

PE1636/A

Zero Waste Scotland submission of 27 April 2017

Context:

Single use drink cups cover a wide range of packaging products, and it is unclear how many are sold each year in Scotland. We do know however, that around 208 million disposable coffee cups (DCCs) are thrown away each year in Scotland, resulting in approximately 3000 tonnes of waste. Their high volume and visibility has made them a focal point for public discussions about sustainability and consumerism, particularly featured on the BBC's *Hugh's War on Waste* in 2016.

DCCs are difficult to recycle:

A typical DCC unit weighs approximately 15g and is usually comprised of a polystyrene lid, a cardboard sleeve and a paper cup lined with a polystyrene coating. This polystyrene coating is difficult to separate from the paper. A specialist recycling facility is required and only two exist in the UK, both located in England¹.

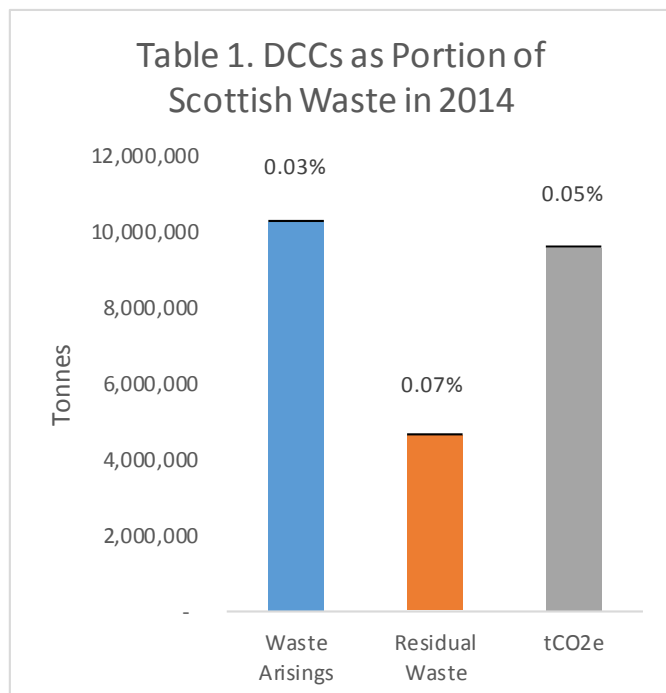
Annual DCC waste in Scotland is estimated at just 3000 tonnes; a tiny fraction of Scottish waste or waste emission impacts (see Table 1.). The relatively small mass, combined with the diffuse nature of the arisings, makes it economically

impractical to recycle DCCs in Scotland using present technology. The potential benefits from eliminating this highly visible material from the litter stream could have significant benefits but the potential carbon and tonnage benefits are minor.

Compostable Cups:

Public Petition PE1636 uses the term 'biodegradable' by which we assume 'compostable' is meant; this is an important distinction since to be treated properly, compostable waste must be compostable in standard industrial compost conditions as noted within EN 13432 standards.

In principle, compostable single use cups appear to be environmentally preferable because they do not use petroleum-based materials and can technically, be treated via in vessel composting (IVC). In practice however, under current arrangements and where the only change is making the packaging out of compostable materials, then



¹ BBC (27/07/16), *Viewpoint: The waste mountain of coffee cups*.

compostable cups would mostly end up in landfill where their breakdown produces methane, a greenhouse gas 25 times more potent than CO₂. In order to ensure compostable cups are indeed composted, a series of logistical and awareness raising actions would need to be initiated, outlined as follows:

1. Cups must be 100% compostable, clearly labelled with the EN 13432 markings, and easily recognised as such by consumers and waste processors.
2. Education and awareness raising campaigns would need to focus on the compostable nature of the cups and their route to being recycled.
3. Cups must be 'source segregated' i.e. disposed of by consumers in dedicated receptacles via 'recycling on the go' or take back schemes. This is required to keep cups separate from non-compostable packaging but also to prevent compostable packaging ending up with paper or plastics cups and contaminating those streams.
4. Collection mechanisms must be in place to collect and transport the material separately.
5. Cups must be transferred to an In-vessel composting (IVC) facility and manually sorted to remove any contaminants. Anaerobic digestion is not a suitable processing option and mechanical sorting is unlikely to be refined sufficiently to sort compostable cups from others that look very similar. Manual sorting is an expensive, labour-intensive process and high contamination rates may result in landfilling. Provided the material is sufficiently pure, it can then be mixed with other compostable materials at the IVC facility for processing into compost.

