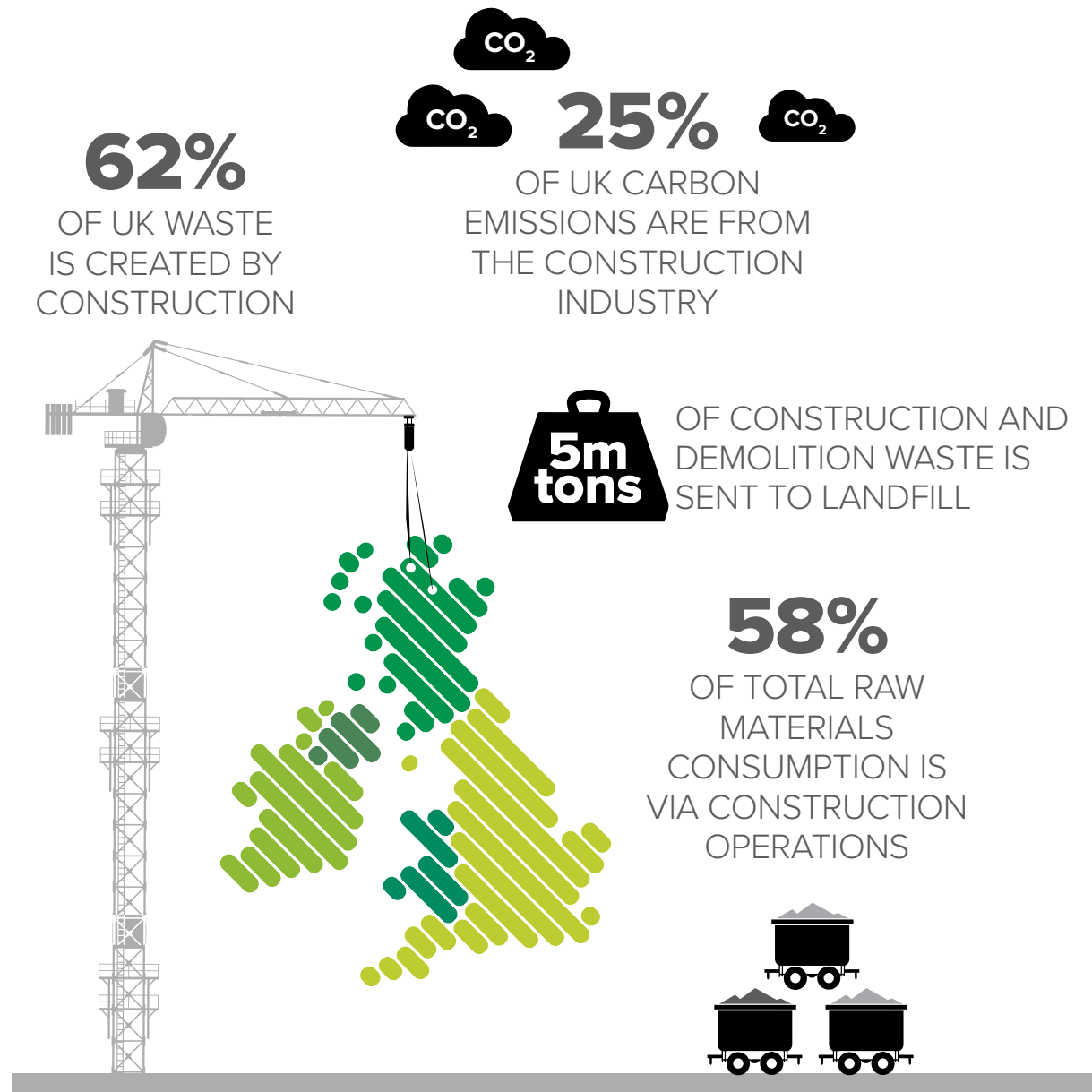
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So, site waste is the problem, what is the solution?



