

PAPER RECYCLING

Waste Paper Arisings and Recycling Rates

In 2001, the UK produced 6.2 million tonnes of paper, exported around 1.2 million tonnes and imported 7.6 million tonnes. The UK, therefore, consumes more paper and board than it produces. In 2001, consumption reached 12.6 million tonnes, an increase of 2% compared with the previous year. Most imports (84%) came from the European Union and Norway, with smaller quantities originating from Canada and the USA.

UK consumption of paper and board by type is shown below:

UK Paper Consumption

Sector	% of Total Consumption
Graphics	37%
Newsprint	21%
Case Materials	19%
Folding Boxes	9%
Sanitary	8%
Wrappings <150 gsm	3%
All others	3%

The UK paper industry uses a high percentage of waste paper in the paper production process. In 2001, UK mills consumed 4.6 million tonnes of waste paper. In 2001 waste paper represented 67% of all fibre used in the production process, one of the highest utilisation rates in the world.

The total amount of waste paper and board arising in the UK waste stream is higher than the amount consumed by the paper and board industry, due to additional paper packaging which is imported around goods and products and disposed of in the UK. In total the amount of waste paper is around 16 million tonnes per year, with around 7 million tonnes in household waste and 9 million tonnes in the industrial and commercial waste streams.

In 2001, 3,855,000 tonnes of paper packaging was put on the market. Businesses obligated under the Packaging Waste Regulations reported 3,134,037 tonnes of paper packaging. In that year, 2,030,944 tonnes of paper packaging were recycled, equivalent to 53% of that which was put on the market

Paper Recycling Operations

Waste paper in the UK arises in the household, commercial and industrial waste streams. In 1999, the Association of European Publication Paper Producers (CEPI) reached agreement on new recovered paper grades across Europe. There are five groups of waste paper; ordinary, medium, high, kraft and special. These groups are sub-divided into further classifications, which are used by the industry to assist in the buying and selling of paper for recycling by the paper and board sector.

In 2001, there were 61 companies operating 87 paper mills in the UK. The amount of waste paper utilised by these mills varies according to the products manufactured. The production of newsprint and corrugated case materials in the UK utilises the highest percentage of waste paper in production.

Arisings of used newspapers in the UK amount to between 2.2 and 2.3 million tonnes per annum. There are three recycled newsprint plants; Aylesford Newsprint, Bridgewater Paper Mill and Shotton Paper Mill. These plants use waste paper from a variety of sources and the recycled content of output from the three plants exceeds 70% in all plants, with Aylesford producing 100% recycled content newsprint. Taking into account imported newsprint, the overall current recycled content of UK consumed newsprint is around 60%.

Technical and Economic Barriers to Recycling Paper

The UK government is keen to increase the recycling of waste paper in the UK. However there are a number of technical and economic barriers which need to be addressed.

Restricted Reprocessing Capacity

A significant barrier to increasing paper recycling is that paper mills in the UK are currently running at full capacity, yet high levels of paper imports are still required to satisfy paper consumption requirements. The Paper Federation believe that an increase in paper recycling in the UK can only occur with investment in new mills (*see Government Programmes*).

Technical Constraints

There are technical constraints to the unlimited use of recycled stock. Repulping and processing decreases fibre length and, therefore, some virgin pulp is always required to maintain the strength and quality of the finished product. A recovered fibre can be recycled only about 5 or 6 times due to the progressive deterioration of its length. As a result, around 85% of waste paper comprises re-usable fibre, 15% is waste. This means that 0.65 million tonnes of unusable material from waste paper arises in UK paper mills annually, which incurs a disposal cost.

The more times fibres are recycled, the more cleaning and fibre separation is required, which increases the amount of water used. The water is contaminated more quickly and needs to be changed more frequently, which leads to an increased use of a diverse range of chemicals.

Contamination of Feedstock

An important factor in the utilisation of waste paper is the removal of contaminants. The level of contamination in wastepaper grades has a major effect on the complexity of the processing line and, therefore, on the cost of the final product. There are three main sources of contamination:

- ▶ paper mill additives, such as mineral fillers, chemicals and polymers;
- ▶ conversion process additives, such as printing inks, plastics and foils, adhesives, staples, pins and chemicals; and
- ▶ consumer and waste collection debris, such as food, micro-organisms, grit and baling wire.

There is also water present, absorbed by waste paper at depots and in transit, which increases the bulk and weight of the bales. Recycled pulp can reduce the smooth running of the paper web, reduce strength, cleanliness and brightness, and vary the colour. Adhesive particles known as stickies are a particular problem arising from contact adhesives and binders.

Prices of Virgin Pulp

Waste paper is an internationally traded commodity and is subject to wide fluctuations in price. Prices of virgin pulp affect the price that mills will pay for recovered paper and the additional costs of sorting, baling and transporting waste paper can cause paper recycling to become uneconomic. A significant cost in the paper recycling supply chain is related to transport.

