

## ■ Paper as a Sustainable Choice

Consumers are subject to a barrage of negative messaging about the sustainability of paper-based communications, with many believing that using paper causes deforestation and is bad for the environment. The truth is that paper comes from an infinitely renewable resource and is a sustainable choice. Paper originates from trees, which are sustainably grown and harvested to make products that are recyclable, made with carbon neutral biofuels, and often contain materials recovered from other manufacturing operations. In addition to incredibly efficient manufacturing methods, the paper industry is further committed to sustainability through the establishment of one of the most extensive, quantifiable set of sustainability goals, put forth by a U.S. manufacturing industry-- *Better Practices, Better Planet 2020*.

- “The results of a 2008 survey commissioned by SCA and conducted by Harris Interactive show the top four characteristics consumers believe make a product green or environmentally friendly are: biodegradable (81%), reusable/recyclable (81%), percent of recycled materials used to make the product (66 %) or organic (60%).” (PR Newswire, 2008)
- In a survey of 5,000 consumers conducted by Two Sides, 96% of US respondents think recyclability is an indicator that a product is environmentally responsible. (Two Sides, 2011)
- A poll by Call2Recycle indicates that “92% of respondents feel recycling is important for the Earth and 86% report feeling good about themselves for recycling.” (IPSOS, 10/12/2012)

### ***Despite public opinion, the paper industry is not the big driver of tropical deforestation.***

- In a multinational survey of 5,000 consumers, 71% of US respondents believe there is a connection between paper manufacturing and loss of tropical forestland. For 18-24 year olds, this figure rises to 85%. (Two Sides, 2011)
- But the truth is the lowest rates of deforestation occur in regions with the highest rates of industrial wood harvest and forest products production, according to researchers at the USDA Forest Service Products Laboratory. (Wallace, 2011)
- Most tropical deforestation “is now driven by the expansion of large cattle ranches, commercial soybean production, oil palm plantations, and in some cases timber cutting.” (Union of Concerned Scientists, 2010)

### ***The paper industry promotes sustainable forestry practices. Paper has the characteristics consumers use to determine if a product is environmentally friendly and responsible.***

- In the Amazon, “cattle ranching is responsible for the majority of deforestation, with the growth of large-scale soybean farming (mostly for livestock feed) running second....In Indonesia and Malaysia, rain forests are being replaced by oil palm plantations that produce a vegetable oil used in thousands of processed foods as well as biodiesel production.” (Union of Concerned Scientists, 2010)
- “The businesses clearing tropical forests today are attracted less by the available timber—in fact, they often burn the wood or leave it to rot, producing carbon emissions—than by the low cost of land that deforestation makes available”. (Union of Concerned Scientists, 2010)

***While many believe the paper industry causes forest loss, the amount of forestland in the US is similar to what it was 100 years ago.***

- 65% of US respondents in a multinational survey mistakenly believe that forests have decreased in size over the last 50 years. 69% are concerned about paper's effects on forests, with 18% believing the paper industry has the largest impact on the perceived reduction of forest area. (Two Sides, 2011)
- The US Forest Service reported that as of 2007, there are over 751 million acres of forestland, roughly the same amount recorded for 1907. (Smith et al., 2011)
- The US grows more trees than it harvests. (Smith et al., 2011)
  - 4 million trees are planted in the US every day. Sustainable Forestry Initiative participants alone plant 1.7 million trees a day in North America. (PAPERbecause, 2007)
- According to the USDA, "Forest-use land increased 20 million acres (3 percent) from 2002 to 2007, continuing a trend that became evident in 2002 and reversing an almost 50-year downward trend. The 14-percent decline in forest-use land between 1949 and 2002 was largely due to forest-use land reclassified to special-use areas." (USDA, 2011)

***The paper industry is committed to sourcing virgin fiber responsibly, from certified forestlands that promote and practice sustainable wood production.***

