Paper and the Environment

Authors:
Michael Spencer,
Spencer Consulting Group
Matthew Lamont,
Fuji Xerox Australia
Amanda Keogh,
Fuji Xerox Australia

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1.0 Executive Summary

The purpose of this white paper is to introduce Fuji Xerox Australia employees, customers and other stakeholders to the issues surrounding paper and its environmental impacts. This paper reviews environmental issues in the pulp and paper industry, seeks to understand why stakeholders raise these issues and how the industry is responding. It provides balanced and objective insight into paper’s environmental impacts so that informed procurement decisions can be more easily made.

Paper use is a tangible form of consumption and waste in the office environment more so than other less visible activities, which can sometimes have a larger footprint. Efficiency programs have both cost and environmental benefits, although overall paper use continues to rise in Australia. Environmental groups urge organisations to consider the environmental impact of the products they purchase and many have responded with sustainable paper procurement frameworks. However assessing paper’s environmental credentials can be a complex undertaking.

In this paper we outline some of the better known approaches to assessing paper on environmental criteria including life cycle analysis as well as frameworks provided by environmental non-government organisations. We also outline the main environmental certification programs that apply to paper including Forest Stewardship Council, Program for the Endorsement of Forest Certification, Blue Angel and Nordic Swan.

Paper production has a range of environmental impacts that are not easily understood. Key environmental issues of concern are fibre sourcing, water and energy use and emissions to water, land and air as well as greenhouse gas emissions and recycled content of paper. This paper will look at these issues individually but it is important to remember that it is the sum of all these impacts that should be the basis for any comparison between products rather than any one measure. The paper industry has improved its environmental performance across this range of indicators.

Although that cannot be consistently said of every producer, Fuji Xerox Australia works with only those producers that meet our standards in each of those areas. We are committed to enabling the efficient use of paper and to working only with responsible paper manufacturers and suppliers. To that end, we seek to demonstrate and promote compliance with government recognised global social and environmental standards, and to identify and control the sources of the raw materials used in the manufacture of our paper products. We encourage readers to review our standards for sustainable paper sourcing at www.thepaperfacts.com.au

Figure 1: Paper and Pulp Industry Snapshot (Australian Market)

- Newsprint 737,000 tonnes
- Printing and Writing 1,356,000 tonnes
- Copy Paper (wood free uncoated) 264,000 tonnes
- Tissue 272,000 tonnes
- Packaging and Industrial 1,587,000 tonnes

The Global Paper and Pulp Industry produces 250 million tonnes of paper per year including publication papers, fine papers, packaging papers and boards, hygiene tissue and food services papers. 15.5 million tonnes of this is copy paper (wood free uncoated).

* Sources: AP3 (Australian Plantation Products and Paper Industry Council), APIA (Australasian Paper Industry Association) and ACOR (The Australian Council of Recyclers)
2.0 Fuji Xerox Australia and Paper

The Fuji Xerox Australia vision is to achieve sustainable outcomes for all stakeholders. The company has a long-term commitment to improving sustainability performance—our own, our suppliers’ performance and that of our customers. This requires an organisation with a holistic view of the contribution we can make to improved economic, social and environmental outcomes. In the context of the paper products we offer that means we are committed to responsible paper procurement and enabling our customers to use paper efficiently. The company seeks to demonstrate and promote compliance with government recognised global social and environmental standards, and to identify and control the sources of the raw materials used in the manufacture of our paper products. Paper has been an important communication mechanism for hundreds of years and continues to be a relevant and effective medium in tandem with digital media. As a product that uses natural resources, paper has been placed under intense environmental scrutiny in recent years. Fuji Xerox Australia has developed this white paper to catalogue and review current environmental issues in the paper industry and to understand why stakeholders raise these issues and how the industry is responding. The information provided is intended to be an objective starting point for those new to these issues. We acknowledge that only summary content is provided and that this is a rapidly evolving field with new research findings continuously emerging. Readers who are interested in particular aspects of this report are encouraged to undertake further inquiry. Web links are provided to authoritative resources in the references appendix. We welcome feedback on the document’s contents by email to thepaperfacts@aus.fujixerox.com

3.0 The Rise of Responsible Procurement

Organisations such as the World Economic Forum say that a business’s license to operate in a global market entails a responsibility to be engaged in society and to embrace the concept of corporate citizenship. This is reflected in consumer buying behaviour that favours responsible suppliers. A survey of Fortune 100 companies in the US found that a supplier’s environmental reputation was the most important environmental factor customers considered (after price and performance) when buying wood and paper-based products. A more recent Consumer Trends Report found: “More Australians than ever are making purchasing...choices that reflect their concerns about...the environment and sustainability.” But the report also found that while 90 percent of people were concerned about the environment, only 10 percent modify their purchase behaviour. The main impediments were price; trust in green claims and confusing information about environmental choices. Environmental criteria are often applied to paper procurement decisions. “As more emphasis is placed on the procurement of environmentally preferable products, office paper is a product that is often targeted because of its widespread use”, the NSW Department of Environment and Climate Change said in its publication on paper buying. The Victorian Commissioner for Environmental Sustainability selected paper as a focus for commentary on “sustainable production and consumption” because paper is “a resource with well understood environmental impacts and a wealth of options to reduce these impacts”. He advises: “Once you have tried to reduce your paper consumption, choosing paper with recycled content and less packaging and recycling the paper you use, helps minimise the environmental impacts of your paper consumption.” Environmental groups urge organisations to consider the environmental impact of the products they purchase. In Australia, major environment groups publish a Guide to Environmental Copy Paper where they claim “paper use is one of the greatest drivers behind deforestation worldwide” and strongly recommend recycled fibre. (Deforestation is the conversion of forested land to non-forest uses such as agriculture, tree plantations or urban development). The World Wide Fund for Nature (WWF) developed a focus on paper when they saw an overlap between sources of wood for paper and biodiversity hotspots. They were also concerned that 10 percent of the world’s population consumed more than 50 percent of the world’s paper with the potential for greater environmental impacts if new emerging economies began to consume paper at the same rate. As a result of these concerns organisations like WWF have published resource material for organisations that want to incorporate environmental criteria into buying decisions.
4.0 Responsible Paper Procurement Frameworks

Environmentally sustainable paper and an organisation’s commitment to environmental paper policies is most often defined in terms of the fibre source and forest impact – ‘recycle, reuse and renew’ strategies. But as the US business advisory organisation Metafore pointed out following release of their 2005 study on paper purchasing policies of Fortune 100 companies: “There is a lot more to environmentally preferable paper than simply protecting forests. From an environmental issues perspective, the production of paper (and wood products) relates not just to forestry management, but also climate change, air and water emissions, natural resource depletion, biodiversity, solid waste management and other issues [such as human rights, labour practices and community relations]”

