



The State of the
Paper Industry

2011

Steps Toward an **Environmental Vision**



Environmental Paper Network



Executive Summary

The Environmental Paper Network (EPN) publishes the *State of the Industry Report* as a resource for policy-makers, non-governmental organizations (NGOs), the paper industry, large volume paper purchasers and other stakeholders to monitor key indicators of environmental sustainability in the North American pulp and paper industry. This 2011 installment highlights some of the key trends in these indicators over the past decade.

Even in the digital age, the paper industry's global social and environmental footprint is enormous. Rising global consumption and the race to provide cheap paper has resulted in sustained market pressure to push deeper into previously unindustrialized forest landscapes, and to convert high-diversity, carbon-rich natural forests to fast-growing, biologically barren tree plantations. The industry is a driving influence on land use decisions and has profound implications for labor, pollution and climate change.

Paper products are integrated into nearly every aspect of our daily lives. And paper is indisputably important to society. Manufacturing paper will be a major industry for the foreseeable future. However, providing the benefits of paper to people in a way that does not diminish the earth's natural resources or result in inequities and conflict remains one of society's most critical and pressing challenges.

The Environmental Paper Network formed to coordinate the efforts of conservation organizations working to increase corporate social responsibility in paper production and consumption. Members of the Environmental Paper Network work in diverse ways but share a strong connection and a clear, common purpose. They provide solutions and advocate for change to encourage market shifts to more environmentally responsible production and consumption of paper products. EPN is now a network of over 100 organizations working collaboratively to advocate for a cleaner, less destructive paper industry.

In 2007, the Environmental Paper Network published its first *State of the Industry Report: Monitoring the Indicators of Environmental Performance*. The 2007 report continues to serve as a comprehensive reference document containing detailed information about many aspects of the environmental performance of the paper industry. The report can be accessed online at www.environmentalpaper.org. This 2011 Update: *Steps Toward an Environmental Vision* identifies representative trends over the last decade and monitors the progress of the transformation of the industry in North America.

These reports measure progress within the framework of *A Common Vision for the Transformation of the Pulp and Paper Industry*, a call to action first issued at the Environmental Paper

Network's formation in 2002. To achieve this transformation, the *Common Vision* defines four key goals: minimize paper consumption, maximize recycled content, source virgin fiber responsibly, and employ cleaner production practices. These goals provide a broad framework for monitoring performance metrics to track the industry. Several notable statistics relating to these goals are summarized below:

Minimizing Paper Consumption

The first pillar of the *Common Vision* advocates for the responsible use of paper products and the elimination of excessive and wasteful consumption to reduce the many environmental and social impacts associated with paper production and disposal.

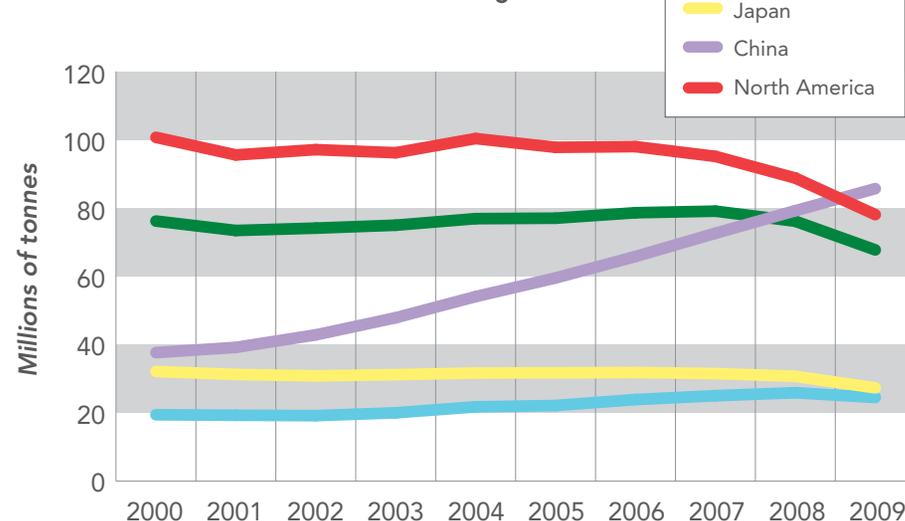
Consumption of paper and paperboard products has experienced significant decline in North America since 2007. This is attributable primarily to the aftermath of the financial crisis in the United States at the end of the decade. The poor economy motivated many companies to perform a close analysis of their paper use and inspired the adoption of innovative and more efficient systems. These new systems will remain in place into the economic recovery and likely have a lasting impact on printing and writing paper consumption. In addition, the shift in the patterns of consumption of news and other media from print to digital formats is also apparently having an irreversible effect in some paper sectors such as newsprint.

