Paper

to Protect the Planet

Understanding how recycled content in printing & writing paper – and all grades – reduces energy, water, chemical use, pollution and solid waste, while reducing damaging pressure on forests.

Presented by

Environmental Paper Network

Which is better for the planet: Recycled paper or virgin fiber paper?

That's easy: Using recycled paper is better for the environment than virgin paper, for all paper grades. To protect the planet, ask for packaging, newsprint, tissue products and printing & writing paper (including office and copy paper, magazines, stationery and printing paper) with recycled content.

And which kind of recycled paper provides the most environmental benefits?

Printing & writing paper!

Without recycled content, it uses the most resources and creates the most pollution. But with maximized recycled content, it goes the farthest towards protecting the earth.

Virgin Fiber vs. Recycled Copy Paper[1]

	1 ton virgin fiber paper	1 ton 100% recycled paper	Environmental Savings from Recycled Content
Trees	26 trees	0 trees	100%
Energy	32 million BTUs	22 million BTUs	31%
Wastewater	22,219 gallons	10,372 gallons	53%
Solid waste	1,922 pounds	1,171 pounds	39%

Then what's the controversy?

Some publishers, paper mills and consumers claim that we should only make recycled packaging, cardboard, newsprint and tissue products – and not recycled printing & writing papers. They argue:

"There's a shortage of paper recovered in recycling programs that manufacturers need to make new sheets of recycled paper..."

"If there's a shortage of recovered paper, then manufacturers should only make certain types of recycled paper..."

"It is best to use recycled content for products that require the least chemical and energy use, particularly cardboard and packaging."

So what's the truth?

Current research[2] proves that there are still millions of tons of paper and packaging that are not collected nor recycled every year (nearly 30 million U.S. tons in 2010,[3] with almost 16 million of those ending up in U.S. municipal solid waste landfills or incinerators[4]).

Through improved sorting and collection, manufacturers can have enough recovered paper to include recycled content in all grades of paper.

It is particularly important to use recycled content in the products that use the most chemicals and energy because recycled content, especially in printing & writing papers, saves energy, water and resources, and also reduces greenhouse gases, chemical use, solid waste, pollution and toxics.[5]

Choosing Better Paper

Compare Apples to Apples

Most Important: Compare virgin fiber paper with recycled paper for the same grade of paper. Comparing products made in the same production methods makes the environmental differences explicit. Dissimilar products are usually made with different paper production processes. For example, copy paper is made very differently from cardboard and corrugated boxes, and magazine paper is made very differently from tissue products, all with different environmental implications.

When comparing office papers or printing papers, you'll find that recycled paper is better for the environment than virgin fiber paper. This is because, from start to finish, making printing & writing papers from wood fiber requires more processing than any other grades of paper and therefore creates the greatest environmental damage (e.g., higher energy and water use)[6]. Making new paper instead from recovered paper significantly avoids much of the potential environmental damage, plus it returns resources to the production process instead of wasting them.

Reduce Waste, Maximize Fiber Efficiency

Separating the fibers to make the pulp for papermaking takes far more resources when derived directly from trees than when recycled from recovered paper. In other words, making recycled pulp derives paper fibers more efficiently, with less waste and requiring fewer resources, than making virgin pulp,[7] even though the subsequent papermaking is the same.

Type of Pulp	Amount of Material Required to Produce 1 ton of Pulp	Fiber Efficiency
Virgin Fiber Printing & Writing Paper Pulp (Virgin Chemical/ Kraft Pulp)	4.4 tons of trees*	23%
Recycled Printing and Writing Paper Pulp (Recycled Chemical/Kraft Pulp)	1.4 tons of 100% recovered paper	71%

Know What's in Your Paper?

is made from tree fiber that either comes from natural forests or from tree plantations. In Canada, 90% of the timber harvest comes from old-growth and primary forests.[7] Many books, as well as office and school paper products, are printed overseas in regions without environmental and forest harvesting standards enforcement. Be sure that any virgin forest fiber in your paper is certified by the Forest Stewardship Council to be certain that it's not contributing to the destruction of forests worldwide.

is made from the paper collected from residential, office, and commercial recycling programs. Recycling old paper into new paper minimizes solid waste, reduces the need to log trees, and recycles resources into new products instead of wasting them.

Choose Paper

That Protects Our Climate, Resources, Water and Land

Energy

Producing recycled pulp reduces overall energy use by 31%, on average, compared to mills making virgin fiber chemical pulp.[10] Paper recycling greatly reduces greenhouse gas emissions. Reducing energy use also reduces global warming pollution.

Q: But aren't virgin paper mills using less fossil fuels?

A: Some virgin paper mills state they are using less fossil fuel, even though they are using roughly the same amount of energy as comparable mills. How is this possible?