Metafore’s Paper Working Group proposed that environmentally preferable paper be defined in terms of seven ‘desired outcomes’ that represent opportunities for improvement:

1. Efficient use and conservation of raw materials including fibre, clay, chemicals and energy with a view to reducing depletion of non-renewable raw materials and use of sustainable alternatives;
2. Minimisation of waste with appropriate strategies for reuse and recycling with the goal of components being retained within closed-loop or recycling/recovery systems;
3. Conservation forests and other natural systems that provide raw materials to protect natural values, restore degraded ecosystems and ensure sustainable product flows;
4. Clean production so that negative impacts of waste from paper production on water, air, earth and climate are minimized and eventually eliminated;
5. Community and human well-being so that the production of paper, including all elements in the production chain, have positive benefits for individuals, communities and cultures;
6. Credible reporting and verification so that standardised, independently verified information on key attributes of paper is available to purchasers;
7. Economic viability so that continuous improvement in environment performance is supported by concurrent economic incentives.

WWF International also offers a tool kit for evaluation of environmental paper. The WWF Paper Scorecard addresses:

1. Fibre sourcing and promoting use of post-consumer recycled fibre and new fibre from well-managed forests;
2. Fibre sourcing and avoiding the inclusion of unwanted sources of fibre;
3. Manufacturing process requirements such as adoption of ISO 14001 and EMAS standards;
4. Contributions to climate change and global warming through CO₂ emissions;
5. Pollution from absorbable chlorinated compounds (AOX) through promotion of unbleached or totally chlorine-free bleached products;
6. Pollution from oxygen-consuming organic waste to process water;
7. Dumping waste material to landfill.

EPAT Paper Evaluation Tool

EPAT is an evaluation tool that translates technical paper supply chain data into a context that business can use to select environmentally preferable paper products. It does not determine ‘good versus bad’ rather its purpose is ‘knowing versus not-knowing’ so users can select products that meet their individual environmental goals.

EPAT evaluates 19 performance indicators covering seven inter-related desired ‘outcomes’ of environmentally preferable paper. Each outcome is measured by associated performance indicators that include supply chain information such as certification, recovered content, mill performance, climate change etc. (see: www.epat.org)

Critics of EPAT say it should be more prescriptive on issues such as wood from ‘endangered forests’ so as to screen this material out of the supply chain. (see: www.forestethics.org)

Both EPAT® and WWF essentially look at potential environmental (and in the case of EPAT social) impacts of paper from the fibre source to the customer – the environmental and social footprint of paper. The WWF approach is simpler while the EPAT approach is more comprehensive. The World Business Council for Sustainable Development also publish a guide and resource kit for the sustainable procurement of wood and paper-based products covering both environmental and social aspects™.
Another approach that is often used to evaluate the environmental impact of different production processes is a Life Cycle Assessment (LCA). LCA is a tool endorsed by the United Nations Environment Program (UNEP). LCA assesses the environmental profile of a product, a process or a service by taking into account all the stages of its life cycle “from cradle to grave”, from the extraction of raw materials up to its end of life, including all the intermediate stages: production, transport and consumption.

One of the benefits of LCA is that it tracks the transfer of pollution from one life cycle stage to another or from one type of pollution to another. LCA is an analytical framework for evaluating investment in a new technology or process, implementing an energy policy or, a green procurement strategy. LCA can also be used to compare the environmental performance of two products fulfilling the same function. For example, from an environmental point of view, does bioethanol represent a valid alternative to conventional diesel fuel?

The first step in undertaking a lifecycle analysis is to define the boundaries within which the life cycle is assessed. This defines what is being measured and can be crucial to the credibility of a life cycle analysis. For instance, if the boundaries are set too wide, the analysis can become too complex and unwieldy. If the boundaries are too narrow, the analysis could be criticized for excluding important issues and as a result may lack integrity. It is also important to consider whether similar boundaries were set when comparing different products’ LCA results. Otherwise one product could appear to have a lesser footprint when in fact it has excluded areas of impact. For this reason asking whether suppliers have supported, established or adopted an independent standards-based approach to their life cycle analysis and whether they transparently publish its results are important questions.

In the following pages, this document will discuss fibre sourcing, water and energy use and emissions to water, land and air as well as greenhouse gas emissions and recycled content of paper. It will look at these issues individually but it is important to remember that it is the sum of all these impacts that should be the basis for any comparison between products rather than any one measure. Many suppliers will attempt to focus on one attribute or another where they may have an advantage over a competitor. However it is important to consider these claims from the perspective of total environmental performance.
6.0 Environmental Verification and Labelling

Labelling will be discussed in a number of contexts in this document. Labelling is relevant because a number of general environmental labelling programs deal with paper products; because verification programs for wood and recycled fibre also have labelling programs and; because recently product labels have appeared on the Australian market that make claims about greenhouse or carbon impacts of paper. These programs will be considered in the context of a general framework for the validation and verification of social and environmental claims about products. This framework is set out in the figure below.

While each of these approaches has validity, stakeholder endorsed schemes that comply with international norms and include independent third party auditing generally have the highest bar to cross. They require a scheme to have integrity in terms of its methodology and also pass the test of stakeholder endorsement. On the second tier are schemes that meet one of these tests (stakeholder endorsement or conformity with international norms) and regulatory approaches. On a third level, we include programs that are based on voluntary reporting or self-declarations.

Different labelling schemes will be discussed in the context of general environmental-labelling programs, fibre sourcing programs and carbon labelling programs.

Figure 3: Understanding Assessment Schemes
6.1 General environmental labelling programs

A range of general eco-labelling systems apply to paper. The most prominent of these are European systems. These systems generally result from government initiatives to provide consumers with assurance about products that meet defined environmental criteria. They apply to a wide range of products including paper products. Two that are seen on paper products available in Australia are; the Nordic eco-labelling system with its swan logo (sometimes known as the Nordic Swan) and, the German eco-labelling system known as The Blue Angel. These programs generally conform to an ISO Standard or function with the authority of a government agency. Some are weakened by a reliance on self-declarations from companies rather than independent third party auditing while others are strengthened through some form of multi-stakeholder governance.

The Nordic Swan
The Nordic Swan was established by the Nordic Council of Ministers and is administered through the Nordic Eco-labelling Board. The Board is tasked with developing environmental criteria for goods and services and offering guidance to consumers. The Board’s goal is to influence technical developments and encourage the production of goods and services that are more environmentally friendly. The Board says: “we want to guide consumers and purchasers in their desire to shop with a “green” conscience, and thus contribute to a better society”. There are 67 product groups that carry the label. The Nordic Swan addresses a wide range of environmental issues including: energy and climate change; raw materials; chemicals; effluents; waste; packaging and ‘instructions for use’. One group of products covered by the Nordic Swan is copy and printing paper. Requirements for using the Swan label are based on life cycle assessment of the product and cover raw materials, production, use and waste. Papers must use fibre from ‘sustainable forestry’, limit the use of harmful chemicals, produce low emissions to air and water and reduce energy consumption. Assessments by the relevant eco-labelling organisation in each Nordic country are based on documents and declarations lodged by applicant companies and visits prior to registration. This use of self-declarations and second party audits does not have the same rigor as the certification process that applies to the sourcing of wood and fibre.

