Markets for Recyclable Materials Recovered by Scottish Local Authorities

An analysis of the domestic and export markets for recyclate recovered by Scottish Local Authorities in the short to medium term

Summary Paper

March 2007
Executive Summary
With the implementation of phase 1 of the Strategic Waste Fund and the achievement of 25% recycling of MSW, Remade has conducted an assessment of the materials likely to be recovered and the implications for the markets for these recyclates.

The primary conclusions of this review are that:-

1. Although driven by legislative push rather than the pull of direct market demand, there are, to all intents and purposes, markets or outlets for virtually all recyclate material potentially recovered (so we shouldn’t be in the position of ending up landfilling recyclate).

2. The real issues relate primarily to the value that the LA’s recyclate will achieve, which is affected by:-
   • accessible end markets and
   • quality of recyclate collected (Kerbside household collections and bring sites together supply the majority of recyclate to the market -71% of material recovered is from these sources – this should theoretically be source segregated tonnage.)

3. Development of the markets is largely about creating diversity of outlets and stimulating market demand that help improve the recyclate value.

4. Ongoing monitoring of the quality of recyclate recovered from various schemes is required – linked to value received. (e.g. mixed glass, cheaper collection but lower value compared to colour segregated collection which is more expensive but can command better prices and access to a broader range of stable markets)

5. LAs could benefit from improved contractual arrangements perhaps associated with joint or consortium selling due to the small size and low market share we have in the global market.

6. Scotland should continue to take action to stimulate both supply and demand in a balanced way thus work across the whole supply chain.

7. To stimulate end markets the Public Sector should be encouraged to adopt green procurement strategies, which can be helped by the setting of targets for % recycled content.
Paper Summary

The UK market for paper products is mature and relatively stable although current Confederation of Paper Industries’ (CPI) figures indicate that the decline of domestic paper and board manufacturing is continuing (CPI 2006a), with high energy costs in 2006 being a significant factor. However overall it is considered that the UK market is stable while the export market remains buoyant and continues to grow. (CPI 2006a)

- The UK produces only about half of the 12.5 million tonnes of paper and board products that we consume.
- The UK recovered a total of 7.4 Million tonnes of recovered grades in 2005 of which Scottish LAs contributed 0.13 million tonnes or around 2%.
- The UK is a net exporter of recovered fibres with 3.2 million tonnes exported in 2005 and imports of only 0.3 million tonnes, resulting in the total UK usage of recovered grades in 2005 of 4,472,280 tonnes.

Demand for fibre from Scotland both for export and UK markets remains strong.

Glass Summary

The UK’s glass container production sector is experiencing ongoing growth and the remelt sector is continuing to report that demand for clear and amber cullet is far in excess of available supply and that significant additional tonnages could still be utilised in manufacture.

Scottish Local Authorities, primarily through additional glass kerbside collection schemes, recovered an additional 13,076 tonnes in 2005. These additional kerbside schemes did not adversely impact on the Bring Banks which also saw an increase although more modestly at

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<th>Supply</th>
<th>Demand</th>
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<tr>
<td></td>
<td>Council</td>
</tr>
<tr>
<td>Clear</td>
<td>17,414</td>
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<tr>
<td>Amber</td>
<td>4,789</td>
</tr>
<tr>
<td>Green</td>
<td>21,333</td>
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<tr>
<td>Mixed</td>
<td>15,920</td>
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<td>Approx Totals</td>
<td><strong>59,456</strong></td>
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Estimate of Scottish Supply and Demand
 demand for colour separated glass far exceeds supply and both Owens Illinois and Rockware advise that they are dependant on imports of cullet from England but also from the continent. In addition contamination levels of cullet imported are significantly lower than local supplies.

The cost benefit of the improved quality is likely to be offset by increased import costs but does indicate that a reduction in contamination from Scottish sources could have an impact on stability of outlet and potentially price.

Rockware advise that they currently utilise 40,000 tonnes of green cullet per annum, representing 32% of total production at the Portland plant in Irvine. The cullet collected from bottle banks, kerbside collection schemes, manufacturers and licensed premises all in England is processed at the company’s plant in Knottingly from where it is transported by road to Irvine. Scottish cullet is not directly utilised in the plant other than that traded with United Glass. Superglass can also potentially utilise container glass although the plant is currently supplied by flat glass.

The demand for mixed colour is less certain although WRAP estimates for alternative markets would suggest Scotland could potentially have outlets for 188,000T. A number of Scottish firms are already utilising this material although work may still be required to ensure these markets do develop as anticipated.

This analysis would indicate that there is strong demand from more than one plant for cullet and that both Owens Illinois and Rockware could each utilise virtually all the colour separated glass arising in Scotland. Owens Illinois are currently utilising all the green cullet they procure and with Rockware having to import it from England - no green mountains exist.