- The paper industry supports and utilizes multiple certification programs including: Sustainable Forestry Initiative (SFI), Forest Stewardship Council (FSC) program, the American Tree Farm System and the Programme for the Endorsement of Forest Certification (PEFC)-endorsed programs. (AF&PA)
- These certification programs provide seals of approval for wood and wood products, which guarantee that they have been procured and produced responsibly and in adherence to specific environmental principles and criteria.
- "As of 2010, about 323 million ha (8%) of the world's 3.9 billion ha of forests were certified. Of this, the PEFC had enrolled about 63% (225 million ha) in forest management certification through participating programs, including 152 million ha in the United States and Canada. SFI had 22.8 million ha certified in the United States and 55.4 million ha in Canada. FSC had certified about 13.1 million ha in the United States and 35.4 million ha in Canada." (Moore, Cabbage and Eicheldinger, 2012)
- In 2010, AF&PA members increased the amount of fiber they procure from certified forestlands to 24% and the fiber procured through certified fiber sourcing programs to 96%. (AF&PA)
  - All AF&PA members that own forestland are required to conform to a credible sustainable forest management program. 100% of AF&PA members that source wood fiber from forests owned by others participate in credible forest certification systems. (AF&PA)
  - 56% of all US forestland is privately owned. Managed forest lands utilized by the paper industry offer some major environmental advantages:

- they are harvested sustainably and replanted, not clear cut, so there continues to be plentiful oxygen-producing, carbon-sequestering trees on the land

- the income owners of private forestlands receive for their trees “encourages them to maintain, renew and manage this valuable resource sustainably.” If the paper industry was not creating demand for the trees land owners might find other uses for their land – such as selling it to real estate developers or converting it to agricultural use, both of which would involve permanently removing the trees and destroying the forest. (WBCSD, 2007)

- they provide wildlife habitat.

***Additionally, the paper industry opposes illegal logging and is doing its part to reduce it.***

- AF&PA members support and promote efforts to reduce illegal logging in a number of ways, including: working with governments and other stakeholders to promote policies that reduce illegal logging around the world; and through participation in the Forest Legality Alliance, an international, multi-stakeholder initiative working to reduce demand for illegally harvested forest products. (AF&PA)

- Thanks to the efforts of AF&PA, its strategic partners, and stricter laws, imports of illegally harvested wood products to the United States have decreased by 24% since 2007. (Environmental Paper Network, 2011, p. 6)

***The paper industry continues to increase its recovery of paper and use of recycled fiber, reducing the amount of paper that ends up in landfills.***

***The paper industry strives to increase the recovery rate of paper, and has been very successful in this endeavor.***

- In 2010, 62.5% of paper and paperboard entering the municipal waste stream was recovered for recycling, far outpacing the rates of recovery for glass (27.1%), metals (35.1%) and plastics (8.2%). (EPA, 2011, Table 2)

- In 2011, nearly 53 million tons or 66.8 percent of the paper used in the United States was recovered for recycling, up from 33.5 percent in 1990. That’s about 338 pounds for every adult and child in the country.

- As a result, the amount of paper disposed of in landfills fell 9% in 2011, reaching 18.4 million tons, the lowest level in decades.

- Through time, the rate of recovery for paper and paperboard has not only consistently increased but also outpaced other material types. From 2000 to 2010, the rate of recovery of paper and paperboard increased by 19.7% while the increase in recovery rate was 4.5% for glass, 0.3% for metals and 2.1 percent for plastics. (EPA, 2011, calculated from data in Table 2)

***The paper industry is focused on increasing products incorporating recycled fiber.***

- 42% of the material used to manufacture paper comes from recovered fiber and wood residues – wood chips and scraps left behind from forest and sawmill operations, not from the harvesting of new trees. (AF&PA, 4/2012)

- Nearly 80% of US paper mills are designed to use paper collected in recycling programs

(EPA website)

- In 2010, 77% of paper and paperboard mills used some recovered paper to make new products, and 115 mills used only recovered paper. (EPA, 2011)

***The paper industry provides hundreds of paper options for consumers that are certified environmentally friendly.***

- As of 2011, there were more than 770 papers available in North America that are FSC- certified.” (Environmental Paper Network, 2011, p. 6)
- “As of January 2011, the EPN/Canopy Eco-Paper database shows that there are 121 different printing and writing papers available in North America rated “Environmentally Superior” by the Paper Steps, a rating system that designates leading environmental papers across multiple features. This represents approximately twice the number of similar products available in 2007.” (Environmental Paper Network, 2011, p. 6)

***The paper industry is committed to reducing its impact on the environment by improving the energy efficiency of its manufacturing plants, reducing green house gas emissions, and using water responsibly in the manufacturing process.***

***The paper industry is decreasing its reliance on fossil fuel and purchased energy.***

- AF&PA member pulp and paper mills reduced their *purchased energy* use per ton of production by 25.3 percent since 1990, and by 14.5 percent since 2000.
- They decreased their *on-site fossil fuel* use, per ton of product, by 30 percent between 1990 and 2010.

