

THE HIGH PRICE OF CHEAP

A SOLID WASTE STORY

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IN A WORLD OF INCREASING CONSUMPTION, THE NEED TO REDUCE, REUSE AND RECYCLE HAS NEVER BEEN MORE IMPORTANT.

AS THE MANAGING DIRECTOR OF MIBIN LTD, I WANT TO SHARE MY INSIGHTS ABOUT SOLID WASTE, HOW IT IS MANAGED NOW AND IN THE FUTURE, AND HOW OUR UNIQUE COMPARTMENTALISED WHEELIE BIN CAN BE PART OF THE SOLUTION TO IMPROVE WASTE AND RECYCLING IN HOUSEHOLDS. I DO NOT CLAIM TO BE AN EXPERT, MERELY A LONG-TIME OBSERVER ON THIS JOURNEY WHO HAS NOTICED SOME THINGS THAT I FEEL MAY BE OF INTEREST TO THE READER.



Solid waste generation is inexorably linked to population growth, urbanization and consumption habits.

The landfill tax introduced in 1996 has been a significant success in diverting waste from landfill, and some of the credit must be given to increased recycling which by 2022 had risen to 51% in the UK. That figure is however misleading, as some councils perform as high as 73%, making the figure of 51% a disservice to their efforts while exaggerating the performance of those who don't even come close to recycling half that.

Improved kerbside collections and Extended Producer Responsibility (EPR) were important factors, but waste generation is still significant at 500 million tonnes per year. Increased collection is further undermined by badly cleaned or contaminated recyclables caused by poor recycling habits which increases costs by requiring more processing and additional sorting. Contaminated recyclables which are rejected for recycling streams can end up in landfills, negatively impact recycling rates and lead to a waste of time and effort.

Household food waste for 2023 is estimated by Waste & Resources Action Programme (WRAP) to be worth £14 billion, representing lost financial resources and a further significant environmental impact. To put this figure in context, it represents an average cost of £490 per UK household. This is a staggering amount that could be better spent on services and resources provided by councils, many who are struggling with the financial impact of covid and current local and global issues.

Raising awareness and public access to information on how good recycling habits can benefit them and improve the environment is crucial. The public needs to know more about the economic and environmental benefits of good behaviour, and given greater encouragement to be more sustainable in their consumption habits.

Greenwashing is a barrier to a healthy recycling environment because it confuses and creates disillusionment in the public. More clarity is needed in addressing this opportunistic and damaging approach taken by some in the name of profit which has no benefit for either the consumer or the environment. An example is plastic packaging that is fully recyclable replaced with non-recyclable alternatives that include plastic with a larger carbon footprint.

This is apparent in shredded recycled plastics where no information is given on the quality of the recycled content, and the only incentive is that by using 30% recycled plastic in a packaging component it avoids the plastic tax introduced in 2022. Using shredded recycled plastic in products is not always a bad thing as long as there is clarity on the quality of the recyclate that is used. Recycled plastics must comply with strict regulations for use in food, toy, and cosmetic applications.

It is however clear that we need to eliminate all unnecessary packaging and strive for packaging solutions that can be returned to the circular economy, and preferably be reused/refilled before recovering the materials.

There is a big difference in the quality of shredded recycled plastic from virgin material and that from components manufactured with recycled content. While it is certainly true that for some products this is not a problem, there are other products where this can affect their useful working life. Wheelie bins are an example of the latter, where the life span of the original wheelie bins was much longer than some of the current offerings made with recycled plastic.

I have personally seen a shipment of new wheelie bins where 10% were damaged and not fit for purpose due to substandard materials. These bins were all delivered with the EN840 stamp of compliance.

Advanced Recycling Processes such as pyrolysis, solvolysis and enzymolysis are just a few of over 100 technologies utilised to break down polymers, and I am hopeful that will help us recycle 90% of plastics not currently recycled, including harder to recycle plastics.

There is a need to steer plastics and other valuable recyclable content away from waste to energy. The experience of Sweden, an environmentally aware country, can serve as a cautionary tale. There they invested heavily in waste to energy and found that, when combined with a conscientious population, they soon ran out of enough domestically generated waste/fuel to power their energy plants. Sweden now relies on imported waste from their neighbours. This is clearly not sustainable in the long term and the focus should remain on positive renewable energy sources such as Wind, Solar and Wave generation.