**Plastics Summary**

In 2005 the UK plastics processors consumed around 4.8 million tonnes of plastics feedstock. The UK itself only produced around 2.5 million tonnes of all polymers used, as such it is recognised that we are a net importer of plastics for use in a variety of application sectors.

A recent WRAP report (WRAP 2006d) has estimated the waste plastics arising from “bottles and other household plastic packaging” to be in the region of 67,000 tonnes for the UK. The LAWAS figures presented in section 1 shows Scotland’s contribution to this figure to be around 3,936T (i.e. in the order of 6% of this total). Estimates of the composition of this stream appear to indicate that HDPE and PET bottles comprise 95% of the total collected from the domestic household waste stream with 5% other mixed plastics. Of the 5% little is known of the composition or “fate” of materials. In the Scottish context this would mean that our contribution to waste PET bottles for recycling would be 1,683 tonnes and HDPE would comprise 1,870 tonnes.

To this end it is clear that if all recovered plastics were to be polymer segregated and were utilised back into manufacturing uses for those polymers, Scotland’s contribution would be of relatively low significance.

However, it is recognised that not all recovered plastics are utilised by reprocessors in the UK, and the most recent packaging statistics show that more than double the quantity of recovered plastic material reprocessed in the UK was exported for reprocessing. As with paper and board, it is the growing Asian markets that are the main driver behind the growth in exports, and Hong Kong / China continue to be the dominant sources of demand.
Revenues from the Sale of Recyclate

Prices paid for paper, glass and plastic recyclate have remained relatively stable over the previous twelve months with the greatest volatility shown by mixed plastics with a swing of 12%. However comparing the prices received by Scottish Authorities in comparison to the Materials Pricing Report (a resource funded by WRAP with input from collectors and processors) and with MRW shows that for virtually all materials Scottish Councils received a lower price. Although additional research is being undertaken by Remade Scotland to ascertain the reasons behind the disappointing survey results, it is obvious that transport and locations of reprocessors shall play a major role in determining price paid.

Long Term Price Issues

The manufacturing base in the UK is relatively stable although opportunities for growth appear limited. The analysis in this report suggest that demand in Scotland for glass far exceeds supply although this is not directly reflected in price due to various factors. Although UK demand exists there is a strong export market for paper and plastics dominated by China which is experiencing more growth in demand, greater investment in processing capacity and greater capacity growth than any other region. As such the Chinese market is the price driving market for globally sourced recovered paper, board and plastic - its increased demand elevating the global equilibrium price. The United States is singularly the largest exporter of recovered paper and board into the Chinese market, with more than double the exports of the whole of Europe. In the case of plastics for instance the UK supplies less than 5% of the waste plastics into the dominant Chinese market.

Scotland is a very small supplier to both the UK and global markets. Therefore increases in supply from Scotland are unlikely to have much impact on markets – however it will be important to ensure that the quality of recyclate is maintained. This issue is explored further in Appendix 1 of the main report.
Executive Summary
With the drive to increase MSW recycling rates to 40% and beyond, the strategic outline cases (SOCs) put forward by area waste groups have indicated that there is an increasing shift from kerbside sort to multi material collections which will subsequently require additional MRF or sorting facilities.

This is not surprising as a recent study by Remade, *Kerbside Collections - Factors for Success*, found that the factors influencing high recovery rates for dry recyclate were found to be:-

<table>
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<th>Collection Factors</th>
<th>Effect</th>
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<tr>
<td>High Recyclate Collection frequency</td>
<td>Weekly collections provide 64% higher recovery rates than fortnightly</td>
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<tr>
<td>High Collection capacity</td>
<td>Weekly capacity &gt; 101 Litres 56% higher recovery rates that 51-100Litres</td>
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<tr>
<td>Number of materials collected</td>
<td>Multi material schemes with 4 or more materials produce 137% more material than single stream</td>
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<td>Frequency of Residual Waste Collection</td>
<td>Schemes integrated with fortnightly residual collection recover 65% more than weekly residual.</td>
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The questions raised and discussed in the paper and which will be the focus of the event on the 6th of June 2007 in the Tollbooth, Stirling is:-

1. Will this increased recovery of recyclate adversely affect material quality?
2. Can MRFs supply and sort recyclate to an acceptable quality standard to ensure market access in the medium to long term?
3. Do existing contracts and specifications between collectors and private sector facilities stimulate and encourage quality improvements – both in collection and in processing?
4. Are new facilities required and if so can they be commissioned and constructed in time?
5. Are high bid costs and a limited number of bidders restricting competition?
6. Is the potential demand for MRF facilities stimulating investment in the private sector for innovative and progressive sorting and treatment technologies?