



# Have climate issues been addressed?

Excerpts from the report: *Sustainable Procurement of Wood and Paper-based Products: Guide and Resource Kit* ([www.SustainableForestProducts.org](http://www.SustainableForestProducts.org))

Climate and forests are intrinsically linked. As a result of climate change, forests are stressed by higher mean annual temperatures, altered precipitation patterns, and more frequent and extreme weather events. At the same time, forests mitigate climate change through uptake of carbon, and the loss of forests through land-use conversion and forest degradation causes carbon dioxide emissions that contribute to climate change (IPCC 2014).

## CLIMATE CHANGE MITIGATION

Forests remove carbon from the atmosphere (carbon sequestration) and store it as trees grow. Global forest carbon stocks are estimated at 861 billion tons, more than half of which is stored in tropical forests (Pan et al. 2011). When trees are harvested, they stop absorbing carbon from the atmosphere, but the resulting wood products, including solid wood and paper-based products, continue to store carbon through their lifetime.

The amount of carbon stored in wood products is estimated to be increasing by 189 million tons per year (Pan et al., 2011). The amount of carbon stored in wood products varies significantly among product types and depends on the method of disposal. On average, solid wood products last longer than paper-based products (Larson et al., 2012) and carbon in both forests and products is released back to the atmosphere either slowly through decomposition or quickly by burning.

## CONTRIBUTIONS TO CLIMATE CHANGE

An estimated 13 percent of global carbon dioxide emissions are attributable to land-use changes and forestry activities (Pan et al. 2011). When forests are logged, destroyed, or burned at a faster rate than the rate at which they regrow, they can contribute to climate change. Additionally, while logging of tropical hardwoods is sometimes the primary purpose of forest clearing, it can also trigger and enable other drivers

of deforestation by providing other users with access roads. Other drivers of deforestation include expansion of large-scale agricultural production such as palm oil, cattle ranching and coffee; small-scale subsistence farming; and urban sprawl. When forest land is converted to other uses, there can be a significant net contribution to greenhouse gas emissions.

However, logging does not necessarily have to lead to deforestation. In a sustainably managed forest area, the growth of new trees can compensate for the carbon lost through annual logging within the area. In contrast, a forest that is subjected to land-use change or overharvesting that leads to permanent forest cover loss will release more carbon than it takes up.

In general, compared with other materials (e.g., concrete, steel, plastic), products made from sustainably managed forests are generally advantageous from a GHG perspective because wood is produced by taking carbon from the atmosphere.

Emission sources associated with forest products include:

- *Logging operations* – Machinery and equipment use fossil fuels for harvesting.
- *Transportation* – Transport of wood products from forest to shelf requires fossil fuels.
- *Manufacturing* – Most types of forest product manufacturing operations require fossil fuel energy. Some operations can rely entirely on biomass fuel from residuals of the forest products manufacturing process, in which case, less fossil fuel energy would be needed (Tonn and Marland, 2006).
- *Disposal* – Emissions may result when products decompose in the landfill, though paper products that end up in landfills can sequester carbon for a long time (Micales and Skog, 1996).

## What does 'carbon neutrality' mean?

There is no widely accepted definition of 'carbon neutrality'. Generally, 'carbon neutrality' is achieved when the amount of carbon released from the production process is offset by an equivalent amount captured in new growth, thus resulting in net zero emissions. Wood harvested from forests with stable or increasing carbon stocks can be considered carbon neutral (WBCSD, 2013). In contrast, wood from forests that are being

converted to non-forest land use would not be carbon neutral. Additionally, greenhouse gas emissions are released along the production process of wood products. Hence, wood products might not be carbon neutral if additional steps are not taken to offset the emissions from the production process (Lippke et al. 2009).

## Reducing Emissions from Deforestation and Forest Degradation (REDD)

REDD is a global effort to create financial incentives for reducing carbon dioxide emissions from forests by decreasing conversion of forested land for other uses. "REDD+" expands on this initiative and includes conservation and enhancement of forest carbon stocks and sustainable forest management.

Since negotiations on the REDD mechanism began in the United Nations Framework Convention on Climate Change (UNFCCC) in 2005, countries and international organizations

have focused on developing national strategies, building capacity, and improving forest governance.

While countries are still preparing for implementation of a REDD+ program, carbon credits from some REDD+ projects are already being sold on the voluntary carbon market. REDD+ projects are the largest source of carbon offsets, making up 38 percent of the market share in 2013 (Forest Trends, 2014).

## Measuring greenhouse gas emissions

Many companies are now measuring, disclosing, and managing their GHG emissions. Defining a baseline level of emissions is necessary to set realistic reduction targets. Companies can choose to measure direct emissions (e.g., GHG emissions from processing mills and facilities that they own or control) or take a more comprehensive approach and measure indirect emissions across the entire value chain (e.g., emissions from transportation and distribution of goods, waste generation, and treatment of sold products at the end of the life cycle).

A number of standards and tools are now available to help companies measure their GHG emissions (see the "Guides to the Guides" section for more information):

- WRI's Product Life Cycle Accounting and Reporting Standard; and Corporate Greenhouse Gas Protocol Toolset for Pulp and Paper and Wood Products
- Environmental Footprint Comparison Tool
- Forest Industry Carbon Assessment Tool (FICAT)

**References:** IPCC 2014, "Climate Change 2014: Mitigation of Climate Change"; Pan et al. 2011, "A large and persistent carbon sink in the world's forests"; Larson et al. 2012, "Role of forest products in the global carbon cycle: from the forest to final disposal"; Tonn and Marland 2006, "Carbon sequestration in wood products: a method for attribution to multiple parties"; Micales and Skog 1996, "The decomposition of forest products in landfills"; WBCSD 2013, "Issue brief: biomass carbon neutrality"; Lippke et al. 2009, "Characterizing the importance of carbon stored in wood products"; Forest Trends 2014, "Sharing the stage: state of the voluntary carbon markets 2014".

For more information on climate issues and to download a copy of the guide, *Sustainable Procurement of Wood and Paper-based Products: Guide and Resource Kit*, visit [www.sustainableforestproducts.org](http://www.sustainableforestproducts.org).

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