Markets for Recycled Paper

Once the waste paper has been recycled there needs to be sufficient demand for the recycled paper product. In the past, recycled paper held a reputation for poor quality and colour and this notion

persists. However, modern recycled papers are now often indistinguishable from virgin papers and, at the same time, copier and printer manufacturers are improving the performance of their equipment. For example, Xerox has improved the performance of copiers to accept recycled paper and have seen a 20% increase in customer satisfaction in this area.

Government Initiatives & legislation

Newspaper Industry Agreement

In April 2000, the UK government announced a voluntary agreement with the newspaper publishing industry. The agreement sets targets to increase the recycled content of newsprint to 65% by the end of 2003 and 70% by the end of 2006, from the current level of around 60%. The aim is to help secure markets for waste paper. The agreement contains conditions relating to price, quality and availability.

Public Procurement

Public procurement of goods and services can assist in securing markets for recycled materials. Most Government departments have now signed up to a special contract which allows recycled paper to be purchased at a competitive price. It aims to substantially reduce the price premium barrier that buyers may face in considering more environmentally preferable purchases.

Introduction of Tradable Permits for Local Authorities

The Government will introduce landfill permits for BMSW and these permits will be able to be traded. Local authorities will be able to decide whether to buy permits to allow additional BMSW to be landfilled in their area or to invest in alternative waste management activities (e.g. waste paper recycling) and sell surplus permits.

Packaging Waste Regulations

The EC Directive on Packaging and Packaging Waste is implemented in the UK through the Producer Responsibility Obligations (Packaging Waste) Regulations. The Directive required the UK to meet various objectives including the recovery of 50% of all packaging waste with a minimum recycling target of 15% recycling of individual materials, including paper, by 2001. The Directive targets are currently being reviewed and are likely to be increased. The UK Regulations have placed obligations on certain businesses in the packaging chain to ensure the recovery and recycling of packaging waste.

Accredited reprocessors of packaging are able to issue Packaging Waste Recovery Notes (PRNs) as evidence that recovery/recycling of packaging waste has taken place. Revenue from the sale of PRNs can be reinvested in recycling, for example in improving collection schemes.

Government Programmes

The Waste and Resources Action Programme (WRAP) was established in 2001 as part of the UK Government's Waste Strategy 2000. WRAP's particular focus is to create stable and efficient markets for recycled materials and products.

WRAP runs a specific programme on paper waste. This programme sets targets to:

- ▶ Support investment that will create new manufacturing capacity to deliver a 500,000 tonne/year increase in newspaper capacity;
- ▶ Increase the use of recovered paper in the graphics, printing and writing sector by 180,000 tonnes/year; and
- ▶ Benchmark the use of recycled paper in this sector and achieve 100% increase in market share.

Further Contacts

Government Contacts

Department of Trade and Industry
Recycling Policy Section
Sustainable Development Directorate
151 Buckingham Palace Road
London SW1W 9SS
Tel: 020 7215 1036 Fax: 020 7215 5835
Web Site: www.dti.gov.uk/sustainability

Department of the Environment, Food and Rural Affairs
Waste Strategy Division
Ashdown House
123 Victoria Street
London SW1E 6DE
Tel: 020 7944 3000 Fax: 020 7944 6409
Web Site: www.defra.gov.uk

The Environment Agency
Head Office
Rio House
Waterside Drive, Aztec West
Almonsbury
Bristol BS32 4UD
Tel: 01454 624411 Fax: 01454 624409
Web Site: www.environment-agency.gov.uk

The Waste Resources Action Programme (WRAP)
The Old Academy
21 The Horse Fair
Banbury
Oxon OX16 OAH
Tel: 0808 100 20 40 Fax: 01295 819911
Web Site: www.wrap.org.uk

Industry Contacts

The Confederation of European Paper Industries
250 Avenue Louise
Box 80
B-1050 Brussels Belgium
Tel: 00 32 2 627 49 11 Fax: 00 32 2 646 81 37
Web Site: www.cepi.org/www.paperonline.org

Confederation of Paper Industries
3rd Floor
45 Mortimer St
London W1N 7TP
Tel: 020 7255 6800 Fax: 020 7255 6810
Web: www.paper.org.uk /www.ppic.org.uk

Independent Waste Paper Processors Association
19 High Street
Daventry
Northamptonshire NN11 4BG
Tel: 01327 703 223 Fax: 01327 300 612

Industry Council for Packaging and the Environment
(Incpen)
Sussex House
6 The Forbury
Reading RG1 3EJ
Tel: 0118 9253466 Fax: 0118 9523467
Internet: www.incpen.org

Corrugated Packaging Association
2 Saxon Court
Freeschool Street
Northampton NN1 1ST
Tel: 01604 621 002 Fax: 01604 620 636
Internet: www.corrugated.org.uk

Further Reading

Waste Strategy 2000 - England and Wales
(Part I and Part II)
Department of the Environment, Transport and the Regions
(DETR), 2000

2001 Industry Facts
The Paper Federation of Great Britain, 2001

**This Factsheet has been researched and written by
Environmental Resources Management for the
Department of Trade and Industry.**