The Blue Angel
The Blue Angel describes itself as the first and oldest environmental label for products. It was created in 1978 by the German Federal Government and approved by State Environment Ministers. The purpose of the label is to promote both environmental and consumer protection. Rules of the system and decisions on products that can carry the label are made by a ‘Jury’ of 15 people appointed by the Federal Environment Minister and drawn from government, industry, environment groups, consumer protection groups, science, trade unions, media and churches. Technical support is provided by the Federal Environmental Agency. Like the Nordic Swan, the Blue Angel is applied to a wide range of product categories. One of the oldest product categories with which the Blue Angel is associated is recycled paper. The German Federal Environmental Agency believes “it is much more environmentally friendly to produce graphical paper from used paper than using virgin fibres from the raw material of wood”. The Blue Angel is used to promote paper recycling and the use of recycled paper. Office and Administration Papers and Printing and Press Papers (as defined by the German Paper Manufacturing Association) must be made from 100% post-consumer recycled waste paper (with a tolerance of 5 percent) to carry the label while finished products such as exercise books, posters, bags and covering papers must be from 65 percent waste paper (and from specified categories of waste paper). The Blue Angel also has other requirements relating to chemicals used in production and emissions from the final product. As with the Nordic Swan, evaluation is primarily based on documents submitted including declarations and laboratory test results of products.
7.0 Fibre for paper

Fibre is the key ingredient for paper. Pulp and paper making is essentially a process of separating fibre from a source material and then reforming those fibres into paper. Fibre can be sourced from a variety of plants or recycled from products such as cloth or reclaimed paper. Most commonly fibre is sourced from wood that is harvested from tree plantations or natural forests and recycled paper and board. This section will only deal with fibre sourced from wood and recycled paper.

7.1 Wood sources

Wood for papermaking can be sourced from either tree plantations or from natural forests. Both may be either well managed or not well managed. The worst case is wood that has been harvested illegally and unsustainably. Examples of illegally harvested wood or forests that are not well managed tend to gain considerable public attention. Today, many well-managed forests are certified against a credible standard to distinguish their operations from forests that are not well managed. This offers consumers peace of mind about the products they are buying (certification will be discussed later in this section). Fuji Xerox uses certification to manage its supply chain.

Issues that attract public attention about forests relate to the loss of forests (deforestation) and forest degradation and the consequential impact on biodiversity, global warming and the amenity of forests. Some of the issues raised in this context include:

- The United Nations Food and Agriculture Organisation (FAO) estimates that deforestation is continuing at the alarming rate of about 13 million hectares annually on a global basis. In other words, an area of forest roughly twice the size of Tasmania disappears every year.\textsuperscript{xxv} In countries such as Australia, the FAO notes any loss of forest cover is being offset by growth of tree plantations (many for the production of paper).

- Illegal logging is seen as a major cause of deforestation with its associated loss of biodiversity (nearly a quarter of the world’s land mammals are at risk of extinction according to the latest IUCN ‘Red List’\textsuperscript{xvi}). It impoverishes communities by depriving them of income and their forests; it deprives governments of income. It is associated with violence and it perpetuates corruption.

- A report prepared for the American Forest and Paper Association (AF&PA) estimates that illegally harvested wood depresses world prices for wood products, including paper, by between seven and 16 percent depending on the product and the market\textsuperscript{xvii}.

- The AF&PA report says that China, the world’s second largest paper producer imports a large volume of logs and timber from Southeast Asia, Africa and Russia – countries known to have significant problems with illegal logging.

- A 2005 report for the Australian Government found that 9 percent of imported wood products (mainly furniture but including paper), valued at $400 million, could be from illegally harvested wood.\textsuperscript{xviii} Indonesia was “the major source of potential illegal product entering Australia”\textsuperscript{xix}. Internationally, Governments are moving to restrict the flow of illegally harvested wood products in response to pressure from industry and environmentalists. The US Government recently passed the Legal Timber Protection Act, which prohibits the import, sale, or trade in illegally harvested wood and wood products. The British Government is looking at similar legislation.

Generally, problems associated with forests relate to the loss of natural forests. But they can also relate to monoculture tree plantations where these have been established in inappropriate locations or with inadequate management attention to biodiversity, chemical use, local communities and other issues. Environmental groups such as the World Rainforest Movement campaign against plantations because they can involve the conversion of natural forests or grasslands to ‘monocultures’ or ‘green deserts’ of exotic species and because they can impact communities through land-use change\textsuperscript{xxi}.

In Australia plantations are generally seen as a preferable source of wood fibre by most (but not all) environmental groups. Conversion of natural forests to plantations is against the law in most mainland states (not Tasmania or the Northern Territory) where, in recent years, plantations have been established on agricultural land. Land-use change and chemical use have however been a source of conflict between plantation companies and local communities.
7.2 Forestry and carbon

Carbon emissions from forestry activities including deforestation are a major contributor to global warming. The International Panel on Climate Change (IPCC) estimated that 17.4 percent of annual carbon emissions to the atmosphere are the result of forestry activities and 35 percent of greenhouse gases stored in the atmosphere are the result of past deforestation. Forestry activities include commercial activities that are dependent on the production of wood fibre (i.e. production of industrial round wood, wood fuel and charcoal; sawn wood and wood based panels; pulp and paper; and wooden furniture). It also includes activities such as the commercial production and processing of non-wood forest products and the subsistence use of forest products.

There is also debate surrounding the stages of the paper life cycle that are more or less carbon intense. The forestry industry claims the carbon absorption benefits of tree harvesting at appropriate intervals and regrowth, and they also claim carbon sequestration benefits of wood-based products, along with paper. The extent to which pulp and paper manufacturers use forest biomass, or other renewable energies, as a fuel source will also influence the carbon content of different paper products.

![Figure 4: Global Anthropogenic Greenhouse Gas Emissions](image)

![Figure 5: Greenhouse Gas Emissions, Capture and Storage by Forest Products Value Chain](image)

Source: IPCC 2007 (a) Global anthropogenic greenhouse gas emissions from 1970 to 2004 (b) Share of global anthropogenic greenhouse gas emissions in 2004 in CO₂ equivalent (c) Share of different sectors in global anthropogenic greenhouse gas emissions in CO₂ equivalent (forestry includes deforestation)
Logging of old growth forests is a particular concern in terms of carbon emissions. Recently a group of scientists at the Australian National University argued that while new growing trees absorbed carbon, the rate of absorption did not compensate for the loss of stored carbon in old forests.

