

Paper Waste Briefing Paper

This paper summarises paper waste opportunities in Hampshire required to meet the Vision of the MRS.

This is based upon the best information that we have available.

Following discussion with industry experts and detailed research into the topic, an initial paper was prepared for the MRS Workshop on 31 March 2004. The paper was refined following input from a group of sector experts at a paper sector workshop on 23 June 2004. Details of these volunteers and experts are set out at the end of this paper.

The opportunities outlined below are the results of discussion with industry experts and detailed research into the topic. This research is summarised in the following pages.

The Information contained within this briefing paper will develop into one section of the Material Resources Strategy.

This paper also links to the follow papers:

- **Biowaste** (Green; Food & Biodegradable; Wastewater); and
- **Agricultural waste**

The main opportunities to meet MRS vision

Within Hampshire:

- Improve capture and quality of kerbside collected and banked fibre
- Provide economic opportunities for businesses, especially SMEs (Small and Medium sized Enterprises) to participate in recycling more paper and card via:
 - collection as part of household collection schemes
 - access to Household Waste Recycling Centres (HWRCs)
 - bulk facilities on industrial estates
- Develop long term, stable contracts for the placement of paper from all sources.
- Sustainable transport options for bulk transport of material to paper mills distant to Hampshire.
- Stimulate corporate and household demand for quality products made from recycled materials.

Regionally:

- Same issues as locally

Nationally:

- Break down barriers to artificial classification of packaging waste as household or commercial.
- Investigate construction of market de-inked pulp (MDIP) facility in the UK

- Improve use of recycled fibre in printing and writing and sanitary and household sectors.
- Develop new UK markets for paper

What is the current Paper waste situation?

Current Trends

The UK consumes 12.9 million tonnes pa of paper and card (*source www.defra.gov.uk*) 7.7 million tonnes (59%) of this is imported and the majority is manufactured from virgin pulp.

The UK paper and board industry is the second highest user of recovered fibre in W. Europe; secondary fibre used currently represents some 74.5% of total UK production.

However the UK's recovery rate (waste paper collection compared with paper and board consumption, including imports) for paper and board is relatively low at around 44%.

The UK is a net exporter of recovered fibre. 1.3m tonnes of recovered fibre was exported in 2002, mainly to Germany and China where there is a strong demand. Exports are growing annually.

Price fluctuations

There is a view that the recovered paper market is cyclical, but in reality the statistics do not bear this out. Demand (and price) does fluctuate, but is influenced by the global commodity market for waste paper as well as domestic factors. In recent years prices have been fairly stable, despite the increase in recycled fibre available.

Current Position - Hampshire

Using the national consumption figures as a guide, and allowing for relative economic prosperity, it is estimated that consumption of paper and card in Hampshire for all purposes would be around 350KT per year. However SEEDA Viridis report concludes paper arisings in Hampshire are around 900KT, although there are clear inconsistencies within the report.

A household waste analysis in 1999 concluded that potentially recoverable paper and card (excludes paper used in multi material packaging such as tetrapaks, which are not economically recoverable at present) is estimated to make up 29% of the domestic waste stream. In 2003/4 this equates to around 246KT. A report for SEEDA compiled by Viridis in 2003 (*Estimated Waste Arisings in the South East Region*) concluded that there was 266KT of paper in the household waste stream (includes portion sent for recycling).

The Project Integra partners currently collect 92KT of paper and card per annum (76KT via kerbside collections, 10KT from banks and 6KT at HWRCs). This equates to an estimated capture rate of 37%.

At present around 65% of the paper and card is sold as News and PAMS (the industry name for a mixture of newspapers, pamphlets and magazines.) and the remainder as mixed paper and card. The former has highest value and the Project Integra Annual Business Plan for 2004/5 identifies increased capture and quality of material as critical goals.

Increasing capture rate to 60% (a further 55KT per year) would boost the county recycling rate by 9%. (calculated from Project Integra volumes and performance data 2003/4).

There is much less data on the amount and fate of commercial paper and card. SEEDA estimate that around 90KT pa of paper and card arises from commercial operators, but this is exclusive of the paper content of "general commercial waste", estimated at 52% or 327KT. This equates to a total of 417KT of paper and card. The Viridis figures quoted are not consistent throughout their report and should be regarded with caution.

