

Paper and the Forest



Trees - A Renewable Raw Material

Papermakers have always made use of the raw material readily available to them to obtain raw materials to make paper. Straw, hemp, cotton, grasses and linen rags all contain cellulose, but from the late 19th century woodpulp from trees largely replaced these other sources.

Since the 1950s, UK papermakers have steadily increased their use of recovered paper so that it now accounts for more than 70% of the raw material used to make paper in the UK. This makes good environmental and economic sense in the densely populated, but underforested, UK.

Recycling is an integral part of papermaking, yet every time cellulose fibres are used they weaken and eventually lose their papermaking qualities. Damaged fibres are replenished in the cycle by the continuous introduction of virgin woodpulp into certain paper grades and the collection and recycling of these papers. In 2019, 1 million tonnes of virgin pulps were used in the UK, of which 0.8 million tonnes were imported. There are now only two domestic integrated paper mills (mills that make paper directly from wood) in the UK and between them they produce and use around 5% of the UK Paper Industry's fibre requirements.

Papermaking is one of a number of manufacturing processes that rely on forests for raw materials and each uses the parts of the tree that meets its requirements; large dimension timber from fully grown trees being used for construction, whereas the papermaker uses small dimension timber, forest thinnings (immature trees extracted from the forest to enable those remaining to grow to healthy maturity), and sawmill waste. A multitude of paper and board grades are made from a variety of woodpulp that all contribute different qualities such as strength, opacity and whiteness to the end product.

Coniferous softwoods such as spruce, pine, fir and cedar provide long (average 3mm), strong fibres. Aspen and other hardwoods produce short (average 1mm) fibres that add bulk.

Fast growing species such as eucalyptus and acacia are grown in Southern Europe and South America. They can have an 8-year rotation and provide high quality fibres that are ideal for papermaking but, because of the short growing cycle, they do not have the strength that some industrial applications require.

The Role of Forests

Historically, forests were planted, maintained and harvested to provide firewood and building materials, as well as tools and timber for industrial processes. In Europe, deforestation occurred at an alarming rate to meet agricultural and industrial demands, and by the 19th century, forests that once covered 80% of the land area had been reduced to less than 25%.

Britain also saw a serious decline in its forested land. This trend has now been arrested but, even though the UK has favourable growing conditions, only 12% of its land is forested, compared with 74% in Finland, 28% in France and 32% in Germany. This is well below the EU average of 37%, and 31% worldwide.

World War II did much to focus minds on the need to find ways to rebuild industries and an economy that had been ravaged by war. As a result, forests were intensively managed primarily for timber production. It had been acknowledged as far back as the 1500s that if trees were used without being replaced, forest resources would diminish.

The post-war conception of sustainability was one of constant and continuous timber supply, and it was thought that as long as more trees were planted than were used, forests would last forever.

Since the 1970s, society's values and perceptions have changed dramatically with widespread concern about exploitation of the Earth's diminishing natural resources, in particular the destruction of tropical and other forests.

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At the first World Summit in Rio in 1992 it was agreed that if sustainability was to be achieved, social and environmental values had to be given the same level of consideration as economic criteria.

Subsequent meetings established criteria for sustainable forest management as well as addressing socio-economic issues. At the second World Summit in Johannesburg in 2002, the dilemma of combining economic development with environmental protection was explored, and the concept of corporate responsibility and accountability for environmental and social impacts was incorporated into the conference text and the role forests play in balancing carbon dioxide levels was acknowledged in the Kyoto Protocol.



Recognising the complexity of proper carbon accounting in forests, the 2011 Durban Climate Change Summit took forward the concept of accounting rules for greenhouse gas emissions from land use, land-use change and forestry (LULUCF) – these rules could potentially provide a link to climate change targets and recognise the value of forests in storing carbon.

Because of these, and many other initiatives, forest management objectives have broadened beyond the narrow focus of timber production. Now when a new forest is planned, or harvested trees replaced, a detailed management plan is developed covering many variables, including climate, soil, vegetation, tree type, harvesting and road and path access.

The maintenance of biological diversity is a complicated process and the same level of biodiversity cannot be maintained on every hectare of forest. Priorities will vary and will be dictated by location, forest type and age patterns, government policy, social, economic and environmental requirements, as well as ownership structures.

There are many different types of forest, and they each make a valuable contribution to economies, the environment and to society.

The challenge is to strike a balance between economic, social and environmental requirements. Some forests will be protected for their unique eco-systems, whereas multi-purpose forests will accommodate a number of activities such as commercial logging, recreational pursuits and the provision of wildlife habitats.

Single species plantations are often grown on land that would be unable to sustain any other type of crop. They are managed to provide raw material for industry and often feature fast-growing species such as eucalyptus, acacia or

conifer species such as spruce.

Putting Words into Action

Unfortunately, despite the undoubted improvements and increased awareness, illegal logging and deforestation is still a major problem in some countries. While little (and hopefully none) of the pulp used in

the European paper industry is likely to come from illegal logging, the industry fully supports initiatives to address the problem.

In response to the call for action made at the 2002 World Summit the

EU and the UK have adopted the Forest Law Enforcement Governance and Trade (FLEGT) Action Plan which has introduced a licensing scheme to ensure that only legally logged timber enters the EU or the UK. It involves the development of Voluntary Partnership Agreements (VPAs) with timber producing countries – mostly developing nations in tropical areas.

To date VPA's have been concluded with Ghana, Republic of the Congo, Cameroon, Central African Republic, Indonesia and Liberia. Negotiations continue with the Democratic Republic of the Congo, Gabon, Guyana, Honduras, Malaysia and Vietnam; around twelve more countries are in pre-negotiation talks. None of these countries are major suppliers to the UK Paper Industry.

From March 2013, EU Timber Regulation applies to paper products sold in the UK. The legislation is designed to ensure all timber (and timber products such as pulp & paper) manufactured or imported into the EU or UK are legally harvested.

The new system works by requiring that those placing or handling regulated materials on the market exercise due diligence to ensure illegally harvested materials are not used or sold.

In the USA, the Lacey Act (which originally established to combat wildlife crime) fulfils a broadly similar role by banning trade in illegally sourced plants and their products including timber and wood products.

We Need More Trees

Forests act as the earth's lungs, by absorbing carbon dioxide and emitting oxygen. The critical role they have in helping to control the climate and counteract global warming is now more widely understood and recognised.

But demand for timber continues to grow and ironically measures, such as the EU Biofuels Directive and the Renewables Directive - intended to combat global warming - have been blamed for forest destruction, rising food prices and the loss of homes for indigenous people as land is cleared for conversion to energy crops.

These policies also impact on the availability and cost of woodpulp. The EU has acknowledged these unintended impacts and there has been a rethink of the biofuels programme. The sustainability challenge therefore continues.

Independent Assurance

The papermaking chain is complex and even though the UK is a relatively small user of woodpulp it still imports material from 24 different countries.

Recognising the growing consumer interest in forests, the Paper Industry is increasingly making use of forest certification as a way of providing assurance of sound forest management practices. Forest certification involves an independent third party audit against a forest management standard (please see CPI's fact sheet on Forestry Sustainability, Timber Regulation and Industry Certification Schemes).

To obtain a certification logo a product will have to have Chain of Custody certification which means it will have been traced back to the forest of origin. This concept has been embraced by the Paper Industry, and forest owners.