The carbon stock of forests subject to commercial logging, and of monoculture plantations in particular, will always be significantly less on average (~40 to 60 percent depending on the intensity of land use and forest type) than the carbon stock of natural undisturbed forests. This creates a significant point of difference (in terms of carbon) between logging of ‘old growth’ forests and logging plantations or ‘regrowth’ forests. The Australian Plantation Products and Paper Industry Council (A3P) says that its members have contributed to a net reduction in greenhouse gas emissions as a result of the increase in tree plantations since 1990. It says that over the period there has been a net increase in the standing wood volume of approximately 9 million cubic metres, which is equivalent to approximately 8 million tonnes of CO₂ emissions. Where plantations increase the carbon absorption of a landscape, they lower greenhouse gases in the atmosphere. Where commercial forests or plantations are managed for commercial production with regular harvesting and regrowth, this activity could be regarded as carbon neutral if the absorption of carbon while the trees are growing offsets carbon emissions in the use of the wood and paper.

There is currently considerable scientific research in the forest products industry about the extent to which products made from wood store carbon. There is a strong argument that wood products, or at least a portion of wood products, store carbon for more than 100 years (the period determined for carbon accounting purposes). Research presented to the Australian Forest Growers Conference in 2008 suggested that about a third of sawn wood products may qualify as carbon stores. The situation for paper is still being studied to see what proportion of paper may store carbon and not re-emit it to the atmosphere. There are active research programs examining this issue and findings are expected early 2010.

It is important to note in the context of discussion on both deforestation and carbon that Fuji Xerox Australia’s policies specifically exclude sourcing paper that has been manufactured from ‘old growth’ forests (the main area of concern for deforestation and important carbon stores). The company’s policies prefer fibre from plantations and recycled fibre. To support this policy, Fuji Xerox Australia uses forest certification programs that verify the source of fibre.
7.3 Forest certification

Forest certification means that forest managers have their operations audited against a credible standard. This standard sets out indicators that the auditor will use to verify that the operation is meeting the requirements of a set of principles and criteria. These principles and criteria cover issues such as compliance with legal requirements, protection of biodiversity, protection of high conservation values, prevention of deforestation, community relations and indigenous peoples’ rights.

In the supply chain, organisations that manufacture products such as paper or trade in products and wish to make claims about the certified material in those products need to obtain a Chain of Custody certificate. This verifies that they have systems in place to track the certified content and that an independent auditor can verify claims about the product. A Chain of Custody certificate in this context only relates to the source of forest products.

Fuji Xerox Australia is progressively ensuring that all its suppliers are certified. There are essentially two bodies that certify wood for paper in Australia:

- The Forest Stewardship Council (FSC) is a membership-based organisation that develops standards for responsible forest management through consensus between environmental, economic and social interests in forest management. It oversees a certification system to verify forest management practices, a chain of custody system to track certified fibre through the supply chain and a labelling system that allows customers to choose FSC certified products.
- The Program for Endorsement of Forest Certification (PEFC) endorses national forest management standards such as the Australian Forest Management Standard that comply with international criteria. It was initiated by forest managers and requires that national bodies be established and led by forest owners. It also runs chain of custody and labelling systems.

The PEFC system has certified the largest area of forests to its various national standards, while FSC has a larger chain of custody system and is better known in most markets. It is also the system that is endorsed by major environmental groups. Forest certification has grown strongly over the past 10 years to 320 million hectares or 8.3 percent of the world’s total forest area.

Figure 6: Chain of Custody

Chain of Custody and the paper supply chain

Chain of Custody follows the legal ownership of wood and paper products through the supply chain. That means that any organisation that takes legal ownership of a product and wants to pass-on the right to make a claim about the product [for instance that it is FSC certified] needs to hold a Chain of Custody certificate. Put another way, anyone who buys product from a supplier that does not have a Chain of Custody cannot make a claim about the product or label the product. This applies to every type of organisation in the supply chain; wholesalers, merchants and printers. That is why merchants handling certified paper need to be certified to verify that the certified material can be tracked through their inventory and stock systems. Printers also need to be certified if their customers want them to apply a certification label so they can make a claim about the origin of the product.
7.3 Forest Certification continued

Growth in the market for certified wood is best illustrated through the growth in companies participating in the two major systems through Chain of Custody certification. Over the past 10 years this has grown to more than 12,000 companies worldwide. In Australia, FSC and the Australian Forestry Standard (AFS) offer Chain of Custody certification. Australia is one of the fastest growing markets in the world for FSC Chain of Custody certification.

Figure 7: Forest Area Certified by Major Certification Schemes

Notes: As of May 2008, approximately 2.6 million hectares have been certified by more than one scheme (mostly FSC and PEFC). These are not deducted from any scheme – the graph therefore shows a slightly higher amount of total forest area certified than exists in reality. FSC = Forest Stewardship Council; PEFC = Programme for the Endorsement of Forest Certification schemes; CSA = Canadian Standards Association Sustainable Forest Management Program (endorsed by PEFC in 2005); SFI = Sustainable Forestry Initiative (endorsed by PEFC in 2005); ATFS = American Tree Farm System.

Sources: Individual certification systems, the Canadian Sustainable Forestry Certification Coalition and author’s compilation, 2008, UN Forest Products Report 2008, FAO

Figure 8: Global Chain of Custody Certification

Notes: The numbers denote CoC certificates irrespective of the size of the individual companies or of volume of production or trade. Information valid as of May 2008.

Sources: FSC and PEFC, 2008, UN Forest Products Report 2008, FAO

Forest certification however, is still only 10 years old and demand for certified wood continues to oustrip supply. As a result of this supply/demand situation, prices for certified stocks may be higher or, more commonly, not subject to discounting. However, these price signals are important messages to forest managers that customers are looking for assurance about the management of forests.

Forest certification systems also offer product labels that reflect their certified content. The ability of a supplier to attach a label or logo requires that they hold a valid chain of custody certificate for that particular product (not just the mill). Labels identify products containing 100% certified material, mixed sources including certified and other material, as well as 100% post consumer recycled material. Labels from these certification organisations are generally registered trademarks and can only be used with permission of either an accredited certification body or the organisation itself. When trademarks are used there should be an accompanying approval code to verify the use has been authorised.
7.4 Recycled fibre

Using paper with recycled fibre is seen by many as a way to lower their environmental footprint. The Victorian Commissioner for Environmental Sustainability provides the following advice to government departments and other people interested in sustainable consumption:

Using recycled paper is one way companies can reduce their environmental impacts. Buying recycled paper is a small investment that more and more companies and organisations are choosing to make.\textsuperscript{xxxvi}

The Metafor study\textsuperscript{xxxviii} of the practices of Fortune 100 companies, referred to earlier, found: “The most common action Fortune 100 companies take [in the United States] related to paper is to encourage recycling in everyday operations.” Recycling was higher in a list of considerations than third party verification of forest management. This observation would also apply in Australia.