If the construction industry drives the data, innovative technology such as Enviro360 will power the change.

In the UK, the construction industry is the largest consumer of raw materials and creates the most waste from its operations. Currently, the sector is responsible for over a staggering 25% of the UK's carbon emissions.

In just two years' time, Government policy declares that new construction projects will need to be far more efficient, providing carbon reduction targets of 80% after they are built.

It is clear that, to reduce the use of raw materials and emissions, the industry has to be more cyclical in its operations. With changes in programme design, planning, and a focus towards the reuse of materials, a new 'circular economy', would be created.

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Recording data is key in this situation, as is agreeing and adhering with the correct metrics for circularity. Identifying the metrics will develop a step change in the improvement of resource use and climate impact, with huge untapped potential to improve its performance.

Innovations from the businesses who work alongside the construction contractors, such as Weston Analytics, can facilitate the pathways to waste reduction and its management.

If the construction industry drives the data, Innovative technology such as **Enviro360** will power the change.

Executive summary

An introduction by Philip Clifford-Brown



Philip Clifford Brown
Managing Director,
Weston Analytics

The construction industry is a primary generator of waste within the UK, with statistics showing that roughly 66.2m tonnes of waste is from construction and demolition and activity (this accounts for over 25% of all UK waste).

As a leading contributor to this nationwide issue there is an overarching responsibility to ensure that best practice waste management processes are in place across the industry.

The issue with producing large volumes of waste means you must dispose of large volumes of waste, and this for the industry is where the problem lies.



Enforcing better behaviours through digital innovations will create a tangible step-change towards waste reduction across the UK construction sector.

Many initiatives and technologies have been introduced across UK construction sites to manage and promote recycling of waste on construction sites, examples include:
waste streams, coloured waste bins, bailers, compactors

However, even with these initiatives being implemented, and sometimes mandated across worksites, it still doesn't appear to be reducing the industry's waste recovery rate. Regardless of these initiatives, waste is still being produced, whilst they ensure correct measures are in place with dealing with waste they do not prevent waste from being made in the first instance.



Since 2010 the industry's recovery rate has remained static at around 91%, but the amount of waste being produced has risen by 10%.

With the recovery rate remaining static and the amount of waste increasing means more waste is being sent to landfill. This demonstrates the implementation and investment in waste reducing schemes is only controlling the problem, not resolving it.

The problem does not lie with technology and innovation, it lies with people and behaviours. Changing attitudes and actions towards waste will have a significant impact on the amount of waste produced. But how can such a large and established industry implement such a behavioural change?

The notion and mentality of building sustainably and responsibly has been successfully engrained into the pre-construction stage of the build process.

Architects, quantity surveyors and designers are all trained to reduce waste through value engineering, sustainable sourcing and efficient design, with the sole aim of designing waste out of the project.

The behaviours and mentality are consistent and effective at this stage of the project, the problem is when the project reaches construction stage and the responsibility is passed over to the trade contractors. Trade contractors produce onsite waste, yet they are not accountable for waste they produce.

The cost of managing and disposing of waste sits with the main contractor, and their appointed waste management company who have limited control over waste generation.

Trade contractors should be accountable for the sustainable management and disposal of their waste. Enforcing better behaviours and making trade contractors accountable for their waste will improve the UK's waste recovery statistics.

Setting waste parameters and penalising for poor management will ensure trade contractors adopt better and more efficient ways of working, utilising technologies and initiatives such as:

- » ***Off-site manufacturing and pre-fabrication***
- » ***Up-cycling and recycling***
- » ***Just in Time (JIT) delivery scheduling***
- » ***Supplier collaboration***
- » ***Enforced waste segregation***
- » ***Workforce education***

Encouraging and enforcing these behaviours and ways of working requires a change to current process and management. Waste must be monitored and effectively reporting on, on a trade contractor by trade contractor basis with clear waste allocation targets and assignments.

