

WR1204

Household Waste Prevention Evidence Review: L2 m4-2 – Retail Solutions

A report for Defra's
Waste and Resources Evidence Programme

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L2 m4/2 Retail solutions – refillables and self dispensing systems

This paper summarises evidence on retail solutions that reduce the amount of waste in packaging and involve consumers in an active choice to use them. It covers the type of refills where consumers buy an original pack then subsequently buy smaller packs from which the original is refilled (e.g. detergent sprays); and self dispensing systems where retailers offer products in containers from which consumers can dispense exactly the portion that they require (e.g. in health food stores). Information is presented for:

- Coverage of the review
- The extent to which refills are used
- Consumer attitudes
- Potential impact
- Barriers
- Opportunities
- Discussion – policy implications and issues

Related modules are:

L2 m1 Technical report, section 4	L3 m3/1 (D) Extent to which waste prevention behaviours are practised L3 m3/2 (D) Motivations and barriers <i>Both papers contain further references to sources of consumer estimates of usage of refills beyond those listed in the bibliography below</i>
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(D) denotes a briefing paper providing more background detail; (T) indicates a short focused topic briefing

1.1 Coverage of the review

This part of the review focused on refillable packaging and in-store self-dispensing systems, including one WREP study and three WRAP studies¹. These retail options were included because they require active involvement of households/consumers whereas other retail packaging solutions are passive as far as the household is concerned (e.g. light-weighting², mandatory deposit return schemes³, or innovations to food packaging to help consumers manage food better⁴). The studies included were:

- Refillable packaging (Lofthouse et al, 2007, WR0113) – the study identified more than 15 possible refill options, then developed and tested three refill concepts for Boots Botanics personal care range, including focus groups and 89 interviews. The concepts tested involved concentrated refills to dilute at home in the original packaging.
- The WRAP refill study (2008) explored 11 different refill mechanisms, examining international practice and the pros and cons of the various options.
- The WRAP glass study (2008) undertook a worldwide practice review.

¹ A feasibility study for food and non-food packaging conducted by James Ross Consulting with Butcher & Gunderson (2008) but referred to here as "WRAP refills" for reasons of space and readability. They also conducted the self-dispensing study which is referenced here as "WRAP self-dispensing" (2008). Oakdene Hollins led a further study for WRAP, with the Loughborough University team that worked on WR0113, looking specifically at glass. This is referred to as "WRAP glass" (2008).

² See "Packaging optimisation: the impact to date" on the WRAP website.

³ ERM for Defra (2008) WR1203: Review of Packaging Deposits System for the UK.

⁴ See footnote 10.

- The WRAP self-dispensing study (2008) undertook an international review, examined benefits options for the UK market, then consumer tested options through 400 interviews with shoppers and two focus groups.

1.2 Extent to which refills are used

Globally, the share of refillables in packaging has been in long term decline, replaced by single-use (also known as single-trip or one-way) options. For example, the market share of refillable milk bottles has declined from 94% to 10% (during 1974-2006), for beer containers from 33% to 0.3% (1961-2006) and for soft drinks from 46% to 10% (1980-1989) (WRAP glass, 2008). Refillables have been introduced in the UK but have not taken off (Lofthouse et al, 2007, WR0113), and retailers do not show much enthusiasm for them (WRAP glass, 2008).

Both refillables and self dispensing systems (SDS) are more established in some overseas countries including the US and the Asia Pacific region. Factors which support refills in the US include a tendency to shop less frequently than in the UK and buying in bulk (which favours refills), as well as a different culture around low price products. In Asia Pacific consumers are well informed about the environmental benefits of reuse/refill and the Australian Packaging Covenant provides a supportive policy environment (WRAP refills, 2008). SDS were found mainly in food stores specialising in fresh/organic/health food products but the concept is often applied more widely within those stores.

1.3 Consumer attitudes

In surveys of waste prevention behaviours, anywhere between 10% and 65% claim to buy refills; Lofthouse et al (2007, WR0113) indicates 14% to 26% (L3 m3/1 (D)). In relation to SDS, 90% have bought food loose at some point whereas only 31% have bought non-food items in this way. The main age group that would use SDS in the UK are 35+ year olds (WRAP self dispensing, 2008).