The Environmental Paper Network, a collaboration of US environmental groups that has been pressuring companies over their paper practices argues:

Replacing virgin tree fibres with recovered fibres reduces demand for wood, which reduces pressure to harvest forests and convert natural forests into tree plantations. Making paper from used paper requires less energy and is generally a cleaner manufacturing process than making paper from trees. And because it diverts usable paper from the waste stream, recycling cuts both solid waste and greenhouse gas emissions created when paper decomposes in landfills.\textsuperscript{xli}

These views are supported by a peer-reviewed study undertaken at the Centre for Design (RMIT University)\textsuperscript{xlii}. The study looked at the net benefit of recycling over the use of new fibre in the production of newsprint as well as paper and board (and a range of other packaging material) in Melbourne. It found net benefits on a range of indicators including greenhouse gas emissions, embodied energy, smog precursors, water usage and solid waste. However, there is concern from people in the industry that some of the benefits of using recycled fibre may be offset in the case of office paper, where recycled alternatives need to be imported resulting in additional carbon emissions from transportation. As will be noted later, Australia has only limited recycling capacity for pulp that can be used for office papers. The New Zealand Ministry for Environment, for instance, recommends sourcing paper from mills where the fibre source (new fibre or recycled) is close to the mill and the mill is close to the market.\textsuperscript{xliii}

7.5 Sourcing recycled fibre

Fibre for recycling is collected at two stages of the paper life cycle: pre-consumer and post-consumer.

- Pre-consumer fibre includes scraps from the papermaking process as well as scraps from paper converters (such as envelope or other product manufacturers) and printers.
- Post-consumer fibre has been collected from homes, offices or other establishments after the product has reached the end of its useful life for its intended purpose.

In Australia, pre and post consumer content is not separated by waste collection agencies. However, the concept was incorporated into an FSC standard in 2004 and since then has started to influence the global industry. Recently the Amcor Fairfield mill in Melbourne was certified for post-consumer content based on an audited assessment of rolling average post-consumer throughput.

Recycling paper is an activity that touches most Australians. In 2006, 99 percent of householders engaged in some form of waste recycling or reuse activity. Between 1992 and 2006, the proportion of Australians recycling paper waste rose from 55 percent to 91.5 percent (almost all through kerbside collections).\textsuperscript{xliii} There is strong interest among Australians in the reuse of products. Between 1996 and 2006 the number of Australians engaged in reusing waste products rose from 37 percent to 87 percent. This participation by householders is reflected in growing paper recoveries over the period.

Figure 10: Australian Recovered Paper

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Figure10.png}
\caption{Australian Recovered Paper}
\end{figure}

Source: Australian Plantation Products and Paper Industry Council (A3P) \textsuperscript{*Figures are for six major paper manufacturing companies: Paperlink (Australian Paper); Amcor Australasia; Kimberly-Clark; Norske Skog Australasia; SCA Hygiene Australasia, and; Visy Industries}

However, while paper recoveries have been growing, utilisation of recovered paper by the major companies fell during the period until the series ends in 2005.
The main reasons for the decrease in the utilisation of reclaimed paper in Australia were: increased use of virgin paper pulp at the Visy Tumut Mill in New South Wales and; toward the end of the period, a substantial increase in demand (and price) for recovered paper from China. Visy became a substantial exporter of reclaimed paper to the Chinese market. Figure 12 shows the strong growth in the export of recovered paper although this has fallen substantially since the Global Financial Crisis began to impact the Chinese economy.

The vast majority of recovered paper utilised in Australian production by the six major paper producers is used for packaging and industrial purposes. Newsprint utilises 10 percent while printing and writing papers use 2 percent of recovered paper.

In Australia, our ability to utilise recycled fibre is limited by the availability of recycling plants. Australian Paper buys recycled content for office papers from various sources including Amcor’s Fairfield plant in Victoria. Amcor has announced that it intends to construct a new recycling plant at Botany (Sydney) that will be co-located with an existing packaging operation on that site. As a consequence, it will close its plant at Fairfield in Victoria within three years. This is expected to reduce the availability of Australian recycled fibre for office papers in Australia.
7.6 Use of recovered paper

The availability of recycling facilities in Australia is reflected in utilisation rates for recovered paper.

The pattern of use for recovered paper in Australia differs somewhat from the United States where the Tissue and Printing and Writing markets utilise a greater share of recovered paper.

Fibre cannot be recycled indefinitely so we cannot only sell paper with recycled fibre indefinitely. According to Metafore statistics for the United States, best practice in the use of recycled fibre for newsprint is 36 percent of fibre used so the balance will be new fibre. Current practice is 23 percent. Even with the maximum utilisation of recycled fibre, Metafore research says that high-grade products such as writing papers have a substantial requirement for new fibre into the supply chain.

Source: Metafore Paper Life Cycle Research
8.0 Water Consumption

With the most populous centres of Australia under almost permanent water restrictions, concern over industrial water use is very high. The relative water stress of the region where paper is made is an important consideration in the environmental performance of a paper mill. Production in an area of water scarcity will mean that water consumption is a major issue compared to production in an area where water is not scarce. Global warming scenarios suggest that areas where water scarcity currently exists will become dryer while areas where there is not water scarcity will become wetter. This will mean there is likely to be increasing attention to the water performance of paper manufacturing (including forestry) in areas of water scarcity. This includes southern Australia and northern China.

Internationally, there is growing interest in concepts such as embodied water (a parallel to the concept of embodied energy used in carbon discussions). A Dutch academic has developed a methodology for estimating the ‘water footprint’ of different products and has estimated the water footprint of one sheet of A4 copy paper as 10 litres or 5,000 litres per ream. This methodology has implications for a much wider range of products as well. For instance, one kilogram of beef is estimated to have a water footprint of 15,500 litres. Growing interest in embodied or virtual water will encourage comparisons between alternative uses for scarce water resources.