Total global consumption of paper is still rising, reaching 371 million tonnes in 2009. However, total paper consumption in North America has declined 24% between 2006 and 2009. Per capita consumption of paper in North America dropped from more than 652 lbs/year in 2005 to 504 lbs/year in 2009.¹

North Americans still, however, consume almost 30 times more paper per capita than the average person in Africa and 6 times

Indicator 1

Total Paper and Paperboard Consumption North America vs. Other Selected Regions



Source: RISI World Pulp Annual Historical Data 2010

more than the average person in Asia. In 2009, total paper consumption in China eclipsed total North American consumption for the first time.¹

Maximizing Recycled Paper Content

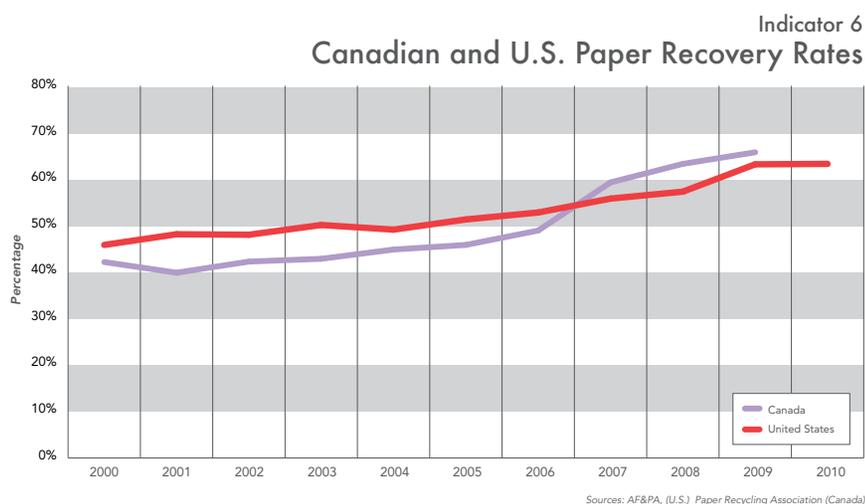
According to industry figures, recovery of paper for recycling continues to grow in North America, diverting it from the high environmental cost of its disposal in landfills. The United States paper recovery rate rose from 46% in 2000 to a record high 63.4% in 2009.² In Canada the reported paper recovery rate in 2009 was 66%.³

Paper is the most commonly recycled product, and yet is still one of the largest single components of landfills in the United States, comprising over 16% of landfill deposits equaling 26 million tons annually.⁴ This is down from 42 million tons in 2005 which represented 25% of the waste stream after recycling that year.⁵

The percentage of total pulp produced in the United States from recycled paper fiber has stayed nearly flat over the decade, at about 36-37% of total pulp production. According to independent research for this report, the operating rates and mill capacity to turn recovered paper into deinked pulp for printing and writing grade papers were stressed by the economic downturn. However, these mills report they have recovered more quickly than virgin mills from the economic crisis; in 2010 they were operating at more than 90% of their capacity and producing about 1.7 million tons of deinked recycled pulp available for printing and writing paper (roughly equivalent to capacity and production in 2006). It is estimated that 35% of that output, or about 370,000 tons, goes to tissue and other sources.⁶

Exports of recovered fiber from the United States to Asia have grown rapidly representing a nearly three-fold increase since 2002. These exports are primarily destined for China. In 2009, approximately 36% of fiber recovered in the United States was exported to Asia.⁷

If current trends hold, paper consumption will continue to decline in North America, demand for recycled paper will grow, and global competition for recovered fiber will intensify. If paper recovery rates do not increase, these dynamics will result in a stress on the supply of recovered fiber available in North America.



Sourcing Virgin Fiber Responsibly

In the past decade there has been rapid growth in the area of land certified worldwide by the Forest Stewardship Council (FSC), the only credible forestry certification scheme identified in the Environmental Paper Network's *Common Vision*. The number of acres certified by FSC in North America has grown by 66 million acres (26.7 million hectares) between January 2007 and January 2011. This represents a doubling of forests managed to the FSC standard and a total 131 million acres (53 million hectares) certified in North America. Globally, FSC has certified almost 328 million acres (132.7 million hectares) as of January 1, 2011.⁸

Leading Environmental Paper Network members cite over 645 environmental paper procurement policies from large purchasers, including 24 Fortune 500 companies that are among the forces driving strong market demand in North America for responsibly sourced virgin fiber and recycled content in printing and writing paper.

Since 2007, millions of acres of Endangered Forests in paper industry sourcing areas have received new legal protections by the Canadian government. And several new collaboration agreements between the forest and paper industry and environmental NGOs have laid the foundation for unprecedented conservation achievements, such as the Canadian Boreal Forest Agreement. The Canadian Boreal Forest Agreement, announced by conservation groups and Forest Products Association of Canada (FPAC) companies in May 2010, places a moratorium on all logging across more than 70 million acres (~28.3 million hectares) of rich Boreal Forest, as key parties begin long-term conservation planning for over 175 million acres (~70.8 million hectares) in the Boreal. But this agreement still must be implemented effectively for this progress to be secured.