The reasons why people actively buy refills are well summarised in Lofthouse et al (2007, WR0113) and presented in table 1

Practical	People without cars report specifically buying refills because they are smaller, lighter and easier to carry home. They take up less room. Ease of use/delivery.
Brand related	Product quality. They have had a good past experience. Already engaged with and like the brand being sold as a refill.
Environmental	To reduce waste and/or actively reduce the amount of stuff they buy. Altruism or the desire to be environmentally as long as this is linked with product quality, and/or cost.
Other	They are fun. They are considered the 'norm'. Cost as long as this is linked with product quality. There is a clear reason why the product is sold as a refill.

Table 1 Why people buy refills Source: Lofthouse and Bhamra, WR0113

A minority (36%) indicated that refills are convenient. Across the various studies the main reasons for refills being seen as inconvenient are:

- A need to be organised
- A perception that they are more expensive and/or poorer quality

- Being locked into a particular brand
- Hard to find
- Product has been or risks being discontinued

Lofthouse et al (2007, WR0113) uncovered a previously unidentified barrier: even if they actually provide an identical amount of product, reduced size refills tend to convey less value, and therefore a much lower price expectation. This feature was confirmed by two manufacturers.

Relative prices – both actual and perceived – are commonly flagged as the key barrier to consumer engagement in refills in the UK. In the US, there tends to be a much greater discount between refill and primary product. Studies noted that refills could be attractive where they were communicated or perceived as premium products. Consumers do not appear motivated by environmental reasons, or sometimes to understand what they are, and this aspect is generally an add-on to the consumer offer, and only important if consumers are satisfied about price and quality first.

A second order problem is the very low level of understanding of what refills entail. Authors commonly highlight the need for the actual refill process to be simple and intuitive; that consumers need to be told what the point of it is; told exactly how to do it; and that value needs to be communicated through the packaging (which can affect perceptions strongly).

Specific barriers to SDS include concerns about safety and hygiene, which the WRAP study suggests can be overcome by using enclosed dispensers rather than open bins or containers. Other issues include lack of information that would normally be on labels, and limited availability of branded goods. The study further emphasised the importance of intuitive systems, and noted that consumers had been flummoxed by a touch screen, portion control, system. Consumers liked the ability to take just as much as needed (portion control); and the perceived reduction in packaging. They also expected self dispensed goods to be cheaper.

1.4 Potential impact

Tonnage

There is a significant problem in estimating the potential contribution of refills and SDS to waste prevention at UK level, because impacts and benefits cannot be generalised across products. The WRAP glass study urges that the case for refillables needs to be assessed on a product by product basis because the LCA benefits are so variable. In particular, less packaging in refills needs to be set against factors such as relative recyclability of primary pack and refills, logistics impacts, and whether the consumer sustains a shift to refills.

Indicative estimates are given in the various studies for individual products or models. In Lofthouse et al (2007, WR0113), for each individual product sold (rather than total tonnage for that product) a weight reduction of 60% - 90% was estimated on the basis of usage over a six month period. When recycling benefits are added, weight reduction would be 77% - 81%. Taking into account assumed sales volumes as well as product weights, the WRAP refills study (2008) reported the following indicative impacts on total tonnages of different refill options:

- Glass instant coffee jars supported by soft pack refills: **77,000 tonnes pa**
- Soap pack pump dispensers supported by lidded packs: **4,000 - 7,000 tonnes pa**
(the higher figure being if the refill is a bulk container providing several refills)
- A trigger household cleaner dispenser supported by a capped bottle: **7,500 tonnes pa**

- A soap dispenser supported by pouch refills: **5,000 tonnes pa**
- Deodorant stick dispenser supported by shrink wrap refills: **10,000 – 11,000 tonnes pa**

The indicative savings for self dispensing systems were rather less. Illustrative examples included a 70 tonne reduction from cornflakes, 26 tonnes from coffee (assuming it replaces jars), and 86 tonnes for detergent cartons.

Consumer benefits

For refills, the average cost savings to consumer identified from the international review (WRAP refills study, 2008) was 26% on average, but as high as 67% (observed in the US).

It was observed that SDS consumers tend to buy smaller portions but more frequently than ready packaged products. Since WRAP's food waste research shows that over-portioning is a key cause of food waste, self dispensing may represent an opportunity in this regard.