Table 1: Average water use by Australian major paper producers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75.7</td>
<td>61.7</td>
<td>54.5</td>
<td>28.7</td>
<td>27.7</td>
<td>26.7</td>
<td>26.7</td>
</tr>
</tbody>
</table>

Source: Australian Plantation Products and Paper Industry Council (A3P) Figures are for six major paper manufacturing companies: Paperlinx (Australian Paper); Amcor Australasia; Kimberly-Clark; Norske Skog Australasia; SCA Hygiene Australasia; and Visy Industries

It is important to note however, that there is considerable variation in the water consumption of different types of paper mills. Water consumption will vary depending on the particular process used and recycling technologies that have been implemented. A 1995 US study created a hierarchy of water users within the pulp and paper industry. The mills were categorised so as to group similar products and processes. The study shows there is considerable variation in water consumption per unit of production.

Table 2: Mill Types showing water consumption per unit of production

<table>
<thead>
<tr>
<th>Mill Type</th>
<th>Mills</th>
<th>Mean</th>
<th>Wt Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleached Market Kraft Pulp</td>
<td>32</td>
<td>22.4</td>
<td>22</td>
</tr>
<tr>
<td>Integrated Bleached</td>
<td>103</td>
<td>23.4</td>
<td>21.6</td>
</tr>
<tr>
<td>Newsprint (mechanical &amp; high yield chemical)</td>
<td>17</td>
<td>19.7</td>
<td>19.7</td>
</tr>
<tr>
<td>Market Sulfite, BCTMP &amp; other</td>
<td>9</td>
<td>18</td>
<td>16.2</td>
</tr>
<tr>
<td>Paper Mill &lt; 100 tpd</td>
<td>135</td>
<td>18</td>
<td>14.1</td>
</tr>
<tr>
<td>Integrated Unbleached</td>
<td>44</td>
<td>11.4</td>
<td>10.5</td>
</tr>
<tr>
<td>Deinked secondary fibres</td>
<td>36</td>
<td>9.7</td>
<td>10.5</td>
</tr>
<tr>
<td>Newsprint (mechanical pulp)</td>
<td>40</td>
<td>10.4</td>
<td>9.9</td>
</tr>
<tr>
<td>Paper Mill &gt; 100 tpd</td>
<td>218</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Corrugating Medium (NSSC)</td>
<td>21</td>
<td>6.4</td>
<td>6.6</td>
</tr>
</tbody>
</table>

9.0 Energy Consumption

In Australia, the pulp and paper sector “is a significant user of energy, particularly in mechanical pulping processes” \(^{xlvii}\). It is a member of the Energy Intensive Industries Alliance that accounts for about a quarter of Australia’s primary energy consumption and a third of electricity consumption \(^{xlix}\). The industry says that 30 percent of Australia’s 23 pulp and paper operations would close at a carbon price of $50 per tonne of CO\(_2\) equivalent and a further 30 percent would be unprofitable and could close \(^{l}\). However, the pulp and paper sector is also a major producer of renewable energy using processing waste from pulping and biomass (mainly wood residues). This energy may be used on-site or exported to the electricity supply system. The sector used more than 50,000 TJ of energy in 2004-05 with 29 percent from renewable sources (including hydro power). Increasingly, companies in the pulp and paper sector are seeing this use of bio-fuel as an asset for reducing carbon emissions and addressing the prospective introduction of carbon pollution taxes \(^{li}\).

In Australia, the main producer of office paper, Australian Paper, has a major commitment to energy reduction for economic reasons as well as for the reduction of greenhouse gas emissions. Production at its four mills uses the same amount of energy as would be required to power 250,000 households \(^{lii}\). But for its largest mill at Maryvale (where it produces office paper) 69 percent of energy is produced from waste materials on-site (for the company as a whole 60 percent of its energy is from renewable sources). The company has reduced its reliance on fossil fuels by about 50 percent over the past 25 years.

Table 3: Sources of Energy for Major Australian Pulp and Paper Companies

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>TJ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Energy Purchased</strong></td>
<td></td>
</tr>
<tr>
<td>Black Coal</td>
<td>5184</td>
</tr>
<tr>
<td>Brown Coal</td>
<td>2086</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>18832</td>
</tr>
<tr>
<td>Fuel Oil</td>
<td>773</td>
</tr>
<tr>
<td>Steam</td>
<td>1510</td>
</tr>
<tr>
<td><strong>Energy Recovered on Site</strong></td>
<td></td>
</tr>
<tr>
<td>Black Liquor</td>
<td>8311</td>
</tr>
<tr>
<td>Biomass (primarily wood)</td>
<td>2864</td>
</tr>
<tr>
<td><strong>Energy Purchased</strong></td>
<td></td>
</tr>
<tr>
<td>Hydro</td>
<td>3396</td>
</tr>
<tr>
<td>Other</td>
<td>7081</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>50038</td>
</tr>
</tbody>
</table>

Source: Australian Plantation Products and Paper Industry Council (A3P) Figures are for six major paper manufacturing companies: Paperlinx (Australian Paper); Amcor Australasia; Kimberly-Clark; Norske Skog Australasia; SCA Hygiene Australasia, and; Visy Industries
10.0 Waste from Paper Production

Emissions to air and water are an issue for the paper industry because of the nature of the production processes. However, advances in technology have seen significant improvements in performance. The Australian pulp and paper industry does not appear in the National Pollutant Inventory’s top 10 sectors for emissions to the environment.

10.1 Emissions to water

During the production process, water picks up waste. Chemical Oxygen Demand (COD) is the amount of Oxygen equivalent required to chemically breakdown organic compounds in a sample of discharge water. The more oxygen required the poorer the water quality. A major objective of wastewater treatment is to reduce the COD. In Australia, COD has only been reported for the six major companies as a group for the four years to 2005. It declined between 2002 and 2004.

Biological Oxygen Demand (BOD) is a measure of the amount of oxygen required by microorganisms to break down the organic compounds in a sample of discharge water. It is similar to COD but does not address the same range of pollutants and the tests can take some time before a report is available. These results have been reported over a longer period of time and show a very significant reduction between 1990 and 2005.

Total Suspended Solids (TSS) measures the amount of solid material in the water discharged. The major Australian companies have reduced TSS by 93 percent since 1990.

Table 4: TSS, BoD and CoD of waste emissions to water by Australian major paper producers

<table>
<thead>
<tr>
<th>Year</th>
<th>TSS (kg/tonne)</th>
<th>BoD (kg/tonne)</th>
<th>CoD (kg/tonne)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>16.5</td>
<td>28.4</td>
<td>13.6</td>
</tr>
<tr>
<td>1995</td>
<td>5.6</td>
<td>13.5</td>
<td>10.4</td>
</tr>
<tr>
<td>1997</td>
<td>4.2</td>
<td>10.5</td>
<td>9.2</td>
</tr>
<tr>
<td>2002</td>
<td>1.3</td>
<td>4.9</td>
<td>13.6</td>
</tr>
<tr>
<td>2003</td>
<td>1.2</td>
<td>4.6</td>
<td>10.4</td>
</tr>
<tr>
<td>2004</td>
<td>1.2</td>
<td>4.3</td>
<td>9.2</td>
</tr>
<tr>
<td>2005</td>
<td>1.05</td>
<td>4.35</td>
<td>9.52</td>
</tr>
</tbody>
</table>

Source: Australian Plantation Products Industry Council
Figures are for six major paper manufacturing companies: Paperlink (Australian Paper), Amcor Australasia; Kimberly-Clark; Norske Skog Australasia; SCA Hygiene Australasia; and, Visy Industries

The National Pollutant Inventory Database (2003-04) recorded 0.00021 kg/year of Dioxin/Furan emissions to water and paper product manufacturing facilities in Australia. The Stockholm Convention on Persistent organic Pollutants requires governments to protect the environment and human health by eliminating their production and use. Pulp mills are nominated as a potential source in the Stockholm Convention.

