Two Sides Facts

The Myth: Making paper is bad for the environment.

The Fact: Paper is one of the few truly sustainable products.

Paper is made from a natural resource that is renewable, recyclable and compostable. These features, combined with the U.S. paper industry's advocacy of responsible forestry practices and certification, use of renewable, carbon-neutral biofuels and advances in efficient papermaking technology, make paper one of the most sustainable products on earth.

All cited facts are quoted directly from the source unless otherwise noted. Where indicated, Two Sides U.S. has summarized lengthy information, but links to original sources are provided in the footnotes. Information in brackets was added by Two Sides U.S. for clarification purposes.

What are the benefits of using paper?

- Paper has been an integral part of our cultural development and is essential for modern life. Paper helps to increase levels of literacy and democracy worldwide and plays an important role in protecting goods and foodstuffs during transit. Paper is made from renewable resources, and responsibly produced and used paper has many advantages over other, nonrenewable alternative materials.[1]

- (*Two Sides Summary)* Paper is recyclable and in the United States, paper is recycled more than any other commodity in the municipal solid waste stream, including plastics, glass and metals. The benefits of paper recycling include: extending the supply of wood fiber; reducing greenhouse gas emissions that can contribute to climate change by avoiding methane emissions (which are released when paper decomposes in landfills or is incinerated); contributing to carbon sequestration ; reducing the amount of energy needed to produce some paper products; and savings considerable landfill space.[2]

What is forest certification and why is it important?

- Forest certification is widely seen as the most important initiative of the last decade to promote better forest management. It is a mechanism for forest monitoring, tracing and labeling timber, wood and pulp

[1] WWF, Guide to Buying Paper, 2010.
[2] U.S. EPA, 2011.

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products and non-timber forest products [like paper], where the quality of management from environmental, social, and economic perspectives is judged against a series of agreed standards. The key to forest certification is the development of a system that combines auditing forest practices with tracing forest products. [3]

- Forest management certification is evolving rapidly in the United States. Forest management certification arose as a non-regulatory alternative for fostering the improved stewardship of working forestlands. While there are many regulations governing forest management—particularly in the United States—certification provides a private incentive to encourage landowner commitment to sustainable forest management. It also offers a stamp of approval for forest management practices that meet standards considered to be environmentally appropriate, socially beneficial, and economically viable. [4]

- Globally, only about 10% of the world's forests are certified— the majority of which are in North America. By sourcing certified products, from a variety of credible standards, buyers are sending a message that they support sound forestry and buy responsibly.[5]

- *(Two Sides Summary)* There are now four major forestry certification programs in the United States: the Sustainable Forestry Initiative® (SFI®), the Forest Stewardship Council™ (FSC®) the American Tree Farm System® (ATFS) and the Program for the Endorsement of Forest Certification (PEFC™) .

Sustainable Forestry Initiative® (SFI®)

SFI Inc. is a fully independent, non-profit organization that works with landowners, conservation organizations, resource professionals, local communities and many other groups and individuals to encourage responsible forest management. The SFI board of directors represents environmental, social and economic interests equally, and SFI addresses local needs through a unique network of SFI State Implementation Committees. The SFI forest management certification standard was developed for North America and includes 14 core principles that promote sustainable forest management, including measures to protect water quality, biodiversity, wildlife habitat, species at risk and forests with exceptional conservation value. The standard also includes 20 objectives, 38 performance measures and 115 indicators that were developed by professional foresters, conservationists, scientists and others. There

[3] WWF, 2010.
[4] U.S. EPA, 2008.
[5] SFI Fact Sheet, 2007.

is also an SFI chain of custody standard, and SFI offers on-product labels for products that meet specific chain of custody criteria.[6]

Forest Stewardship Council™ (FSC®)

The Forest Stewardship Council is a global, fully independent, non-profit organization established to promote environmentally appropriate, socially acceptable and economically viable management of the world's forests. FSC U.S. was established in 1995 as the FSC national chapter in the United States. FSC-US has a national presence through the work of its board of directors, members, staff and regional standards coordinators. FSC developed a set of principles and criteria for forest management that is applicable to all FSC-certified forests throughout the world. These principles and criteria address legal issues, indigenous rights, labor rights, multiple benefits and environmental impacts related to forest management. There is also an FSC chain of custody standard, and FSC offers on-product labels for products that meet specific chain of custody criteria.[7]

