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paper industries



# PAPER

# MYTHS AND FACTS

## A BALANCED VIEW

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## Introduction

Innovation has been at the heart of papermaking for nearly two thousand years and it would be hard to imagine what life would be like without paper. Even with the growing use of electronic media, each and every one of us would struggle to get through a day without using paper in one of its many forms.

Paper comes in many formats – newspapers, magazines, tissue, packaging, books, banknotes and printing papers. Paper is made from a natural, renewable and sustainable resource and boasts the highest recycling rate of any material in the UK.

Environmental issues related to paper are a source of numerous misconceptions. This booklet aims to dispel the myths surrounding paper by providing a factual and balanced view of the UK Paper Industry and highlights why paper is *the sustainable, renewable choice*.

## The Myths

- The Paper Industry destroys forests
- We should only use and produce recycled paper
- Paper production damages the environment
- We use too much packaging
- Paper production uses too much energy
- Paper production uses too much water
- Modern Technology will replace paper
- Air dryers are more hygienic and better for the environment than paper towels
- The Paper Industry is 'old-fashioned'

# The Myth: The Paper Industry destroys forests

## THE FACT:

- Europe's forests are increasing in size
- The Paper Industry drives forest growth
- Over 70% of the fibres used to make paper in the UK come from paper collected for recycling

Contrary to public opinion, Europe's forests are increasing in size – by an area equivalent to 1.5 million football pitches every year (an area four times the size of London)<sup>1</sup> – and responsible forest management is helping to drive this growth.

The Paper Industry depends on trees and needs thriving forests. It is very much in the Industry's interest that trees and forests be used sustainably and remain available as a raw material for future generations.

Since the 19th century, woodpulp from trees gradually replaced other sources of fibre used for papermaking, such as straw, grasses and rags. However, since the 1950s, UK papermakers have steadily increased their use of recovered paper so that now over 70% of the fibres used to make paper in the UK come from paper collected for recycling. The rest come mainly

from virgin wood fibre from trees grown in sustainably managed and certified forests. This makes good economic and environmental sense in the densely populated but underforested UK. Only 12% of UK land is forested compared to 37% for Europe and 31% worldwide<sup>2</sup>.

Of the timber extracted in the UK, less than 5% is used in paper and pulp production<sup>2</sup> (around 11% worldwide<sup>1</sup>). This timber is lower grade conifer logs and forest thinnings (immature trees extracted from the forest to enable those remaining to grow to healthy maturity). Higher grade timber is generally used by other industries such as construction and furniture making. Sawmill residues, such as wood chips, are also used as raw material for the Paper Industry.

<sup>1</sup> FAO Statistics 2007  
<sup>2</sup> Forestry Statistics 2010



# The Myth: We should only use and produce recycled paper

## THE FACT:

- Paper fibres can't be recycled indefinitely
- In 2011 paper fibre was recycled 3.4 times on average in Europe
- Around 19% of the paper we consume is not recyclable

Whilst the UK Paper Industry's use of recovered fibre is a major success story, cellulose fibre from wood, which is a naturally renewable resource, is a fundamental raw material in papermaking. Of the fibres used to make paper in the UK, over 70% come from paper collected for recycling by households and businesses. The rest come mainly from virgin wood fibre from trees grown in sustainably managed and certified forests.

Paper fibres can only be recycled up to about 7 times as they increasingly degrade in the recycling process, eventually losing their papermaking qualities. The degraded fibres are replaced with new virgin fibres, either from trees or more often from recovered paper that has not previously been recycled. Without virgin fibres from new trees, the paper cycle can neither begin nor continue.

It also has to be remembered that around 19% of the paper we consume is not recyclable<sup>3</sup>. Sometimes we

simply keep it, such as in books, wallpaper, artistic works and photographs. In other cases it deteriorates or disintegrates as in sanitary paper and cigarette paper, and others which quite literally go down the pan! Also some papers end up in products that are unsuitable for recycling.

The recycling of paper has been so successful that it is already the most recycled material in the UK - so much so that we now collect more than we can reprocess. The excess is exported for papermaking to Europe, China and the Far East, so helping to reduce the carbon footprint of papermaking around the world.

The best contribution that we can make to responsible paper consumption is through recycling, by separating used paper and board from other recyclables and putting them in the appropriate recycling containers.