Three companies reported Absorbable Organic Halide (AOX) emissions to surface water. AOX is an indirect measure of organic pollutants such as dioxin and furans.

In the last two decades the pulp industry has successfully decreased the use of chlorine compounds in bleaching pulp for paper. Most of the industry has converted to Elemental Chlorine Free (ECF) bleaching processes. Some companies have totally eliminated chlorine compounds by converting to Total Chlorine Free (TCF) bleaching which produces no dioxins in the bleaching process.

There are several different ECF processes that produce different levels and types of chlorine compounds: Enhanced ECF substitutes ozone or hydrogen peroxide in the initial stages of the bleaching process; ECF with extended oxygen delignification removes more lignin before bleaching thus reducing energy and chemical use during bleaching, and; traditional ECF replaces chlorine with chlorine dioxide. Environmentalists regard Enhanced ECF with ozone or hydrogen peroxide as superior to the other two and enhanced ECF as superior to traditional ECF.

10.2 Emissions to land

Paper production results in the creation of solid wastes. In 2003-04, Australia’s major paper producers generated 752 kilotonnes of solid waste or 240 kg per tonne of production. More than half (343 kilotonnes) was reused, recycled or reprocessed. About 408 kilotonnes or 131 kg per tonne of production was disposed of to landfill. In 2004-05, the amount of waste to landfill fell to 294 kilotonnes or 96 kg per tonne of production. The Australian Paper Industry points out that the amount of waste to landfill is significantly less than the volume of paper recovered from the waste stream (2.1 million tonnes in 2003-04).

The waste that goes to landfill is responsible for the emission of methane, a greenhouse gas, which is mentioned in the section below dealing with greenhouse gas emissions.

10.3 Pollutant emissions to air

The National Pollutant Inventory lists a number of common pollutants from the pulp and paper milling process. These are primarily from chipping, pulp milling and combustion processes. Primarily the issues relate to emissions of particulate matter but also volatile organic compounds, sulphur oxides and gasses and oxides of nitrogen. The inventory has recorded emissions of Dioxin/Furan to the air from paper and paper product manufacturing facilities. Pollutant emissions to air deteriorate air quality and impact human health.
10.4 Carbon emissions

While forestry has been identified as a major contributor to greenhouse gas emissions, the wood, pulp and paper sector is a relatively small part of manufacturing’s contribution despite the energy intensity of pulp and papermaking. Figure 18 shows that the major sources of greenhouse gas emissions from pulp and paper production (leaving aside any emissions from raw material sources) are energy consumption and methane emitted from solid waste.

Figure 18: Components of Australian Paper Industry Greenhouse Gas Emissions

The following table from the National Greenhouse Accounts shows that total emissions rose between 1990 and 2005 even though emissions per tonne of product declined by 20 percent during that period. This reflects an increase in total production over the period.

Table 5: Direct Greenhouse Gas Emission Estimated by Industry Sector

<table>
<thead>
<tr>
<th>ANZSIC code</th>
<th>Industry Classification</th>
<th>1990</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mt CO2 -e</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Div A</td>
<td>Agriculture, forestry and fishing</td>
<td>226.8</td>
<td>148.3</td>
<td>136.2</td>
</tr>
<tr>
<td>Div B</td>
<td>Mining</td>
<td>32.1</td>
<td>48.1</td>
<td>52.1</td>
</tr>
<tr>
<td>11</td>
<td>Coal Mining</td>
<td>17.1</td>
<td>25.7</td>
<td>27.7</td>
</tr>
<tr>
<td>12</td>
<td>Oil and Gas Extraction</td>
<td>12.5</td>
<td>15.3</td>
<td>15.9</td>
</tr>
<tr>
<td>13-15</td>
<td>Mining Non-energy</td>
<td>2.5</td>
<td>7.0</td>
<td>8.5</td>
</tr>
<tr>
<td>Div C</td>
<td>Manufacturing</td>
<td>65.1</td>
<td>70.0</td>
<td>69.3</td>
</tr>
<tr>
<td>21</td>
<td>Food, beverages, tobacco</td>
<td>4.4</td>
<td>4.7</td>
<td>4.7</td>
</tr>
<tr>
<td>22</td>
<td>Textile, clothing, footwear and leather</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>23-4</td>
<td>Wood, paper and printing</td>
<td>1.7</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>25</td>
<td>Petroleum, coal and chemical</td>
<td>15.6</td>
<td>18.3</td>
<td>18.4</td>
</tr>
<tr>
<td>26</td>
<td>Non-metallic mineral products</td>
<td>9.6</td>
<td>10.9</td>
<td>10.9</td>
</tr>
<tr>
<td>27</td>
<td>Metal products</td>
<td>32.7</td>
<td>32.6</td>
<td>31.8</td>
</tr>
<tr>
<td>28</td>
<td>Machinery and equipment</td>
<td>0.5</td>
<td>0.5</td>
<td>0.4</td>
</tr>
<tr>
<td>29</td>
<td>Other manufacturing</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Div D</td>
<td>Electricity, gas and water</td>
<td>136.3</td>
<td>200.4</td>
<td>204.5</td>
</tr>
<tr>
<td>Div E-H, J-Q</td>
<td>Commercial services and construction</td>
<td>21.7</td>
<td>20.6</td>
<td>20.8</td>
</tr>
<tr>
<td>Div I</td>
<td>Transport and storage</td>
<td>27.2</td>
<td>38.9</td>
<td>38.7</td>
</tr>
<tr>
<td></td>
<td>Residential</td>
<td>43.5</td>
<td>55.7</td>
<td>54.5</td>
</tr>
<tr>
<td></td>
<td>Residential (non transport)</td>
<td>7.8</td>
<td>9.5</td>
<td>9.6</td>
</tr>
<tr>
<td></td>
<td>Residential (transport)</td>
<td>35.7</td>
<td>46.1</td>
<td>44.8</td>
</tr>
</tbody>
</table>


Note: a) These estimates are reported on a Kyoto Protocol reporting basis and are consistent with the methodology applied to the National Greenhouse Gas Inventory 2006 (DCC 2008a).