Retailer and producer benefits

Both the WRAP refill and self dispensing studies (2008) reported profitability gains for retailers. Cost savings from SDS came from avoided packaging materials, lower costs of meeting packaging regulations, and distribution savings.

1.5 Barriers

In addition to the consumer barriers above, studies have examined barriers to producers and retailers, which can be summarised as:

For retailers

- Impact of refills on shelf space, configuration and stock management generally – which encourages reluctance to supply and tends to reduce product availability.
- A greater proliferation of similar products in the UK than in, for example, the US – which may exacerbate stock management issues (as well as 'lock-in' fears by consumers).
- For SDS, mess and product wastage from spillage.
- The possibility of needing more staff to support customers in using SDS.

For producers

- Having to refit production lines if refills cannot be produced on the same line (or from same supplier) as the primary package – costs can be significant (WRAP glass).
- Brand image – scuffing detracts from a perception of product quality (WRAP glass)
- Risk of losing consumer 'lock-in' to brand, especially if 'universal' containers are introduced, or in unbranded self dispensing systems.
- Perception of low profitability from refills.
- Specifically in relation to concentrated refills for dilution at home, bacterial risk from the use of non-sterilised water, with risks to product quality and reputation.

1.6 Opportunities

Most of the studies reviewed were concerned with developing a business case for refillables or SDS, so they identify a wide range of benefits and opportunities which are not all reported here. In summary, the consensus is that these consumer options need to offer:

- Product at lower cost; or
- A premium product at 'standard product' price (i.e. upgrading), delivered and communicated through design of the primary pack;
- An added value service (e.g. internet ordering, home delivery).

In addition, the product must reduce waste, minimise environmental impact, have good sales volume, have consumer and producer benefits, and be safe and simple for consumers to use.

The WRAP study (2008) identifies three key retail markets where self dispensing systems could be used, based on the evidence collected (mock up examples of self dispensing 'zones' are shown in the report):

- grocery (food and non-food)
- health and beauty (non-food)
- DIY and garden products (non-food)

Various suggestions are made in the report on how to optimise the consumer offer and in-store experience, including options for the use of labels to engage consumers.

More generally, the WRAP glass study suggests that carbon labelling (e.g. through PAS2050) represents an opportunity to communicate the benefits of refills. Recent studies by the Local Government Association continue to highlight "over-packaging" in the media while consumer research (including studies reviewed here) regularly flags the prominence of packaging in consumers' minds in relation to waste matters. We could speculate that refills are one of the potential answers to some of this concern.

1.7 Discussion - policy implications/issues

The studies reviewed suggested that there are opportunities for introducing refillables into the UK market – and that they could deliver weight reductions – but authors agree that both consumer, retailer and producer education is required to stimulate demand. On self dispensing, there appears to be some early adoption occurring in specialist stores though generally not in mainstream retail.

High level policy measures could potentially help by increasing confidence in the supply chain to invest in the technology and equipment for providing reusable and refillable formats. Since price, perception and profitability are the key drivers of demand for both refills and SDS, the main means of achieving take up is through consumer choice (rather than a mandatory deposit return scheme which acts on producers). These retail concepts and the supply chain barriers identified in the literature are already being explored through WRAP's retail innovation programme and the Courtauld Commitment, which would appear to be the main means through which Defra can provide support. In addition, the Packaging (Essential Requirements) Regulations[2] was raised by one author as a power that exists that could favour refillables but has little effect (Lofthouse), perhaps because its enforcement is not well resourced (Economia).

Environmental/sustainability thinking may also need to be more embedded in design education to ensure that recommendations by e.g. Lofthouse et al (2007, WR0113) that design briefs should include environmental criteria is feasible.

The evidence shows that consumers are largely unaware of refills, or do not generally think about them as an option, which is an important barrier to the development of a viable refill market. On consumer perception, the main option may be to ensure that the environmental benefits demonstrated in technical feasibility studies are made available to those running communications campaigns (perhaps also communicated through product labelling). Consumer information on refills is already provided in the WRAP waste prevention toolkit for use by local authorities. Without access to this kind of information, consumers may be left feeling that refills are just another hassle and hard to find.

1.8 Bibliography

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Basis of this report

The material in this paper is derived from a large scale evidence review of household waste prevention conducted by Brook Lyndhurst, the Social Marketing Practice and the Resource Recovery Forum for Defra’s Waste and Resources Evidence Programme.