Supermarkets and large retailers have well established outlets for cardboard, but SMEs are not well served. Recycling collection services to businesses with low output are usually offered at a premium over general waste disposal.

Current Legislation

Waste paper is not regulated by any specific regulations/legislation but comes into the general classification of controlled waste as outlined in the Environmental Protection Act 1990.

The Landfill Directive (1999/31/EC) seeks to reduce progressively the volumes of biodegradable waste going to landfill and imposes controls on the nature and types of wastes disposed of and the manner in which they can be disposed.

Best Value Performance Indicator (BVPI) recycling and composting targets are set by the ODPM for local authorities. For Hampshire as a whole the target equates to 40% of the household waste stream by 2005/6. Paper and card derived from households and sent for recycling contributes to the overall recycling performance.

The Producer Responsibility Obligations (Packaging Waste) Regulations 1997, are intended to increase the level of packaging (including paper and card) recycling and help to establish a more stable markets for recycled fibre. By 2008 the UK will be obliged by European law to recycle at least 70% of paper and card in the packaging waste stream. The UK specific target for paper will rise from 65% in 2004 to 70% by 2008. The system is underpinned by Packaging Recovery Notes (PRNs), which are purchased by obligated

companies to prove they have met their own quota. Industry is meeting the current obligation.

Current environmental issues

Paper fibres are an inhalation hazard and appropriate personal protective equipment, (PPE) local exhaust ventilation (LEV) and environmental controls should be in place to manage risk of exposure to workers and the public.

Waste sludge from paper mills is a priority topic for WRAP. Aylesford Newsprint process and dispose of their own sludge on site but the majority of sludge is spread to agricultural land as a soil conditioner.

Current Fiscal policies

Landfill Tax: was introduced in 1996 and currently stands at £14 per tonne for active waste and £2 per tonne for inert waste. From 1st April 2004, active waste will be charged £15 per tonne.

Recycling Credits: are paid by the Waste Disposal Authorities to Waste Collection Authorities or third parties for each tonne of material diverted from landfill. The present rate in Hampshire is around £32 per tonne for paper. This payment represents the avoided cost in landfilling the material.

<p>What is being recovered now and what infrastructure is in place?</p>
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Current Collection & Recovery Options

The principal source of recovered fibre in Hampshire is the system of kerbside collection of mixed dry recyclate and sorting at Materials Recovery Facilities by the Project Integra partners. 95% of householders are asked to separate newspapers, magazines, brochures, cardboard, junk mail and office type paper from their refuse and place with plastic bottles and cans in a separate container. The material is delivered to central MRFs where it is sorted into two grades – mixed paper and News and PAMS, the latter being of higher value. This system is supplemented by a network of paper banks, provided by waste collection authorities, in partnership with major fibre purchasers.

Cardboard is collected from many supermarkets and large retailers by paper merchants and bulked at facilities for transport to board mills. This is largely due to their obligations under the Packaging Regulations.

There is limited service available to smaller businesses.

Current Opportunities for Avoidance

The once predicted decline in the use of paper with increase in Information Technology (the so called “paperless office”), has never materialised, in fact

the consumption of office paper has matched the growth in IT throughout the last two decades. Similarly the internet has yet to make serious inroads into the market for newspapers and magazines. The use of paper remains firmly linked to the buoyancy of the global economy as the consumption of paper is linked to advertising and advertising is linked to business confidence.

Current Disposal Options

The most important route for fibre is closed loop recycling, the manufacture of new paper and card products from post-consumer fibre and manufacturing waste. This is more energy efficient than manufacturing from virgin wood pulp, although fibres cannot be recycled indefinitely. Processes using 100% recycled feedstock, such as UPM Kymmene's Shotton Mill in Flintshire, require a proportion of feedstock to have been printed on virgin fibre.

Paper is one of the products within the domestic waste stream which has a significant calorific value and from which energy can be recovered. While it is environmentally preferable to recycle clean, dry fibre, a proportion of paper in any domestic waste stream, especially packaging, can be contaminated with foodstuffs or impregnated with other waste and thus rendered unsuitable for recycling. In this case, energy recovery represents a suitable option.