# The Myth: Paper production damages the environment

## THE FACT:

- UK Papermaking has reduced total energy use by 34% per tonne of paper made
- Paper is one of the few sustainable and naturally renewable materials
- Paper products store CO<sub>2</sub>

Paper boasts exceptional environmental credentials: it's natural, biodegradable, recyclable, comes from an infinitely renewable source and is produced in a sustainable manner. Trees capture and store billions of tonnes of carbon, day after day, and paper, as a wood product, continues to store carbon throughout its lifetime. A well managed forest, where trees are felled and re-planted, absorbs more carbon dioxide (CO<sub>2</sub>) than a mature forest. In fact, forests represent the only proven "carbon capture and storage" system available at present. Carbon storage is further prolonged by recycling paper.

The Paper Industry has reduced its environmental impact greatly over the past 20 years. Between 1990 and 2010 the UK Papermaking Industry reduced total energy use by 34% per tonne of paper made.

Thanks to investment in lower carbon energy, annual emissions of fossil carbon have been reduced by 1.6m tonnes or 42%.

The ongoing climate change discussion frequently refers to the "carbon footprint" of products as a means of expressing the emission of climate-relevant gases by a process or through the manufacture of a product. The manufacture of a sheet of paper has a carbon footprint, as does using the internet, or making a journey by car or plane.

If it were not for the Pulp and Paper Industry operating world-wide for the last 150 years, the CO<sub>2</sub> levels in the atmosphere would be 5% higher (about half a degree in Celsius) than they are at present<sup>4</sup>.

<sup>4</sup> Shredding the myths, Paper Manufacturers Association of South Africa, March 2012



# The Myth: We use too much packaging

## THE FACT:

- Efficient packaging reduces damage in transit to below 5%
- Over 80% of all corrugated packaging is collected for recycling
- Corrugated packaging protects around 75% of the UK's packaged goods in transit

Packaging manufacturers are already legally required to ensure that they do not use more packaging than is necessary.

However, it is important to understand the basic functions of packaging in all its forms – plastics, tins, glass and corrugated packaging (cardboard). Its main purpose is to protect goods whilst in transit, storage and distribution. It prevents waste through breakage, spoilage and contamination, and extends product shelf life. A secondary purpose is to provide consumer information about the product and act as a means of brand differentiation. As a result of efficient packaging, product damage in transit remains below 5% in the developed world. In the developing world, wastage rates can be as high as 30%<sup>5</sup>. You may see a number of layers of packaging around a product and think of it as excessive. However, each layer has a function with specific properties to help protect its contents from damage.

Corrugated packaging is one of the largest sectors within the Packaging Industry. In the UK alone, it accounts for

almost 30% of all packaging used and remains the most commonly used packaging material<sup>6</sup>. The corrugated sector is vitally important to manufacturing, protecting around 75% of the UK's packaged goods in transit.

Corrugated packaging has an excellent environmental record. On average, UK manufactured corrugated boxes contain 76% recycled fibre which can be from old corrugated boxes or cartons<sup>7</sup>. Once used, corrugated packaging is easy to recycle. In the UK and Europe, the collection of used corrugated packaging is hugely successful - over 80% is collected for recycling. This superb recycling rate prevents an area of board the size of Greater London from going to landfill every four months.

Due to advances in technology, the Corrugated Packaging Industry has managed to significantly reduce the weight of its products whilst retaining their strength. Improvements in product design now mean that space utilisation in transport has been significantly improved – so reducing the number of lorries on the road.

5 INCPEN

6 The Packaging Federation

7 Ceres Logistics

# The Myth: Paper production uses too much energy

## THE FACT:

- **Over 50% of energy used in EU paper mills is from renewable resources**
- **UK Papermaking has reduced total energy use by 34% per tonne of paper made**
- **Emissions of fossil carbon have reduced by 1.6m tonnes or 42%**

Energy is required for all industrial production. The paper industry is no exception, with energy used to drive machinery and to generate heat to dry the paper once it's made.

Energy costs usually make up around a third of the cost of making paper and so it makes sense both on economic and environmental grounds to reduce its use in paper mills. Over half the energy used to make paper in Europe comes from renewable, low-carbon energy<sup>8</sup>. Between 1990 and 2010 the UK Papermaking Industry reduced total energy use by 34% per tonne of paper made. Thanks to investment in lower carbon energy, annual emissions of fossil carbon have been reduced by 1.6m tonnes or 42%.

These efficiencies come, in part, from common sense measures as taken in all households - like using more energy efficient appliances, turning off lights and being careful not to waste energy. However, to achieve much bigger savings mills have also made large investments to fundamentally change the way they operate.