With construction sites containing hundreds of trade contractors this can only be achieved through innovative technology and software, such as **Enviro360**.

So, site waste management, what are the challenges?

Construction projects and their relevant trade contractors, as discussed earlier, have a bad reputation when it comes to waste materials, used or unused. There are also three channels to consider when it comes to the waste problem - sustainability, cost and behavioural changes across the industry.

Sustainability

Although many current discussions focus on creating sustainability through building design, the industry's waste practices and habits also have a big impact on sustainability over the longer term. With the industry consuming over 40% of extracted materials globally, alongside the largest contribution to waste streams, the fact is that it is simply unsustainable for construction to continue its approach to waste – make, use, dispose.

Cost

Poor waste management ultimately results in a negative effect on profit margins. The more waste a project produces, the less profitable it will be. There are the procurement costs of unused and wasted materials, costs in manpower associated with waste removal, the logistical costs of waste and cost increases in landfill taxes.

Behaviours

Currently, architects and designers and preconstruction functions at larger contractors are experienced in waste reduction through methods such as value engineering, sustainable sourcing and efficient design to design waste out from a construction project. However, the real change is influencing trade contractors to manage their own waste streams at the source.

Encouraging better behaviours at the site in a collaborative way by allocating responsibility will facilitate a real step-change to reduce waste. By setting waste parameters and reporting accurate data will ensure trade contractors adopt better and more efficient ways of working, utilising technologies such as **Enviro360**.



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So, site waste management, is technology, via Enviro360, the solution?

Enviro360, as a standalone technology application, isn't going to be the hero riding to the rescue in the control of site waste. However, the major problem does not lie with technology and innovation, it lies with people, their mindset, attitudes and behaviours. We are extremely confident that **Enviro360** will have a significant impact on how trade contractors and subcontractors view waste. In particular, the levels of waste produced, the unsustainable way it is handled and the huge reduction in the costs associated with it.

Enviro360 creates a collaborative, two-way, 'best practice' environment with site teams and contractors, awareness is raised and tackled head on, responsibilities and preventative measures are developed, and there are benefits and cost savings for all involved.

The key benefit of **Enviro360** will positively enforce better behaviours and attitudes towards waste through empowerment and accountability. It will place the emphasis of waste production on those that create waste.

It will ensure that best practice methods of construction are adopted and innovative waste technologies are adopted throughout the supply chain.

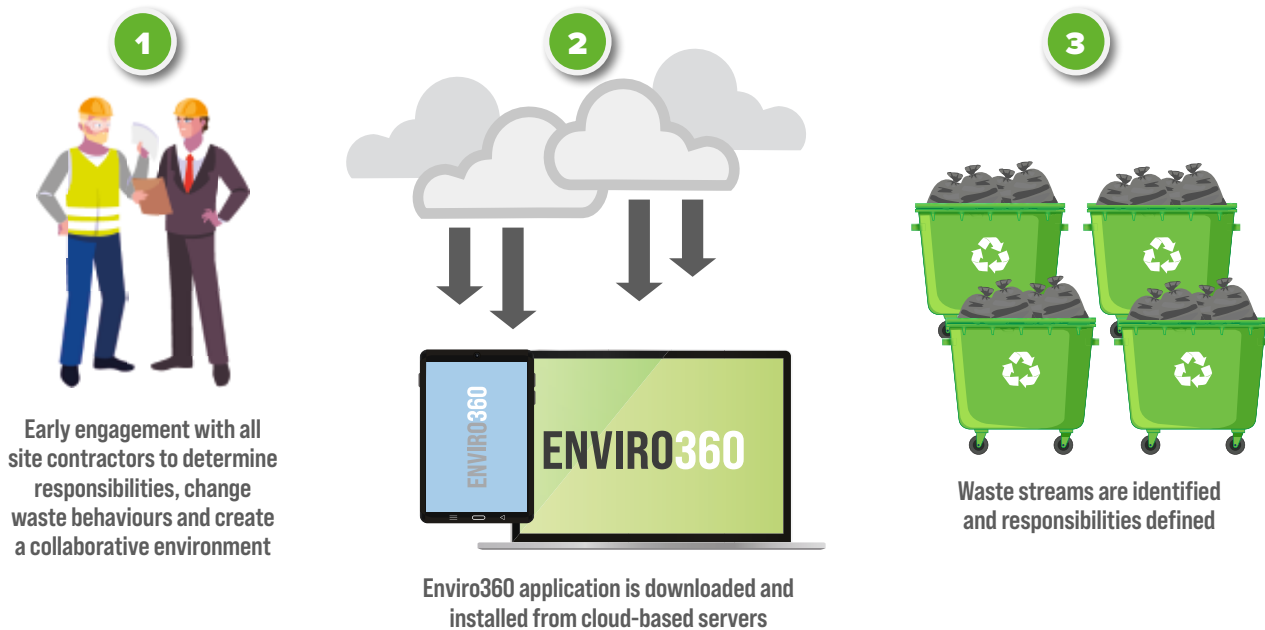
The combination of changing onsite behaviours and the supply chain seeking to improve the way they work with improve waste recovery rates across UK construction sites.