10.5 Carbon labelling

Growing customer awareness of the impact carbon emissions and climate change have led to the development of the first paper product to claim ‘carbon neutrality’. The claim is made by Australian Paper products and is based on the products meeting the requirements of the Australian Department of Climate Change ‘Greenhouse Friendly™’ program. The program requires that claims of conformity be independently verified by a third party audit, however it does not have inclusive stakeholder governance. It was developed as a government program to engage businesses in greenhouse gas abatement programs and climate change issues generally.

Greenhouse Friendly verifies the carbon performance of products not plants, facilities or companies. A product being considered must have an independently verified life cycle analysis undertaken. This analysis must consider all elements of the product life cycle.

Companies applying to have their products included in the program must set up carbon pollution monitoring mechanisms that will be independently verified. An annual evaluation and report is required on each product included in the program. This must evaluate monitoring and carbon abatement acquired to offset emissions. It must be independently verified. Offsets for carbon emitted in the production of the designated good or service must be offset by an approved carbon abatement project.

Criticism of the program has been based on (a) whether the life cycle analysis fully considers all inputs into the production of a product and, (b) companies that are otherwise major carbon emitters (such...
as aviation) being certified for one or a limited range of products while not making substantial changes to their core operations. It is not possible to evaluate the Life Cycle Analysis undertaken because, while provision is made in the Greenhouse Friendly™ Guidelines for public release of information on approved products; no information has so far been released. The Life Cycle Analysis required is limited. The Guidelines state: “The LCA required for Greenhouse Friendly™ certification only needs to determine the greenhouse gas emissions attributable to your product or service. You do not need to calculate the impact of your product or service on other resources.”

A specific concern about how the program is being used in the paper industry is that there does not appear to be any chain of custody control over claims made down the supply chain from the paper producer. The program was established to certify companies actually producing and marketing products and services to consumers and not downstream intermediaries such as printers and publishers. It is not clear what controls are exercised to verify that claims are only being applied to verified products. Some of these issues may explain why after three years only 19 companies participate in the program.

The scheme is currently under review in light of the new Carbon Pollution Reduction Scheme: “There are changes relating to Greenhouse Friendly™ which may have implications for abatement projects, carbon neutral products and services participating in Greenhouse Friendly™. These changes mean that no new abatement provider Eligibility Statements will be accepted after 27 May 2009. Product and Service provider applications will continue to be received until 1 July 2010. All successful applications will be approved until 1 July 2010.”

A new carbon labelling scheme is currently being introduced to Australia. Planet Ark have partnered with the UK government’s Carbon Trust initiative and adopted their approach to assessing the carbon content of products. The scheme asks participants to label the carbon content of products so that consumers can make an informed choice. Participants must commit to carbon reductions and have achieved some reduction within 2 years, otherwise they cannot continue in the program. The Carbon Trust footprinting methodology (PAS 2050) was developed with robust stakeholder consultation and has been submitted to the International Standards Organisation as a foundation document informing the development of an international standard in assessing the carbon footprint of goods and services. However, the scheme has been criticised for focusing on only one environmental aspect of products that have other impacts and for not differentiating between suppliers that have used their own primary (actual) data versus secondary (estimate) data. While it is useful to access average estimates for components of a carbon analysis where data is lacking, over-use of secondary data negates the value of the labelling scheme for comparative purposes.
Like most products, paper is being challenged by changing circumstances and changing customer expectations. It is getting its supply chain for fibre in order through certification of wood suppliers; it is improving the technology of processing plants to reduce their environmental footprint. It is responding to global warming by reducing emissions and looking for offsets within its supply chain.

At times the demands and expectations of customers can seem difficult – demanding recycled office paper when technical experts say that may not necessarily be the most efficient use of recycled fibre. But in doing so, customers are simply creating the demand that will continue to drive paper recovery and re-use strategies. They expect business to do the same as they are doing; re-use and recycle.

The challenge of global warming will continue to define issues impacting the market for paper. Customers will become increasingly aware the impact their purchasing decisions can have. Wood-based paper is ultimately made from a renewable resource and that is a major advantage. But environment groups will continue to campaign to reduce consumption and minimise impacts.

Fuji Xerox Australia will continue to build its capability to assess the performance of suppliers through paper sourcing policies and in doing so aims to assist customers gain the assurance they are seeking about the products they buy. Fuji Xerox Australia paper strategies serve two purposes: to continue efforts to improve the sustainability performance of the company and to enable our suppliers and customers to improve their sustainability performance. Ultimately this benefits both industry and society and address important stakeholder expectations of responsible organisations.
12.0 References


iv  Ibid


viii  Presentation by Andy Baker, Mobium Group, ISEAL Conference, Melbourne, November 13 2008


x  Sustainable Production and Consumption, Victorian Commissioner for Environmental Sustainability, www.ces.vic.gov.au


xv  The Metafore Paper Working Group is a collaboration of Metafore and 11 leading companies with the goal of making environmentally preferable paper products more widely available and affordable. See more at www.epat.org

xvi  Further information is available from the Metafore website, www.metafore.org, or the Paper Working Group website, www.epat.org

xvii  Sustainable Procurement of Wood and Paper-Based Products, www.sustainableforestrypds.org

xviii  International Chair in Lifecycle Assessment, www.chaireacv.org/en/communique_de_presse_e.html


xxi  Nordic Ecolabelling, www.ecolabel.nu/nordic_eco2/about_the_swans


xxvi  The IUCN Red List of Threatened Species™ provides taxonomic, conservation status and distribution information on plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those plants and animals that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable), www.iucnredlist.org


xxviii  Overview of Illegal logging, report for the Australian Government, Jaacko Poyry, 2005

xxix  Ibid

xxx  World Rainforest Movement, www.wrm.org.uy/


xxxii  UN FAO, www.fao.org/docrep/007/ad493e/ad493e05.htm


xxxiv  Ibid


xxxviii  Know Your Paper: A guide to purchasing recycled content office paper, ibid
xxxix Responsible Wood and Paper Purchasing Experiences of the Fortune 100, May 2005, Metafore, ibid
xli Stage 2 Report for Life Cycle Assessment for Paper and Packaging Waste Management Scenarios in Victoria, Centre for Design, RMIT University, January 2001
xivl Australian Bureau of Statistics, Environmental issues; People’s views and practices, 4206.0 March 2006
l For example, Sodra Cell, a Scandinavian pulp producer, is looking to maximise energy harvesting from its operations and supplement this with other renewable such as wind energy see: www.paper360.org/paper360/article/articleDetail.jsp?id=428061&sk=&date=&pageID=1