Chemical pulping of trees extracts the useable fiber and results in a leftover byproduct of water, chemicals and tree lignin called black liquor. Black liquor and tree bark are burned in boilers to generate energy in place of some fossil fuels. Burning black liquor means consuming trees for energy which releases global warming and other pollution.[18]

Chemicals

Recycled pulp requires fewer and safer processing and bleaching chemicals than those required to make virgin wood pulp.[11] Deinking recovered fiber at recycled fine paper mills is primarily a cleaning and mechanical process using soaps, surfactants and high pressure screens.[12] In contrast, wood pulp mills must use toxic chemicals to break down wood fibers and then bring the brown fiber color up to white.[13]

Q: But doesn't recycled paper need strong bleach to get it white?

A: Actually, because recovered paper has already been bleached at least once, the deinking cleaning process requires far less bleaching than making virgin paper, which must turn brown wood into white paper.[19] It's important to cut down on chlorine based whitening methods because bleaching with chlorinated chemistries can release dioxins that cause cancer.[20]

All North American virgin printing & writing mils use chlorine chemistries for bleaching, but most similar recycling mills do not.

Water

Virgin pulp and paper mills are the largest industrial users and polluters of water per ton of product in the US.[14] The Paper Calculator shows that recycled pulp can cut wastewater discharges by more than half.

Q: Why should I worry about wastewater?

A: With some geographic areas already experiencing water shortages and water issues expected to become increasingly problematic in the future, recycling can play a critical role in reducing a mill's demand for water.

Depending on where they are located, paper mills' heavy reliance on process water may contribute to water scarcity in those regions.

In addition, the withdrawal and return of large amounts of water (often at different temperatures) from rivers and streams can have significant ecological impacts.[21]

Solid Waste

Buying recycled paper maintains and strengthens the recycling system and keeps wastepaper out of landfills and incinerators. When paper decomposes in landfills, it produces methane, a climate change gas with 25 times the heat-trapping power of carbon dioxide.[15] The heavy metals in printing inks can also pollute the groundwater, whether the paper is directly landfilled or becomes incinerator ash.[16]

Q: But recycling programs report ever greater diversion from landfills.[17] Hasn't this solved the problem?

A: Recycling is the most environmentally responsible way to deal with discarded paper. Most importantly, it repurposes the resources in the paper rather than trashing them, reusing the strongest fibers to make new paper. However, "diverting" paper from landfills is not, in and of itself, "recycling," which only happens when the materials actually reach a manufacturer and can be used to make new products.[22] Far too much of today's recovered paper is too poorly sorted to be used to make recycled printing & writing paper.

More attention to sorting quality would support an expansion of true recycling.

Buy Recycled Paper

Paper purchasers will continue to play an important role in protecting the environment and climate by creating the demand for recycled paper. Doing so drives market forces to collect more paper and sends a signal to manufacturers and investors that recycled paper is in demand and economically viable.

- Find the type of paper that works for you by visiting the Eco Paper Database (canopyplanet.org/EPD) or Conservatree's Environmental Paper Listings (www.conservatree.org).
- Printing on eco-friendly recycled paper helps you stand out in the marketplace to the growing number of green consumers. For example, Better Paper Project promotions (betterpaper.ning.com/page/promotions-1) highlight magazines that use recycled paper at major bookstores and other retailers.
- Buying recycled paper supports green jobs. Every 1,000 tons of collected paper that is processed and remanufactured creates 7 jobs.[23]

Other ways to shrink the environmental footprint of your paper include:

- Following the EPN's "Common Vision"[25] to lower your environmental footprint by choosing the best environmental paper available.
- Making sure your paper's virgin forest fibers are certified by the Forest Stewardship Council.
- Ensuring your paper is whitened without chlorine chemistries.
- Using agricultural residues if possible.
- Recycling your paper — especially the paper you use in your office.

Recycle Your Paper

- Right now, Americans do a good job of recycling corrugated cardboard and newsprint, but we only collect about half the copy and office paper available — the rest is sent to landfills or incinerated. More and better office and commercial recycling collection programs could provide as much as 9 million more tons of high quality recovered fiber for making recycled printing & writing papers in North America every year.[24]
- Even the collection programs currently in place could provide much greater amounts of usable fiber if they focused on better sorting and coordination. Once office paper is combined with newsprint, boxes, packaging and magazines into "mixed paper" bales, it cannot be used by mills making printing and office papers. Sorted out, though, it's exactly the fiber source they need. We can expand our supply of recovered fiber just by improving current recycling programs to keep high grade paper free from contamination.
- Despite some concerns about recovered paper exports, the majority of recovered paper in North America remains onshore. Through better sorting and collection, greater supplies of uncontaminated recovered paper will be available to domestic recycled mills.

The Bottom Line

No matter how you measure it, including recycled content in printing & writing paper — and all other grades — reduces energy, water, chemical use, pollution, greenhouse gases and solid waste, as well as demand for trees.

For More Information:

For an extended discussion of the issues summarized in this fact sheet, refer to the accompanying document: "Paperwork: Comparing Recycled to Virgin Paper" which can be found at EnvironmentalPaper.org.