To achieve even greater energy savings and further

reduce carbon emissions, larger and more complex mills have often taken control over their energy by building their own power plants to allow the heat, normally wasted in electricity generation, to be put to good use. These Combined Heat & Power (CHP) plants are more efficient in their operation, reducing both energy costs and carbon emissions.

An increasing number of mills also make use of waste products to make energy. A number of CHP plants at paper mills are powered by waste wood. Using such a renewable resource reduces the emission of fossil carbon and, as a consequence, paper production can be "zero carbon". In some instances, making paper can even be energy positive with excess electricity and heat exported from the site for use elsewhere. Paper fibres that can't be reused to produce new paper are used by some paper mills as a fuel to generate energy to help make or dry new paper.

The Paper Industry works continuously to optimise its processes and is already the biggest single user and producer of bio-energy in Europe<sup>9</sup>.

<sup>8</sup> CEPI Forest Fact Sheet 2008

<sup>9</sup> CEPI Position Paper: Biomass sustainability criteria should be binding and harmonized!

# The Myth: Paper production uses too much water

## THE FACT:

- The Paper Industry returns over 85% of the water it uses
- The Paper Industry has reduced water usage by 24% per tonne of paper made
- Evaporation by trees accounts for 60% of paper's water footprint

As with many industries, water plays a big part in the paper production process. The majority of the water used in papermaking is 'borrowed' i.e. it is extracted, used, cleaned and returned to the environment or recycled in the papermaking process. It is very important to note that although water is needed for manufacturing paper, less than 15% is actually consumed within the product or lost through evaporation. Over 85% is cleaned and put back into rivers, estuaries or other watercourses – often cleaner than when it was taken out. Between 2001 and 2011 the UK Paper Industry reduced its water usage by 24% per tonne of paper made.

Every paper mill has a unique water profile due to its location and the origins of its water, the destination of its effluent and the origin of its fibrous and non-fibrous raw materials.

Paper mills manage their water use, taking into account opportunities for water recovery and re-use. Targets are set and, with advances in technology, the amount of water needed has reduced.

Today, when looking at the sustainable use of water, we need to understand more about where and how the manufacture of paper impacts the availability of water, right through from raw materials to the final product. Water footprint looks at the amount of water needed throughout the production cycle of paper.

Results to date show that water for growing trees is the main contributor to the total water footprint of paper. In other words, most of the water needed to produce one sheet of A4 is used in the forest as part of the natural water cycle. According to a pilot study, 60% of paper's water footprint is the water that is evaporated by trees as part of the natural water cycle<sup>10</sup>.

<sup>10</sup> From forest to paper, the story of our water footprint – UPM Case Study, August 2011



# The Myth: Modern Technology will replace paper

## THE FACT:

- **80% of social network users couldn't live without paper**
- **All human activities have an environmental footprint**
- **Paper is made from naturally renewable materials**

For 2000 years, paper has been all around us, working for us, delivering to us, and making our lives easier. That is why it is used in every corner of the world every day.

The use of online media is on the increase, but without challenging paper as a medium. Providing different benefits, both media satisfy user needs. Electronic media excels by the speed of dissemination of information, whereas print attracts consumers with its elaborate production and visual appeal, its ease and user-friendly handling.

A recent survey showed that even in a digital world where nine out of ten young people are heavy users of social networks, paper is still important with over 80% saying they couldn't live without it<sup>11</sup>.

In many cases, modern technology and paper do co-exist. For example, cash and debit/credit cards; maps and Sat Navs; books and Kindles. More newspapers and magazines are now available online as well as in print, and many online companies use print for advertising. They also co-exist in the form of quick

response (QR) codes printed in newspapers and magazines, brochures, and on packaging.

Paper is a renewable and recyclable product that, if responsibly produced and consumed, is an environmentally sustainable medium and it continues to be an essential component of modern life as well as playing an important cultural and educational role.

The Confederation of European Paper Industries (CEPI) commissioned an independent study on the interplay between the use of paper and Information and Communication Technologies (ICT) with a special focus on the environmental impact. The report clearly shows that contrary to popular belief, paper is no more damaging to the environment than electronic media. For a true comparison to be made a number of factors need to be taken into account, including the sourcing of (sometimes rare) raw materials and energy used in production and use. The cost and complexity of recycling ICT hardware is another consideration often overlooked.