***The paper industry is generating more of its own energy and focusing on carbon-neutral energy.***

- About two-thirds of the energy used for production at AF&PA member pulp and paper mills comes from using carbon-neutral biomass onsite, including spent pulping liquors, bark, wood, wood scraps, wood by-products, and process residuals.
- “Biomass energy is fundamentally different from fossil fuel energy because biomass recycles carbon to the atmosphere, whereas fossil fuels introduce ‘new’ carbon. This is why biomass is called ‘carbon-neutral’”. (WBCSD, 2007)
- An additional small, but significant, amount of energy is produced by other renewable sources such as hydropower.
- In 2010, 97.2 percent of electricity produced by the industry was generated by combined heat and power (CHP) energy – using the exhaust steam from electricity-generating turbines.
- This achieves fuel-use efficiencies of 50 to 80 percent, compared to average fossil- fueled power plant efficiencies of 33 percent in the U.S.

***The paper industry is reducing its GHG emissions.***

- Life cycle studies reveal that most greenhouse gas emissions from the global forest products value chain come from four sources: fossil fuel combustion at production

facilities; fossil fuel combustion by electricity plants that the industry buys energy from; fossil fuel combustion associated with the transport of the industry's raw materials and products; and methane emissions attributable to the anaerobic decomposition of forest products in landfills. (Two Sides, date unknown)

- By focusing on improving energy efficiency, the paper industry is reducing its GHG emissions. Between 2005 and 2010, AF&PA members reduced their GHG emissions by 10.5 percent.

***AF&PA continues to seek ways to reduce water use during manufacturing, increase water reuse and recycling, and spread information about the role of water in the paper industry.***

- Ongoing technology and innovation enable water to be reused and recycled at least ten times throughout the paper mill process.
- After water is used inside the mill, it is treated in a wastewater system and then returned to the environment.
- The forest products industry directly returns to the environment about 88 percent of the surface water it withdraws and uses in its manufacturing processes, with qualities that meet, and usually exceed, that required by law in the US. (Wiegand et al., 2011).
- AF&PA participates in global water sustainability initiatives to help advance understanding of mill water use impacts, including positive economic impacts, a key component of water sustainability. (AF&PA)

***Recent lifecycle assessment studies show that the difference in environmental impact between paper and electronic text is small.***

- A study by Moberg et al. compared emissions for producing and reading a print newspaper, an e-paper accessed on an e-reader and a web-based paper accessed on a pc. The power grid used to power the electronic devices was found to be a major factor in overall emissions. Depending on type of environmental impact assessed, the web-based paper had the larger carbon footprint overall, although differences were small. (Moberg et al., 2007)
- A 2012 study by Gattiker, Lowe and Terpend compared the GHG emissions associated with a semester's use of a print text book of 500 pages and its equivalent electronic version. Among their findings:
  - The magnitude of conventional textbook GHG emissions is largely due to the resources that go into manufacturing and transportation. These emissions can be offset by consumer behavior. Selling a textbook back to the campus bookstore or giving it away leads to reuse. A text could conceivably be bought and sold numerous times – until a new edition of the text comes out. Recycling a textbook can also offset production emissions.
  - Relevant e-text GHG emissions come from reading the e-text online, printing, and disposing of printouts. More emissions are created the longer a person spends online reading; the energy source used to power the text reading device also has a large impact on emissions. The dirtier the energy grid, the bigger the impact.
  - Shortcomings of this study include: 1) it did not take into account the resources that went into producing and distributing the reading device; 2) it did not take into account end of life scenarios for the reading device even though

toxic e-waste disposal/dumping in 3rd world countries has a significant impact on global emissions.

- Taking into account consumer behaviors, the difference in GHG emissions between the two formats was not great - the GHG footprint of an average hard-copy text for a semester is approximately 9.0 pounds CO<sub>2</sub>e (the sum of the manufacturing/distribution node and the disposal node [resell, recycle or landfill]) while the GHG footprint of an average e-text for a semester is approximately 7.8 pounds CO<sub>2</sub>e [the sum of energy to read online, to print out selections of text and disposal of print outs]. (Gattiker, Lowe and Terpend, 2012, p. 602)
- Researchers computed that a student printing out 128 pages from the electronic version of the book (roughly 25% of the book) under typical conditions (using virgin paper, printing on only 1 side of the page) would have had a lower GHG emissions impact by purchasing the print textbook instead. (Gattiker, Lowe and Terpend, 2012, p. 605)

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