Contaminated paper and card can also be composted or anaerobically digested - but to ensure that pathogens are destroyed, the process needs to be undertaken in a closed vessel and the quality of product derived depends on the quality of the feedstock. Composting of mixed household waste results in a product which contains a wide variety of contaminants and has very limited uses, at best restricted to landfill cover or restoration. There is no in-vessel composting or anaerobic digestion currently within Hampshire. Uncontaminated cardboard could be used in open air windrow/aerobic composting; however cardboard is not processed in this way in Hampshire and it is unlikely to be while the demand for recycled fibre remains buoyant.

Current Standards

BS EN 643 is the UK version of the European Standard EN643 that defines grades and combinations of acceptable types of recovered paper. Some qualities also have maximum contaminant levels. This is critical where the recovered paper has uses in food packaging

British Standard EN 643 is a voluntary standard aimed at assisting local authorities and the industry to identify appropriate collection methodologies and specification for recycled paper. It is for each local authority to determine a specification for paper delivered with the purchaser.

Current Specifications

The paper industry prefers to use papers from collection schemes that provide segregation as close to source as possible and which are kept separate throughout the sorting and storage process. Contaminants such as shards of

glass, glues and food residues damage fibres and equipment. Therefore papers recovered from mixed dirty refuse are not acceptable.

In Hampshire, Project Integra (PI) collects paper through mixed kerbside collection schemes (where paper is collected with cans and plastic bottles) and in dedicated paper banks. In each case PI negotiated an input specification with each of the paper purchasers it supplies.

Examples: WRAP funded schemes throughout the UK
(www.wrap.org.uk)

Current Key players

Local: Aylesford Newsprint, Project Integra, Severnside Recycling, SCA Packaging, UPM Kymmene (UK) Ltd, Smurfit Townsend Hook
Regional: Above plus SEEDA.
National: As for local, plus WRAP, CPI, Incpen and other re-processors.

Paper Waste Sector Support

Waste & Resources Action Programme - is a not-for-profit company supported by funding from DEFRA, the DTI and the devolved administrations of Scotland, Wales and Northern Ireland. It is working to promote sustainable waste management by creating stable and efficient markets for recycled materials and products. (www.wrap.org.uk)

Confederation of Paper Industries (CPI): The CPI provides a dynamic focus for all sectors of the paper industry to unite, to discuss, and to resolve issues of common interest and to promote a positive image for paper in its many applications (www.paper.org.uk)

Incpen: The Industry Council for Packaging and the Environment is a UK based non-profit organisation dedicated to analysing the environmental and social effects of packaging, creating a better understanding of the role of packaging, minimising the environmental impact of packaging (www.incpen.org)

How is this likely to change in the Future?

Future legislation

The European Commission is developing a thematic strategy on the sustainable use of Soil. This may lead to a biowaste directive that is expected to promote the separate collection and composting of the organic fraction of waste streams. This will however have most impact on kitchen and garden waste but could also impact on contaminated fibre. Recent pronouncements from the Commission suggest that a Biowaste Directive is unlikely to be

drafted in the short term. Many industry experts predict that landfilling of all biodegradable waste will be prohibited in the long term.

Future Prospects

Newsprint

Sales of newspapers is driven by advertising revenue, therefore the market depends on business confidence and economic growth. In recent years the industry has been hit by global setbacks (dot.com bubble bursting, 9/11, SARs, and the Madrid bombing). The UK industry has also had to contend with the strong pound.

The Shotton plant of UPM Kymmene (UK) Ltd has, since November 2003, been using 100% recycled feedstock. This has benefits in relation to energy used per unit of output as well as boosting recycling rates, predominantly through local authority collected material. This has increased UK capacity to recycle newspapers and magazines by 30%.

WRAP has set a target to increase newspaper recycling by 500,000 tonnes/year.

Printing and Writing

Consumption in UK is steady (3.5 – 4MT pa) but UK industry in decline, mill capacity utilisation rate is <70%, this sector has also been hit by lack of advertising.

WRAP has set a target to increase usage of recycled paper in this sector by 180KT per year.

Packaging / Case Making

The total UK consumption of paper for packaging is 3.7MT pa. Demand for packaging is generally slack due to loss of manufacturing. Also light-weighting reduces demand. The trend in the UK is to move to secondary materials from virgin.