Issues with current systems don't stop there. 0.6% of the UK's work force is involved in waste management but accounts for 2.8% of accidents. This adds up to 29,440 days lost to musculoskeletal disorders (MSDs) at a cost of £70 million a year.

A 2021 study by the Chartered Institute of Ergonomics and Human Factors (CIEHF) found that MSDs are a major health issue for waste collection workers in the UK. Over 60% of them suffer from them at some point in their careers, and it can lead to pain, disability and in some cases early retirement.

The study identified smaller bins and bad handling practices as two of the main factors that contribute to MSDs. The study estimated that 10% of the UK workforce involved in waste collection suffer from MSDs annually. The study found that 33% of MSDs are related to smaller bins, with 66% related to bad handling.

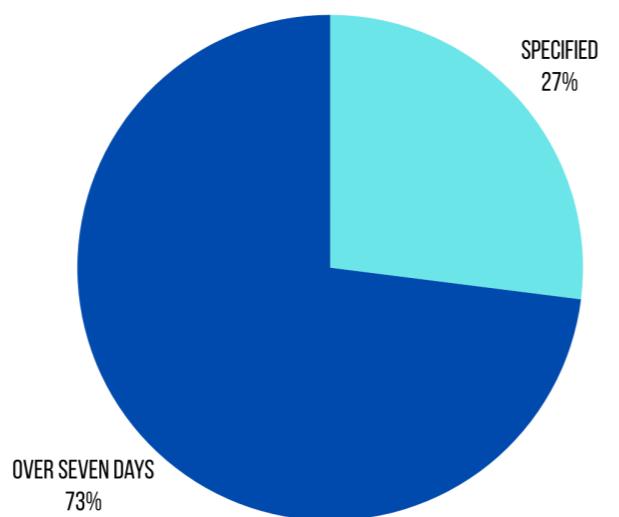
Replacing a 240L wheelie bin with smaller bins and caddies have several issues. Smaller bins are less stable and open caddies are problematic as they can fill with rain, which seems to contravene the Manual Handling regulations regarding the lifting of unspecified weights.

While there is no one simple solution to the problem of solid waste I believe there are a number of things that can be done, but they require acknowledging that without the support of households, and prioritising the health and safety of the waste workforce, many of the necessary steps will be undermined.

Recognising that one size doesn't fit all when it comes to waste management is necessary, because we do not all consume in equal amounts. Nor is every household the same, and the UK has 28 million households, 64% of which are made up of one or two people. 6.3 million households reside in terraced dwellings.



NON-FATAL INJURIES IN UK WASTE SECTOR 2021-22

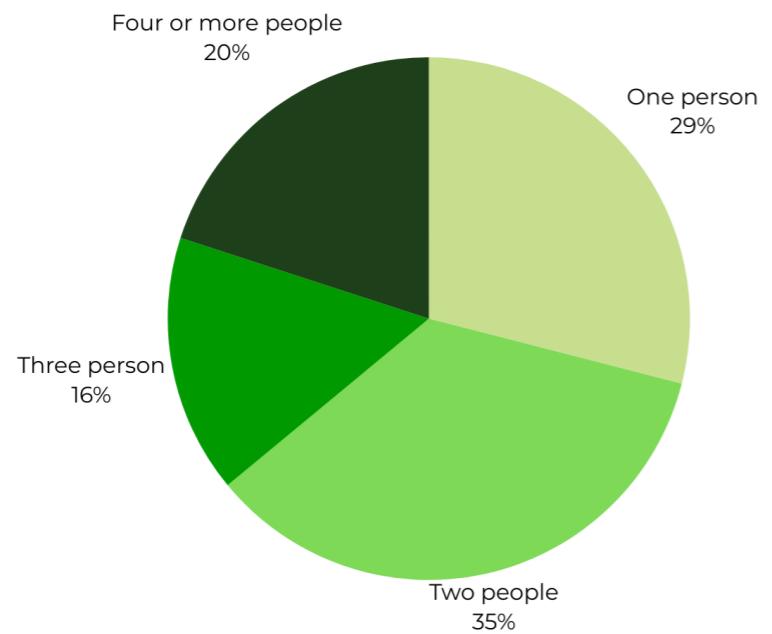


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DISTRIBUTION OF HOUSEHOLD SIZES IN THE UK 2021



Distribution of household sizes in the UK 2021

We at MIBIN recognise the complexity of the challenge, and without traceability and accountability it will be difficult, but great UK innovations like Polytag give us hope for the future. The humble barcode celebrates its 50th birthday this June. Its timeless form has helped global commerce function seamlessly since its inception – with remarkably little innovation in its history.