As of January 2011, the EPN/Canopy Eco-Paper database shows that there are currently 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.⁹ This represents approximately twice the number of similar products available in 2007. There are also more than 770 papers available in North America that are FSC-certified.¹⁰

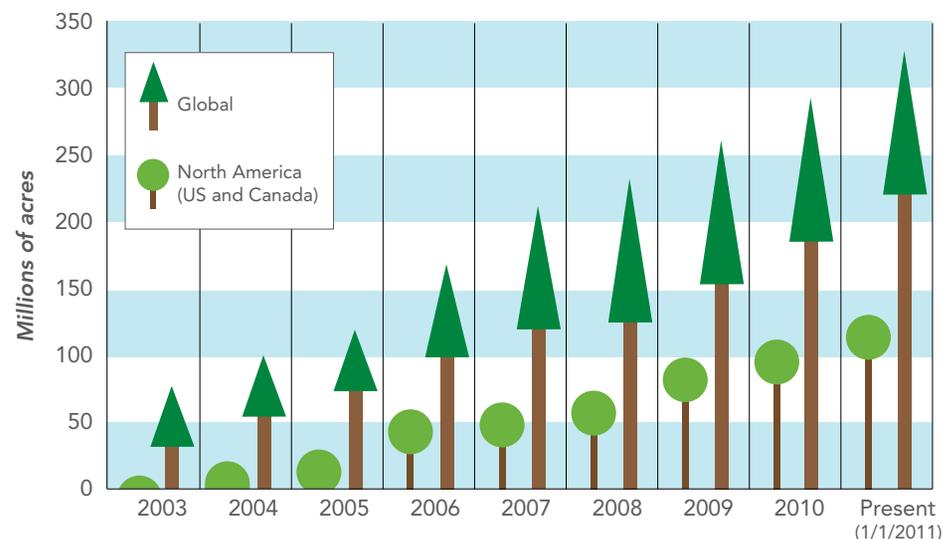
Since 2007, imports of illegally harvested wood products to the United States, including paper, are estimated by Chatham House to have decreased by 24%.¹¹ This reversal of a trend towards increasing imports or illegally harvested wood products is in part due to the United States Lacey Act which was amended in 2008 and prohibits the importation of illegally harvested forest products. While the trend is encouraging, the challenge globally to curtail illegal logging and its devastating consequences for forests, communities and wildlife remains enormous.

Cleaner Production of Paper

According to industry data, fossil fuel greenhouse gas emissions for the manufacture of pulp and paper in the United States and Canada decreased approximately 33% from 2000 to 2008.¹² The paper industry attributes this apparent reduction to a rising proportion of energy from wood fuel and black liquor. Black liquor is a sludge of chemicals and lignin that is a byproduct of the pulping process. Emissions from these sources are currently excluded from measurements of greenhouse gases. However, this practice is extremely controversial and is currently being reviewed by the U.S. Environmental Protection Agency and others.

The American Forest & Paper Association (AF&PA) reports that from 2002 to 2008 wood fuel and black liquor rose from 56% to 63% of the total energy consumed for manufacturing pulp and paper.^{12, 13} The industry claims that all biomass fuel sources are 100%

Indicator 12 Total Area under FSC Certification



Source: Forest Stewardship Council - U.S.

“renewable” and “carbon-neutral.” However, a growing volume of recent scientific studies demonstrates that this assumption is incorrect, and is in fact a dangerous oversimplification. Ignoring the serious air pollution impacts from the combustion of these fuels hinders comprehensive progress towards sustainability.

An important environmental indicator for gauging progress in energy efficiency in the industry is “Total Energy Use Per Ton of Product.” According to aggregated data reported by AF&PA member companies, there was no improvement on this measure over the last decade. In 2008, producing a ton of paper required on average approximately 24.5 Million BTUs per Ton.¹⁴ Not all pulp and paper mills are equal, however. Manufacturing recycled paper uses significantly less total energy per ton. Virgin fiber mills which use enhanced bleaching technologies that are totally chlorine free (TCF) or that substitute ozone or hydrogen peroxide for chlorine or chlorine dioxide as a brightening agent in the initial stages of the bleaching process (EECF), use comparatively less energy as well.