American Tree Farm System® (ATFS)

The American Tree Farm System works to sustain forests, watershed and healthy wildlife habitats through the power of private stewardship by offering affordable forest certification for family forest landowners in the United States. The ATFS forest management standard requires that certified family forests meet eight standards of sustainability and are managed for multiple purposes: water, wildlife, wood and recreation. ATFS offers three opportunities for certification: through State Tree Farm Committee programs, through independently managed group certification programs and through individual third-party certification. As a program recognized by the Programme for the Endorsement of Forest Certification, lands certified by ATFS are a principle source of fiber for the SFI and PEFC chain of custody programs.[8]

[6] SFI, 2011.
[7] FSC-US, 2011.
[8] American Tree Farm System.

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Programme for the Endorsement of Forest Certification (PEFC™)

The Programme for the Endorsement of Forest Certification (PEFC™) is an independent, non-profit, non-governmental organization. The world's largest forest certification system, PEFC is an umbrella organization that endorses national forest certification systems that are developed through multi-stakeholder processes and tailored to local priorities and conditions. Currently, PEFC has about 30 independent national forest certification systems as members, all of which have completed a rigorous third-party assessment against PEFC sustainability benchmarks to assure consistency with international requirements. In the United States, the SFI and ATFS certification systems are recognized by PEFC. There is also a PEFC chain of custody standard, and PEFC offers on-product labels for products that meet specific chain of custody criteria.[9]

- "The Sustainable Forestry Initiative, Forest Stewardship Council and American Tree Farm System all do an excellent job of making sure products from our forests continue to benefit the environment and our communities. The value of having more than one certification program is that they push each other to improve – and this improves forest management on the ground."[10]

- Over the years, many of the issues that previously divided the [certification] systems have become much less distinct. The largest certification systems now generally have the same structural programmatic requirements.[11]

- Healthy forests absorb more carbon than unhealthy forests. Sustainable forest management practices (including fire and disease prevention, better growing conditions, healthier trees and more efficient stand rotation) produce trees that help further reduce greenhouse gas emissions.[12]

[9] Program for the Endorsement of Forest Certification.
[10] Statement by Michael Goergen, Executive Vice President, SAF, 2010.
[11] UNECE FAO, 2009-2010.
[12] GreenBlue, Paper Life Cycle website, The Forests and Climate.

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What effect does paper manufacturing have on greenhouse gas emissions and climate change?

- Because forest products [including paper] can require little or no fossil fuels for production and store carbon throughout their useful life, they can have inherent climate change advantages over all other materials with which they compete, provided they are produced in a sustainable manner.[13]

- The biomass emissions from papermaking are part of the natural carbon balance and do not add to atmospheric concentrations of carbon dioxide, unlike emissions from fossil fuel. The forests that provide that biomass support key climate change mitigation technologies and practices currently commercially available including, afforestation; reforestation; forest management; reduced deforestation; harvested wood product management; use of forestry products for bioenergy to replace fossil fuel use; tree species improvement to increase biomass productivity and carbon sequestration; improved remote sensing technologies for analysis of vegetation/soil carbon sequestration potential and mapping land-use change [14]

- The forest products industry is a leader in the production of renewable energy, with more than 65% of the on-site energy needed to produce paper products derived from carbon-neutral biomass. . Since 1990, U.S. pulp and paper mill purchased energy [from fossil fuels] use per ton of production has been reduced by 25.3% and 14.5% since 2000.[15]

- The forest products industry is the largest producer of renewable biomass energy in the United States, generating 77% of the nation's industrial biomass energy. Additionally, the renewable energy generated by the forest products industry exceeds all of the nation's solar, wind and geothermal energy generation combined.[16]

- Virtually all U.S. pulp and paper mills that generate electricity on-site do so using combined heat and power technology, sometimes called cogeneration,[17] [which recycles exhaust steam for use as manufacturing process heat or space heating]. CHP systems are highly efficient (up to 75% efficiency compared to 45% for traditional fossil-fuel powered systems) and have lower emissions than separate heat and power generation.[18]

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[13] WRI, Trees in the Greenhouse.
[14] IPCC, 4th Assessment Report, 2007.
[15] American Forest and Paper Association (AF&PA), *2012 Sustainability Report*
[16] ibid, AF&PA
[17] ibid, AF&PA
[18] U.S. EPA, 2008.