That said, technology is about progress – and the global, non-profit organisation GS1 has declared that we're headed towards *"Project Sunrise"* – the date at which 2D (2 dimensional) barcodes replace the familiar stripey barcode at the tills and usher in the era of the GS1 Digital Link.

Recycling tech start up Polytag has Project Sunrise-ready, GS1 technology that offers brands and retailers a future-proofed way to get more out of the real estate currently taken up by the stripey barcode. A Polytag® label allows you to link to a product-specific page on the web where you can engage with your customers, build brand loyalty, provide relevant product or brand information and access improved supply chain traceability information.

The Polytag® solution can also be used to reward customers for recycling, as was proven by Polytag and Ocado's joint project in the summer of 2023. In this project, 20,000 20-pence rewards were given to customers who recycled their milk bottles, proving so by scanning the GS1 Digital Link QR code before disposing of them in their registered bin.

With improved supply chain visibility, more accessible information sharing with customers, rewards for recycling, and the ability to be scanned at tills, the QR codes enter a new era of convenience.

You can't talk about solid waste without mentioning "Bin Blight". It is a major problem that has not been properly addressed and there have been thousands of angry complaints from homeowners.

"Unsightly bins left lying around the neighbourhood can spoil the look of an area. Carefully planned bin storage is, therefore, important. Each dwelling should have enough storage space for all the different types of bin used in the local authority area (for example landfill, recycling, food waste)."

A report by NHBC, the UK's leading independent new home warranty and insurance provider, recommended the following 8 points to consider when designing waste collection facilities:

- Reducing visual impact
- Allowing adequate space for the number and size of bins and other containers
- Ensuring convenience for use including by residents with reduced mobility
- Ensuring that solutions are durable, low maintenance and cleanable
- Managing odour and noise issues
- Addressing other health and safety issues (including fire and vermin)
- Working out arrangements for collection days
- Minimizing impact on use of pavements and streets by pedestrians and vehicles. This is just one of many reports on the issue and by omission expresses dissatisfaction with current tools and methods, recommending no existing bins or containers.

FEATURE • THE FUTURE OF SOLID WASTE MANAGEMENT

Lack of space in towns and cities is impacting recycling negatively, especially in inner city terraces where space is at a premium. While lack of space tends not to receive as much publicity it is still one of the major challenges for councils.

MIBIN was designed to solve the problem of bin blight, tackle overcapacity, increase recycling and reduce the risks of musculoskeletal disorders (MSDs) to bin operators.

MIBIN is a compartmentalised wheelie bin comprising 2 x 120L compartments that are designed to be operated independently and is compatible with current bin truck comb lifters.

MIBIN will replace two wheelie bins.

MIBIN's design has been well received by various authorities responsible for waste and recycling and has been selected as a finalist in the CIWM Sustainability and Resource Awards, EPRO Best Plastic Design Award and the MRW National Recycling Awards.

We designed MIBIN to industry standards and to be EN840 compliant. It is designed to be ergonomically balanced and easy to use, and the concept is protected in the UK by a European patent.

We have a technical partnership with the RGE Group in Peterborough since 2017. They have confirmed the viability of MIBIN's unique design for manufacture. The RGE Group are a world-class manufacturer of plastic injection moulded components, injection mould tooling and plastic design.

With over 70 years' experience, the RGE Group is the home of injection moulding expertise.

RGE group are a family owned company with global experience that expresses the very best of British engineering and expertise and we share their commitment to delivering a quality product to the market.

I will leave with the last words from an article written in 1999 by Heather Chappells and Elizabeth Shove titled "Bins and the history of waste relations."

"Despite their innocent appearance, dustbins occupy a critical position in any narrative of waste management. Being situated at the interface of private lives and household practices, on the one hand, and public health and environmental management on the other, dustbin technologies provide a revealing indicator of waste-relationships within society."

