

Print and Paper The Facts

Wood-based paper and non-wood based paper

Paper manufacturing is based largely on the use of renewable natural fibres. Until the mid to late 1800s, non-wood plant fibres, in the form of linen and cotton rags and hemp ropes, were the main raw materials for the pulp and paper industry. Increasing demand and developments in low cost wood pulping resulted in a large expansion of the wood-based pulp and paper industry during the early to mid-1900s. Today, wood is the dominant fibre resource for the pulp and paper industry accounting for 90% of the world's fibre utilization.¹

In Europe, the sustainable management of forests depends on a robust demand created by the forest products industry, including pulp and paper. However, in countries where wood resources are scarce, such as China and India, non-wood fibres, such as agricultural by-products and others, have been effectively used in paper-making.

Is tree-free paper really better for the environment? Are current environmental claims about tree-free paper accurate and substantiated? To answer these questions, we reviewed literature on the topic from experts in the field.

Here are some key questions to consider when requesting paper made from non-wood fibres:²

- Do the environmental advantages persist when the production expands to the necessary scale, or does it result in more negative environmental impacts (i.e., consider water use, chemical inputs, energy requirements, climate effects, etc.)?
- Does it remove incentives to keep the landscape forested?
- What is the risk that forest land will be converted to agriculture?
- What effects, both positive and negative, would this have on local communities and indigenous peoples?
- Is independent, third-party certification available to ensure environmental, social and economic baselines are being met?

Based on our review, paper made from either wood fibres or non-wood fibres can be sustainable. The overall environmental footprint of paper always depends on many factors in the product life cycle, such as responsible land and forest management, and environmental performance of pulp and paper mills. Although making paper from wood fibre has become an efficient and economical process, modern non-wood pulp and paper mills can offer a good raw material choice in certain conditions. One thing is certain—according to scientific research and global statistics on forests—the use of “tree-free” paper does not protect forests for the long-term.

While saving trees and protecting forests is a widely shared goal, avoiding the use of wood is not necessarily the way to get there. It is precisely the areas of the world that consume the least wood that continue to experience the greatest forest loss. Ince (2010) examined this issue by looking broadly at various global regions and the wood use and forest trends within them. His findings, summarized below, are consistent with earlier observations about a direct link between wood use and forest sustainability:

- Industrial round-wood harvest levels in North America and Europe are by far the highest among global regions.
- North America and Europe are the only global regions experiencing net sequestration of carbon in forests and in aggregate a positive net change in forest area.
- High levels of industrial timber harvest are coincident with fairly stable forest cover trends.



The very foundation of the tree-free movement is flawed. Counter intuitively, continued use of paper and other wood products may be a key factor in maintaining a forested landscape for future generations. This realization is reflected in today's third-party forest certification systems that aim to offer a market-based system for supporting the sustainable growth, harvesting, and consumption of forest products.³

“Wood, agricultural crops, and crop residues are all important sources of paper-making fibre. Choices will be inherently driven by:

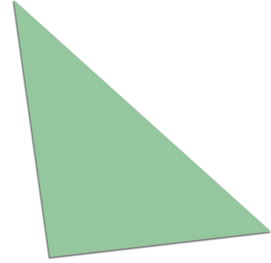
- Relative abundance [of the raw material] and delivered costs
- Compatibility with existing manufacturing infrastructure,

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- Contribution to product characteristics and manufacturing efficiencies
- Environmental objectives
- Economic viability and success of products in the marketplace.”⁴

“Forests cover almost half of Europe’s land surface and forest area continues to increase. There are 1.02 billion hectares of forest in Europe, which amount to 25 percent of the world total. Over the last 20 years, the forest area has expanded in all European regions and has gained 0.8 million hectares each year... European forests sequester increasing amounts of carbon in tree biomass. Between 2005 and 2010, about 870 million tonnes of CO₂ have been removed annually from the atmosphere by photosynthesis and tree biomass growth in the European countries. This corresponds to about 10 percent of the greenhouse gas emissions in 2008.”⁵

“The scope of a recent LCA (Life Cycle Assessment) included all processes needed to produce pulp from the various sources, including forestry or agricultural processes, transport from field or

forest to the mill, pulping, and end-of-life. Assessment of recycled fibre began at the point of paper collection and extended to end-of-life. Study results showed that while pulping processes differ by fibre, environmental impacts are broadly similar across fibre types.”⁶

While non-wood typically requires less overall manufacturing energy, wood has a significant renewable fuel advantage when chemically pulped. Unlike agrifibre, wood is capable of providing not only fibre for the manufacture of wood pulps, but also the bulk of the energy required to sustain the process.⁷

[Two Sides Summary] Most non-woods are annual crops which must be harvested in a six to eight week period and then stored for an entire year⁸ in dedicated places with conditions to avoid rot, fermentation, etc. Wood can be harvested almost year-round and stored in mill yards for immediate use or within one year.

1. [Hurter, R., 1998](#)
2. [World Resources Institute and World Business Council for Sustainable Development, 2014](#)
3. [Dovetail Partners, 2014](#)
4. [NCASI, 2013](#)

5. [Forest Europe, 2011](#)
6. [Dovetail Partners, 2014](#)
7. [NCASI, 2013](#)
8. [Hurter, 1998](#)

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