

Reduction, Reuse and Recycling of Plastic Bottles

Report of the Head of Partnership Services, **HPS/10**

1. Purpose

- 1.1 The purpose of the report is to provide members of the Commission with an update on the management and delivery of the reduction in use, reuse and recycling of plastic bottles, marketing and plans for future service provision.

2. Recommendations

- 2.1 To the Overview and Scrutiny Commission:

The Commission is asked to:

Note the report and to acknowledge the current and future service provision with particular regard to waste minimisation and waste hierarchy.

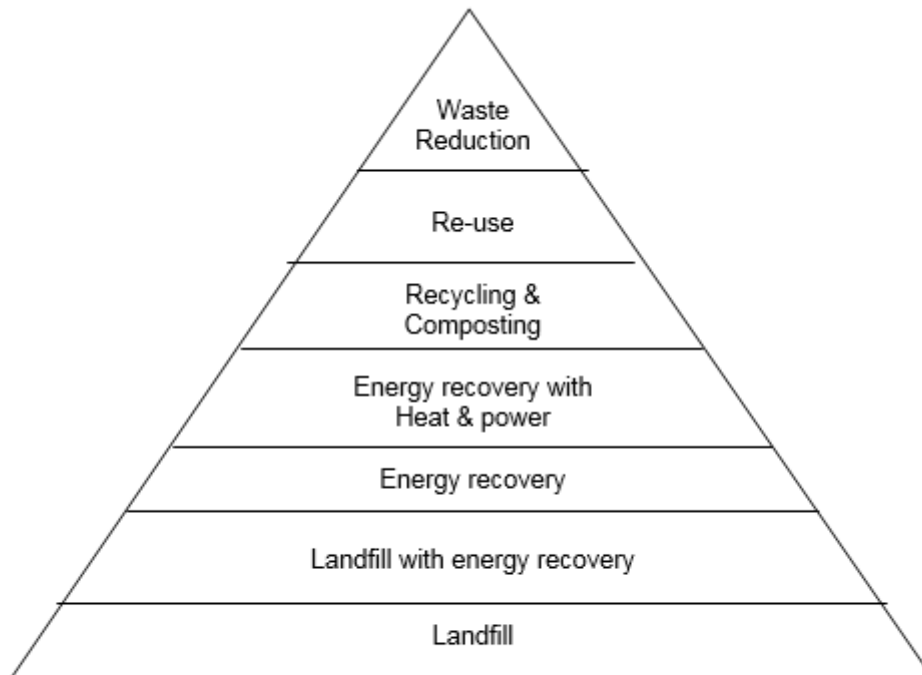
3. Reasons for the Recommendations

- 3.1 Under the Scrutiny Procedure Rules, it was requested that a report be provided to the Overview and Scrutiny Commission on the management and delivery of the reduction in use, reuse and recycling of plastic bottles, together with any publicity and changes or proposals for future service provision.

4. Background

The waste hierarchy

- 4.1 The waste hierarchy is a useful framework that has become a cornerstone of sustainable waste management, setting out the order in which options for waste management should be considered based on environmental impact. First used in the EC Waste Framework Directive 2008, criticisms of over-simplicity led to a more detailed version which is shown below. In order to make waste management more sustainable, the emphasis should be on moving processes higher up the waste hierarchy.¹



Historical context

- 4.2 The UK currently has a weight based target to recycle 50.0% of household waste by 2020. Naturally this has driven a focus in UK public authorities to achieve this target. However, it should be noted that this target takes no account of the waste hierarchy or of the significant variation in environmental benefits achieved by recycling various differing materials.
- 4.3 Prior to 2001 Crawley's recycling system was based on 61 'bring banks', provided at local shopping parades, supermarkets and other key locations around the Borough, where residents could deposit their materials. This system resulted in a recycling rate of around 10 to 12%
- 4.4 Following a successful trial in 2001 a new service was phased in over the following year which included household collections of paper and card utilising 55Ltr boxes (REDbox), in addition to the existing bring sites. This resulted in a recycling rate of around 18% by 2002/03.
- 4.5 This system was then expanded to include plastic bottles, as well as other materials, and in 2005 wheeled recycling (REDtop) bins began to be introduced in order to cope with the increases in quantities of materials being recycled. Since then other materials have been added with the last addition being that of plastic pots, tubs and trays (PTT) in 2015.



- 4.6 Currently the list of materials that can be recycled within the REDtop bin include: plastic bottles as well plastic pots, tubs and trays, aluminium and steel cans, glass bottles and jars, paper and cardboard, Tetra packs, aluminium foil and aerosols. This system has resulted in a recycling rate of over 27.6% in 2015/16, including garden waste, which is collected separately but also counts towards the target.

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- 4.7 Crawley BC, together with the other Waste Collection Authorities in West Sussex and our Waste Disposal Authority, West Sussex County Council (WSCC), make up the West Sussex Waste Partnership (WSWP).
- 4.8 Whilst each of the District's and Borough's within West Sussex are required to report their individual recycling rates it should be noted that the figure above, when combined with materials deposited at the Household Waste Recycling Sites throughout the county, contributes to the County wide recycling rate for the partnership of just over 42% for 2015/16.

5. Types of Plastic

- 5.1 There are currently 2 main types of plastic used for making bottles: Polyethylene Terephthalate (PET) and High Density Polyethylene (HDPE).
- 5.2 Single use drinks bottles are usually made from PET.