Separating cups from mixed recycling:

Mixed recycling is taken to a materials recovery facility (MRF) to be sorted and then sent onwards for recycling. It is currently unknown if MRFs could separate compostable cups from other dry mixed recyclates with the sorting machinery that is used. Further study would be required to determine if this is feasible and also what the cost of doing so would be.

Furthermore, given the limited tonnage and limited recycling processes for cups, it is unclear if there would be sufficient value in the market for compostable cups to merit investment in equipment to separate these from other waste streams. Added to this, it is unclear if compostable cups separated from mixed recycling would meet the strict standards for industrial composting. Currently, IVC sites need to meet PAS100/110 certification to be able to classify the waste as recycled. This certification requires source separation of all inputs and waste that is derived from non-compostable sources (e.g. mixed recycling) is unlikely to meet the input specification.

Environmental impacts:

If compostable cups end up in landfill they cause harm as they will breakdown to generate methane gas, which is 25 times worse for the environment than CO₂.

For this reason, and given the limitations on recycling process for cups as outlined earlier, Zero Waste Scotland prefers to focus on waste prevention via reuse as the preferred option for cups (i.e. all cups not solely compostable cups). This offers far greater environmental benefits at much lower cost, as well as potentially reduced litter associated with this material. Many lifecycle analyses have been conducted comparing single use cups with reusable alternatives and though results vary somewhat, the general finding is that with sufficient use, reusable cups are the environmentally superior option².

The litter impacts of the type of material used is also substantial, due to the high volume and visibility of the single use cups. The change proposed in this petition has the potential to make littering worse. Finding in recent Zero Waste Scotland research highlighted that 'biodegradable materials are least likely to be considered litter or harmful if they are recognised as litter'³.

Use of reusable cups:

The exact share of beverages sold in reusable cups in Scotland is unknown, however the volume of DCC waste, combined with what little industry data is available⁴, suggests the figure is very low. Research indicates this is due to two factors:

1. Lack of effective consumer incentives

Many beverage retailers provide consumers with incentives to encourage reusable cup use. These typically take the form of price discounts (e.g. Starbuck offers a 25p discount on drinks when using a reusable cup) or future credits (e.g. Café Nero offers stamps toward a free drink). Research has shown however that these measures have no effect on reuse rates and that a packaging charge is far more effective at changing behaviour than a discount of equivalent economic value, due to what is known as loss aversion⁵. This is the principle behind the highly successful Scottish Carrier Bag Charge which, since its inception, has reduced carrier bag consumption by 80%⁶.

2. Inconvenience

Convenience is an important factor affecting reusable cup use. Reusable cups tend to be bulky and require cleaning after use making them inconvenient to carry on a regular basis (however smaller collapsible reusable cups are now readily available). At workplaces with in-house cafes, employees can keep a reusable cup at their desk and only carry it when travelling to and from the café. This increased convenience, combined with conventional incentives described above, correlates with higher reusable cup rates.

² E.g.: [Hocking \(1994\)](#); [Connolly \(2012\)](#); [Refiller \(2013\)](#), and many others.

³ Public Perceptions and Concerns Around Litter (Jan 2015) - <http://www.zerowastescotland.org.uk/sites/default/files/Public%20Perceptions%20and%20Concerns%20around%20Litter%20report.pdf>

⁴ Starbucks publicly reports a reusable cup rate of just 1.6%

⁵ [Cardiff University \(2017\)](#)

⁶ <http://www.zerowastescotland.org.uk/content/bag>

Steps Zero Waste Scotland is currently taking to address the issue of single-use drink cups

Zero Waste Scotland is not currently taking any further action specifically on DCCs but would consider any proposals via our normal services to business and innovators. We welcome the debate this petition will stimulate and look forward to discussing the matters raised with innovators, packaging companies and consumer groups as the debate unfolds.

Related to this but not specific to DCCs, we will also be engaging the types of retail outlets associated with DCCs (e.g. Quick Service Restaurants and beverage retailers) to create Litter Prevention Action Plans, identifying specific activity that they will be doing to influence customers and staff to reduce litter.