There has been essentially no improvement in average paper industry water pollution between 2000 and 2008. *Indicator 21* shows that for three critical indicators of water pollution – total suspended solids (TSS), biochemical oxygen demand (BOD) and wastewater discharge per ton of product produced – the discharge levels were virtually unchanged in this time period.¹²

Air emissions in the form of sulfur dioxide and nitrogen dioxide have been reduced significantly since the mid 1970's. During the scope of this report's monitoring, AF&PA member companies report that since 2000, average sulfur dioxide emissions per ton of product have continued to decline but at a much slower pace. Average emissions of nitrogen dioxide per ton of product have also been reduced slightly over this period.¹²

Despite some significant challenges, there are **encouraging signs of transformation and opportunities for further progress in the paper industry in the immediate future, including:**

- Many more environmentally responsible printing and writing papers are available than there were even a few years ago;
- A significant and growing number of large end users are committed to responsible paper procurement;
- Marketplace driven campaign efforts have led to government action to secure legal protections for millions of acres in Canada's Great Bear Rainforest, Inland Temperate Rainforest and Canada's Northern Boreal Forest;
- Several major, unprecedented agreements have recently been reached between NGOs and the paper industry for working together on increased protection for forests in North America;
- Rapid growth in the market demand for Forest Stewardship Council certified products continues and millions of additional acres have been certified under this standard;



- There is increasing innovation and investment in agricultural residue papers; and,
- There is strong demand for recycled content paper and continuing growth in waste paper recovery.

However, further progress is essential, including:

- Reducing paper consumption in North America by ending wasteful practices and inefficiency;
- Increasing the utilization of recycled fiber in printing and writing papers, where the greatest demand on the environment occurs;
- Halting the conversion and loss of natural forests to monoculture plantations;
- Preventing illegal and controversial fiber from controversial sources outside North America from entering the supply chain;
- Accurately measuring and reducing the greenhouse gas emissions from using forests for bio-energy;
- Accurately measuring and reducing the greenhouse gas emissions from loss of above ground and soil based carbon stocks entailed in harvesting natural forests and converting natural forests to plantations;
- Eliminating all discharges of dioxin from the paper industry to the environment;

- Optimizing the paper recycling system for growth in domestic manufacturing of recycled pulp; including resolving the challenges created by single stream collection programs that drive up the cost of recovered paper fiber and increase contamination;
- Increasing capital investment in energy efficiency and recycled paper production; and,
- Resisting the spread of genetically engineered trees into commercial production.

This report focuses primarily on the forests and the paper product marketplace in the United States and Canada, referred to in the report collectively as “North America.” However, industrial-scale paper production in the 21st century is multinational, and the supply chain is interconnected around the globe. Areas such as Indonesia, South America, southern Africa, and the Russian Far East are experiencing unique social and environmental challenges from paper industry fiber sourcing expansion, and fiber sourcing in these areas is often having negative impacts on biodiversity, ecological integrity, community rights and livelihoods and is directly influencing the stability of the earth’s climate. In China, production and consumption are expanding, leading to sourcing of controversial fiber from controversial sources from the aforementioned regions.

References

1. RISI. Annual Historical Data - World Pulp. 2010.
2. American Forest & Paper Association. 2010. <http://www.paperrecycles.org>
3. Paper Recycling Association. Overview of the Recycling Industry. Retrieved December 2010. http://www.pppc.org/en/2_0/2_4.html
4. Environmental Protection Agency. Municipal Solid Waste in the United States - Facts and Figures 2009. <http://www.epa.gov/osw/nonhaz/municipal/pubs/msw2009rpt.pdf>
5. U.S. Environmental Protection Agency. Municipal solid waste in the United States: 2005 facts and figures. 2005. <http://www.epa.gov/msw/msw99.htm>
6. Conservatree. Deinking Capacity Study, 2001, 2006, 2010.
7. RISI. Annual Historical Data - World Recovered Paper. 2010.
8. Forest Stewardship Council - United States. 2010.
9. Canopy. 2010. <http://www.canopyplanet.org/EPD/index.php>
10. Forest Stewardship Council – Canada. Accessed January 23, 2011. <http://www.fscus.org/images/documents/FSC%20certified%20papers.pdf>
11. Chatham House, Illegal Logging and Related Trade: Indicators of the Global Response. July 2010. <http://www.chathamhouse.org.uk/publications/x/view/-/id/911/>
12. American Forest & Paper Association. 2010 AF&PA Sustainability Report. <http://www.afandpa.org/WorkArea/linkit.aspx?LinkIdIdentifier=id&ItemID=1402>
13. American Forest & Paper Association. 2002 Statistics, Estimated Fuel and Energy Used, year 2000r, page 55 via http://www1.eere.energy.gov/industry/forest/pdfs/doe_bandwidth.pdf
14. American Forest & Paper Association. Presentation. Washington, D.C. December 8, 2010.

Thank you for reading the *2011 State of the Industry Report* from the Environmental Paper Network. Thank you to the individuals, organizations, and companies that have provided the leadership necessary to achieve this progress. And thank you to those that are ready to work together to continue this transformation through the next decade.

Learn more at www.environmentalpaper.org