Learn more at these websites:

What's in Your Paper?
presented by environmental paper network
www.whatsinyourpaper.org

canopy
Transforming Business for our Planet
www.canopyplanet.org

CONSERVATREE
www.conservatree.org

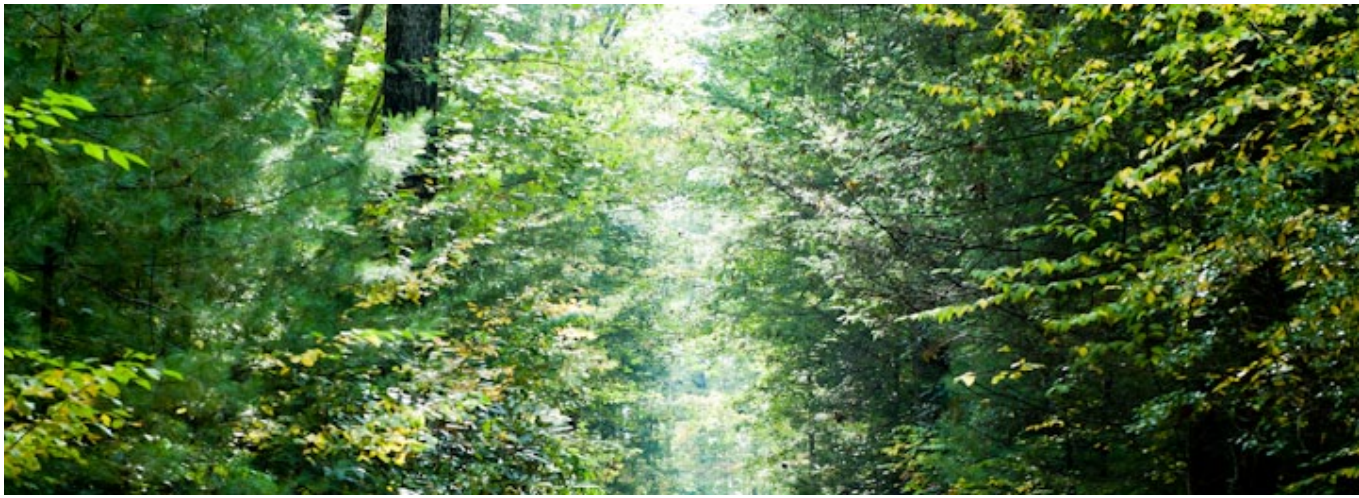
Environmental Paper Network
www.environmentalpaper.org

FORESTETHICS
www.forestethics.org

better paper
forests.climate.community.
project of Green America
www.betterpaper.org

NATIONAL WILDLIFE FEDERATION
www.nwf.org

NRDC
www.ndrc.org



Sources:

1 Environmental Paper Network's Paper Calculator: www.papercalculator.org
2 Including U.S. EPA, paperrecycles.org, Statistics Canada, Paper Task Force Report
3 http://paperrecycles.org/stat_pages/recovery_rate.html
4 Environmental Protection Agency: http://www.epa.gov/osw/nonhaz/municipal/msw99.htm
5 EPN Paper Calculator: www.papercalculator.org, with additional information at AF&PA
http://www.growthevote.org/afpa/Recycling.pdf
6 Paper Task Force Report: calculator.environmentalpaper.org/documents/813_PTFcomplete.pdf
7 Conservatree and Environmental Defense Deinking Pulp Mill Capacity Study 2001: http://www.conservatree.org/paper/PaperTypes/DeinkCapacity.shtml
8 Global Forest Watch: http://www.globalforestwatch.org/english/canada/forests.htm
9 Dogwood Alliance Sustaining Our Defense http://pressroomda.greenmediatoolshed.org/sites/default/files/SustainingOurDefense.pdf
10 Environmental Paper Network's Paper Calculator: www.papercalculator.org.
11 Reach for Unbleached Foundation: http://www.rfu.org/cacw/basic.html
12 TAPPI: http://www.tappi.org/paperu/all_about_paper/earth_answers/recycle5.htm
13 Infrastructure Health and Safety Association: http://www.csao.org/UploadFiles/Safety_Manual/Locations/Paper_Mills.pdf
14 2011 State of the Paper Industry: http://www.environmentalpaper.org/state-of-the-paper-industry-2011.php
15 Intergovernmental Panel on Climate Change: http://www.ipcc.ch/
16 Choose the Right Ink: http://www.conservatree.org/learn/Essential%20Issues/EIBuyers.shtml
17 www.paperrecycles.org
18 Science Magazine: http://www.sciencemag.org/content/326/5952/527.summary
19 Reach for Unbleached Foundation: http://www.rfu.org/cacw/basic.html
20 National Research Council of the National Academies: http://www.ejnet.org/dioxin/nas2006.pdf
21 Reach for Unbleached Foundation: http://www.rfu.org/cacw/basic.html
22 Single Stream Best Practices Manual: http://www.conservatree.org/learn/SolidWaste/bestpractices.shtml
23 More Jobs Less Pollution: http://www.bluegreenalliance.org/admin/publications/files/MoreJobsLessPollutionFinal-1.pdf
24 http://paperrecycles.org/stat_pages/recovery_printing.html
25 http://www.environmentalpaper.org/vision.php