6. Waste Composition and Recycling of Plastic Bottles

- 6.1 PET and HDPE are both recyclable within Crawley's REDtop bin collection system.
- 6.2 Plastic bottles which have been collected from REDtop bins, along with other recyclable materials, are sent to be sorted into the separate material streams at a Materials Recovery Facility (MRF) in Ford. Plastic bottles and containers are then sent off either to be:

Reformed — whereby plastic is melted down and reformed into new material e.g. fibres for fleeces, pillows or new plastic bottles.

Reprocessed — whereby more brittle plastics are transformed into new plastic products such as recycled plastic furniture.

- 6.3 Plastics can be recycled into all kinds of materials, including polyethylene bin liners and carrier bags; PVC sewer pipes, flooring and window frames; building insulation board; fencing and garden furniture; water butts and composters; anoraks and fleeces; fibre filling for sleeping bags and duvets.

What happens to my recycling?



- 6.4 In 2015 the WSWP and its MRF contractor jointly commissioned a waste composition analysis in order to inform the progress and future direction of its services. From the data collected in this study the following estimates can be made:
- 6.5 Plastic bottles (PET & HDPE) form around 6.8% of the recyclables stream, this equates to just over 487 tonnes of plastic bottles from Crawley sent for recycling in 2015/16.
- 6.6 In addition, PET forms around 1.1% of the residual household waste stream, which equates to approx. 42 tonnes that could be recycled within the existing system.
- 6.7 Many plastic bottles are also collected within litter deposited both on the street and within litter bins. No data is currently available for these quantities. However, on-street recycling bins for the collection of these materials have been trialled in the past. Unfortunately at that time, contamination with food waste residues and other non-recyclable materials proved to be very difficult to overcome.

7. Reduction and Reuse of Plastic Bottles and Implications

- 7.1 Weight based recycling targets have focussed attention on recycling in recent years and it should be recognised that much progress has been made in this area since recycling systems were first introduced.
- 7.2 Nevertheless the WSWP has also always accepted that reduction and reuse are more sustainable options and has continued its work in these areas, in particular utilising its team of volunteer Waste Prevention Advisors and, for example, by providing subsidised home composters.



- 7.3 It is also recognised that there are considerable financial savings that could be made on waste disposal costs from minimising waste produced, indeed the WSWP estimate that £3m could be saved if it were possible to divert the 18% to 20% of recyclable materials remaining within the residual waste stream to recycling.
- 7.4 This has generated renewed effort towards waste minimisation issues and the WSWP has recently established a working group to prepare a business case for projects that could be considered in this area. It is also looking to promote change to the weight based targets system to better recognise the waste hierarchy.
- 7.5 Recently there has been a lot of publicity directed at reducing the number of 'single use' plastic bottles in circulation, particularly due to the amount of plastics finding its way in to the oceans.² This has resulted in the launch of a number of water bottle refilling schemes around the country, including Bath, Bristol and Bude.³ No WSWP authority is currently associated with these schemes.
- 7.6 At this point it is worth mentioning that research conducted on health issues with regards to refillable drink containers discovered alarming quantities of germs on all types of containers tested. They found that stainless steel, straw top style bottles contained the least number of bacteria.⁴
- 7.7 The [PET Resin Association](#), a Plastics industry group recommends washing water bottles after each use with soap and hot water, together with drying them to ensure ridding them of bacteria. It also states that the bottles should not be reused if they have scratches inside, since bacteria can thrive in these conditions.⁵



- 7.8 Therefore any move to encourage the use of refillable containers should also include advice on the best types of container and their hygiene.
- 7.9 However, plastic bottles do not just have to be reused in their current state. Other well documented concepts for re-use have included: storage jars, plant holders, money boxes, soap dispensers, snack bowls, water sprinklers and of course the WSWP Christmas tree which has previously been displayed outside Crawley library on two occasions.⁶



8. Publicity and Marketing

- 8.1 Members of the WSWP use a number of communication methods to publicise waste issues, both individually and in partnership, depending on the issue being covered. These include direct mail, Christmas collection calendars, adverts on buses and bus shelters, advertising boards on refuse & recycling vehicles, at train stations and at other locations, radio, social media and the 'recycleforwestsussex' web site.
- 8.2 Materials for these campaigns can be generated by the various partner's communications teams or can come from national campaigns initiated by organisations such as 'WRAP' or 'Keep Britain Tidy'.

- 8.3 The current West Sussex wide campaign is 'Think before you throw' which focuses on reducing the quantity of recyclable materials, including plastics, which end up in the residual waste stream.

- 8.4 In addition the team of Waste Prevention Advisors have attended over 160 public events around West Sussex in order to provide advice on waste prevention and recycling issues.
- 8.5 The WSWP also engage 'Wastebuster', a specialist not for profit provider, to provide schools in West Sussex with waste education resources.



9. References and Background Papers

- 1 - European Commission (2008) Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.
- 2 - <https://skyoceanrescue.com/>
- 3 - <https://www.theguardian.com/environment/2017/jun/29/the-bristol-refill-reuse-bottle-campaign-that-is-spreading-across-europe>
- 4 – <http://www.treadmillreviews.net/water-bottle-germs-revealed/>
- 5 – http://www.petresin.org/safety_uses.asp
- 6 – <http://www.awesomeinventions.com/reuse-plastic-bottles/>
- 7 - <http://www.coca-colacompany.com/stories/dont-waste-create-campaign-rewards-customers-for-recycling>

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