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- GHG emissions intensity [for the U.S. forest products industry] in 2010 was 10.5% lower than in baseline year 2005. The 2005 baseline is 0.83 tons carbon dioxide (CO_2) equivalents per ton of production.[19]

- In the long term, a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual sustained yield of timber, fiber or energy from the forest, will generate the largest sustained [climate change] mitigation benefit.[20]

- At a global level, the greenhouse gas emissions from the forest products industry value chain are largely offset by sequestration in forests and forest products.[21]

- While carbon is stored in forest products like paper, it remains out of the atmosphere. Forest products store more than 3 billion tons of carbon globally.[22] The net sequestration of carbon stored in forest products is estimated to be the equivalent of 540 million tons of carbon dioxide per year.[23]

- The print and paper industry accounts for only 1.1% of global carbon dioxide emissions.[24]

- The carbon removed from the forest by the paper and forest products industry represents only about 0.5% of the carbon that is recycled between the forest and the atmosphere annually, and less than 0.03% of the carbon stored in the world's forests. (see adjacent figure)[25]

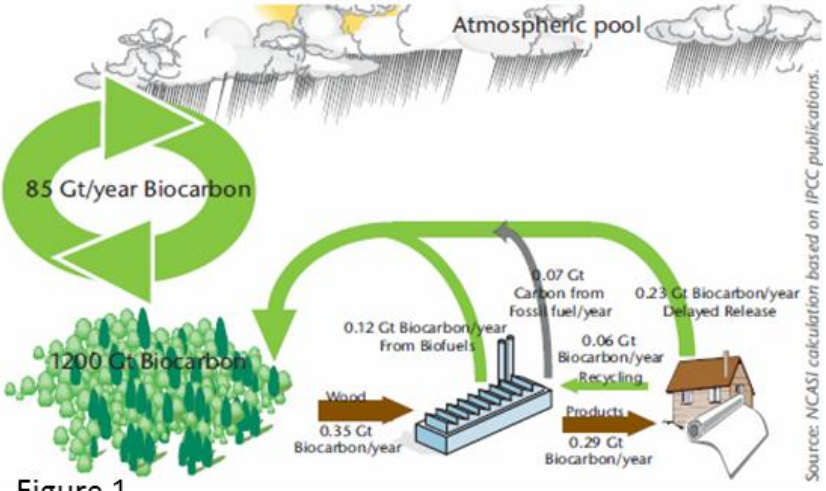

Figure 1

[19] ibid, AF&PA
[20] ibid, IPCC
[21] NCASI, 2007.
[22] UNFCCC, 2003.
[23] ibid, NCASI.
[24] WRI, 2005.
[25] ibid, WBCSD and NCASI.

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Are U.S. pulp and paper mill improving their environmental performance?

- *(Two Sides Summary)* At U.S. pulp and paper mills sulfur dioxide (SO_2) releases decreased 22.3% and nitrogen oxides (NO_x) decreased 8.8% between 2008 and 2010. While total reduced sulfur (TRS) releases have been reduced 50% since 2000, these emissions increased 8.7%—from 0.23 pounds per ton of pulp produced to 0.25 pounds per ton—between 2008 and 2010.

  Pulp and paper mill effluent discharge volumes (per ton of product produced) have decreased 15% since 2000 and 7.8% between 2008 and 2010. Total suspended solids (TSS) decreased 80% since 1975 and 10% since 2000, but increased 2.8% between 2008 and 2010. Biological oxygen demand (BOD) effluent release rates decreased 88% since 1975, 11% since 2000 and 1.9% between 2008 and 2010.

  Aggressive reduction in pulp and paper mill releases (air, water and waste) of the core chemicals reported under the U.S. EPA Toxic Release Inventory (TRI) continued through 2010. TRI releases were reduced 38% compared with 1999 releases, 25% since 2005 and 17% since 2007.

  According to U.S. EPA's TRI reports, the releases of chlorine, chlorine dioxide, and chloroform from all U.S. pulp and paper mills have been substantially reduced. Since 2000, chlorine releases have decreased 82%, chlorine dioxide 44%, and chloroform 94%. Between 2008 and 2010, chlorine releases decreased 5.6%, chlorine dioxide increased 7.3%, and chloroform decreased 19.7%.[26]

[26] Ibid, AF&PA

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