Designed for use within the construction and infrastructure sectors, **Enviro360** is a unique, cost-effective and user-friendly, waste management platform. The interface is constructed with simplicity in mind to monitor and accurately record waste data, creating real-time waste quotas. **Enviro360** can be easily downloaded and installed to NFC-compatible Android devices and laptops ensuring complete waste control from the start of a construction project.



So, site waste management, how does Enviro360 work?

We believe in keeping our products very simple so we'll show you a diagram explaining the ease and simplicity with which our **Enviro360** platform is put to work. Also, how we guarantee you savings in your site waste management operations.



NFC chips are attached to waste bins for data recording and accurate waste allocations



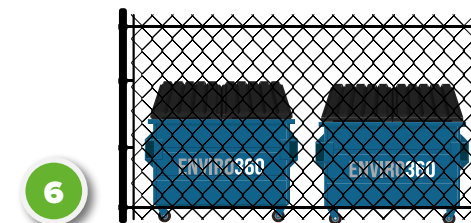
Each waste-producing contractor can be given any number of bins relating to their waste stream



Enviro360 gives clear and objective data on project waste, bringing benefits and ensuring cost certainty.



Accurate, real-time, waste monitoring with pinpoint data recording



Waste bins are securely locked away each day ensuring they only contain the correct waste allocation

So, site waste management, don't just take our word for it, hear what our customers are saying about Enviro360

Real, reviews from our customers allow us to be very proud of what **Enviro360** has achieved on its' journey towards zero-waste from construction activities.

Following the introduction of **Enviro360** to our construction and infrastructure clients, the initial feedback has been amazing with large cost savings for main contractors which exceeds any investment.

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“The major problem we had was that we knew that we didn't know enough to find the hole in our budget calculations. We just weren't in control of the problem. Now we have all the data at our fingertips.

Jose Mattos, Head of Operations, Wood Wharf, London E14

“Again and again over the years, we found that waste costs were eroding our margin. To find ourselves 28% under budget after two years on this project is a complete turn-around

Sorin Mohail, Senior Site Manager, Kingston Royal Exchange

“Predictably in the beginning, some subcontractors immediately saw the benefits in terms of reduced waste, carbon and costs. For some others we had to hold their hands a little, but within a couple of months new, positive habits were firmly established right across the site

Jamie Turner, Operations Manager,
Eight Gardens, Watford

“At this point, the various contractors on site are policing the waste bins themselves. We do the occasional spot-check but day after day the waste vessels are appropriately full, and uncontaminated when they're returned to us.

Eddie Ferreira, Site Manager,
Wood Wharf, London E14

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