<sup>11</sup> CEPI Millennial Survey

# The Myth: Air dryers are more hygienic and better for the environment than paper towels

## THE FACT:

- Paper towels should always be used where hygiene is paramount
- Single use paper towels help prevent the spread of bacteria and cross contamination
- Paper towels are made from a sustainable and naturally renewable resource

Hygiene is one of the most important factors in the development of modern society; keeping our hands clean is a major factor in avoiding the spread of germs. Research suggests the most hygienic and effective way to dry hands is by using paper towels.

In 2008, the University of Westminster, London conducted a study to compare the levels of hygiene offered by paper towels, warm air hand dryers and the more modern jet air hand dryers<sup>12</sup>.

The study concluded that: *"The performance of both warm air dryers and jet air dryers was inferior to paper towels in all respects (drying efficiency, bacterial numbers on the hands, bacterial contamination of the air flow and surfaces of the devices, and transmission of bacteria in the washroom) with the one exception that the jet air dryer is equal in drying efficiency"*.

This research is supported by many NHS Trusts, which specify that only paper towels should be used in clinical areas.

Similar research has been carried out more recently by TUV in Germany with broadly similar findings<sup>13</sup>. The study looked in more detail at the real world operation of high speed air dryers and found issues with bacteria spread arising from the actual operation of these machines.

Let's address another related common misconception – the problem of trees being felled to make paper towels. In reality, over 70% of the fibres used to make paper in the UK come from paper collected for recycling. The rest come mainly from virgin wood fibre from trees grown in sustainably managed and certified forests.

Finally, don't forget that air dryers use electricity, the generation of which gives rise to CO<sub>2</sub> emissions at power stations.

<sup>12</sup> European Tissue Symposium (ETS), A comparative study of different hand drying methods: paper towel, warm air dryer, jet air dryer University of Westminster 2008

<sup>13</sup> Report No.3026520 – comparative study on hand drying with paper towels and high speed air flow hand driers, August 2011

# The Myth: The Paper Industry is 'old-fashioned'

## THE FACT:

- Paper is constantly innovating, as are its products and associated production technologies
- There has been £3bn of investment in the industry in recent years
- Modern paper machines contain more electronics than a Boeing 747

From interactive children's books to paper batteries, anti-scan anti-copy technologies, even components of rockets and satellites, paper is constantly innovating.

As an expression of everyday life, paper has to be versatile and ready to respond to changing needs. Be it in new printing methods, intelligent packaging, scratch and sniff sensation books, or radio identification tags – paper delivers. All this is possible because of advanced technology.

The UK Paper Industry is highly efficient, modern, innovative and above all, clean. It is not, as some may believe, a "smoke-stack relic of the nineteenth century". The UK Paper Industry continues to invest heavily, for example: a new modern newsprint machine producing 400,000 tonnes of newsprint a year (the largest capital investment in the industry for over a decade); £300m has been invested in developing a new state of the art containerboard machine making lightweight paper for the UK Corrugated Packaging Industry, and over £100m is being invested by a paper

mill to eliminate fossil fuel carbon emissions. The industry continues to make further investments in plant, machinery and in product innovation.

Thanks to the industry's significant investment in automation for greater efficiency and advanced colour printing techniques, corrugated packaging has been transformed from simple boxes for conveying goods, to attractive shelf ready packaging with eye-catching promotional graphics.

Paper production is totally computerised and automated, with hundreds of the latest generation sensors and scanners handling the control processes for different parameters. A typical modern papermaking machine costs up to £300m and will last for around 30 years. The machine can produce up to 500,000 tonnes of paper per year with speeds reaching 2,000 metres per minute. A modern production line is up to 200 meters long, occupies a space equivalent to two football pitches and has a papermaking machine containing more electronics than a Boeing 747!<sup>14</sup>





For further information about the UK's Paper-based Industries visit [www.paper.org.uk](http://www.paper.org.uk)



## *The voice and face of the UK's Paper-based Industries*

The Confederation of Paper Industries (CPI) aims to unify the UK's Paper-based Industries with a single purpose in promoting paper's intrinsic value as a renewable and sustainable fibre-based material, enhancing its competitiveness through seeking to reduce legislative and regulatory impacts and in spreading best practice.

CPI represents the supply chain for paper, comprising recovered paper merchants, paper and board manufacturers and converters, corrugated packaging producers and makers of soft tissue papers.

CPI is working to promote:

- a positive image for paper
- secure energy supplies at competitive prices
- resource efficiency within a coherent waste strategy
- the benefits of packaging
- a sustainable UK Paper Industry
- manufacturing as a vital part of a balanced economy
- a competitive, level playing field for the UK's Paper-based Industries

*Paper – the sustainable, renewable choice*