A high percentage of global manufacturing is located in China and the Far East, where mill capacity is increasing. These markets import fibre from the US and Europe, the balance depends on price and is therefore sensitive to currency fluctuations.

Household and Sanitary

Consumption is increasing although growth rate suppressed by lack of advertising. This sector is very competitive with tight margins.

The total market is worth over £2 billion at retail sales value, with the main sectors being toilet tissue (40%), disposable nappies (20%), kitchen towels, facial tissues and sanitary protection (10% each). Many producers believe

there is little consumer demand for recycled products, and estimate that only 5-10% of consumers buy such products at present.

Prospects - Other uses

Less data exists although this is currently only 1-2% of total consumption. WRAP has sponsored studies into developing alternative uses such as thermal insulation in twin skin external roofing and cladding for construction.

Prospects - Summary

The use of recycled paper has grown on average by between 4-5% a year since 1983. The UK has the 5th largest paper and board market in the world so the potential for expansion and increased recycling rates, given the right economic conditions, clearly exists. However, any significant new capacity additions in the UK paper and board industry will result from decisions taken in relation to global markets by multi-national corporations.

From the local perspective, while current trends continue, there will continue to be demand for high quality well segregated paper and there is significant potential to increase capture from kerbside schemes and from SMEs.

Option One – Status Quo

- Packaging Regulations – provide little incentive for further progress as targets are already met.
- Recovery rate will increase through improved household kerbside schemes being rolled out by PI partners. However most households in Hampshire now have a kerbside recycling service and therefore provision of further bins, boxes and refuse freighters in areas already covered would not significantly boost capture.
- There may be limited scope for allowing access by SMEs to some HWRCs, but many are already under severe capacity pressure.
- Project Integra is currently developing a communications and awareness strategy that aims to boost the capture and quality of material in areas already served by kerbside schemes. While some authorities have embarked on intensive campaigns, these have been in conjunction with roll out of new systems and containers. There is no real precedent to show how much impact these will have in isolation from a systemic change, although PI have estimated that a further 7KT could be obtained.
- **New Infrastructure Required:**
 - Collection – facilities and capacity at HWRCs to receive commercial sector materials.
 - Handling – Local players in the market for commercial paper and board have sufficient storage and handling capacity to substantially increase throughput, although this cannot be quantified.
- **Impact on Recycling Rate** – diversion of paper is predicted to increase recycling rate by around 1%.

Option Two – Stretching Best Practice

- Trial provision of:
 - shared “bring” facilities in locally managed industrial estates. These would be either serviced free of charge – or at least at lower cost than current commercial rates for mixed waste - by paper re-processors provided they were managed sufficiently well to avoid contamination, half loads etc
 - back door collection from SMEs such as shops and offices in high street or in mixed residential areas
 - Provide and promote HWRC access to SMEs – likely to require much larger facilities “super HWRCs”

- The best capture rates of mixed recyclate, of which paper is the largest portion, is achieved by authorities using Alternate Weekly Collections systems. An ambitious target of 60% diversion through AWC combined with more effective communications and awareness would divert a further 55KT per year from final disposal and boost the county domestic recycling rate by 9%.

- MRS partners and signatories commit to procurement policies and targets that increase the amount of recycled fibre products purchased. Progress toward the targets could be audited by peer-groups.

- Transport links. The fact that paper is a global commodity and that the larger UK re-processors are already some distance from Hampshire makes sea shipping a viable consideration.

- Future MRF’s should aim to be fully automated

- **New Infrastructure Required:**
 - Collection – facilities and capacity at HWRCs to receive commercial sector materials, bins for “backdoor” collection from SMEs and or shared facilities on managed industrial estates.
 - Handling – Local players in the market for commercial paper and board have sufficient storage and handling capacity to substantially increase capture of paper and card although this cannot be quantified.
 - Processing. The UK market demand for recycled fibre is currently met and therefore additional material is likely to be either exported , or displace other material which will then be exported.

- **Impact on Recycling Rate** – increasing diversion of household paper and card would divert a further 55KT per year from final disposal, increasing the domestic recycling rate by 9%.

- **Impact on residual waste stream.** Doubling capture from the commercial waste stream would divert a further 90KT from landfill.

Further Information

This briefing paper has been compiled by Steve Read who can be contacted on 01730 235806 or by email: Steve.Read@hants.gov.uk

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