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Forest Carbon Sequestration: A Different View

A report issued by The Food and Agriculture Organization of the United Nations (FAO) in 2010 (www.fao.org/docrep/012/i1580e/i1580e00.htm)

examined the influence of the forest products value chain on atmospheric greenhouse gases. Total greenhouse gas emissions from the forest products value chain were estimated to be 890 million tonnes of carbon dioxide (CO₂) equivalent per year. The report stated, however, that the forest products value chain also accomplishes large net removals of CO₂ from the atmosphere, because a portion of the CO₂ it removes from the atmosphere is stored as carbon for long periods in forests, products in use and products in landfills. When such “sequestration” is taken into account, net greenhouse gas emissions from the forest products value chain were estimated to decline to 467 million tonnes of CO₂ equivalent per year.

Very recently, researchers at the Swedish University of Agricultural Sciences in Uppsala, Sweden, published an article that looks at a different facet of the sequestration issue. In “Economic value of carbon sequestration in forests under multiple sources of uncertainty,” [Journal of Forest Economics 19 (2013) 174–189] Ing-Marie Gren and Mattias Carlsson examine the possibility that sequestration could be considered a low-cost component of a strategy for meeting the European Union (EU) 2020 CO₂ mitigation commitment in an emission trading system. A key aspect of their evaluation was recognition of the stochastic natures of both sequestration and fossil fuel reduction costs. They used a mathematical model incorporating uncertainties in (1) the cost for a given reduction in fossil fuel (due, for example, to stochastic input and output prices) or carbon sequestration and (2) methods for converting fossil fuel energy statistics into carbon dioxide production estimates and (3) climate impact on carbon sequestration by forests.

The authors concluded that, within the context of meeting the EU 2020 goals, the value of forests as a carbon sink is high in the absence of the uncertainties mentioned, but declines as the uncertainties are introduced into the analysis.

Editor’s note: The FAO report described the situation as it exists in the US; the Swedish study aims to compare alternative futures in the EU.

Corrugated Boxes Demand Accelerating

According to a just-released market research report from reportlinker.com,

<http://www.reportlinker.com/p01592822-summary/World-Corrugated-Boxes-Market.html>

world demand for corrugated boxes will rise 4.0 percent per year to 226 billion square meters in 2017. Advances will represent a notable acceleration from the 2007-2012 period, in which most developed world markets in North America and Western Europe experienced sluggish increases -- or even declines -- in corrugated box demand. Going forward, gains will be driven by an improved economic outlook as these regions continue to recover from the global economic downturn.

As economies strengthen, demand for manufactured goods will increase as a matter of course, stimulating sales of related packaging like corrugated boxes. The continued expansion of the electronic shopping market will drive heightened requirements for corrugated boxes used in the fulfillment of such sales. Advances will also be fueled by the expanded food, beverage and durable goods output, while rising construction spending will stimulate demand for goods and materials (and their related boxes) used in construction applications.

Opportunities are also anticipated for retail-ready, or shelf-ready, corrugated box packaging, which is increasingly demanded by retailers as a means of

controlling labor costs. Retail-ready corrugated boxes are designed to enable products to be placed on store shelves with minimal preparation. Such boxes tend to incorporate clean tearing features that allow the boxes to be converted from shipping containers into display trays without the use of box knives.

Asia/Pacific market to remain largest, fastest growing

The Asia/Pacific region will remain the largest and fastest-growing outlet for corrugated boxes through 2017. Gains will continue to be driven by the large market in China; although slowing from the double digit growth seen during the 2002-2012 period, the country will post strong gains going forward. Corrugated box demand in the region will also benefit from healthy gains in countries such as India and Vietnam, although subpar increases in the Japanese market will temper this to some extent. Above average growth is also forecast for Central and South America and in Africa/Mideast regions, areas in which corrugated demand per capita is below the world average. Although North America and Western Europe will post below average gains, corrugated box demand in these markets will rebound from 2007-2012 declines.

Demand for containerboard, the primary raw material for corrugated boxes, will also accelerate from the slow growth of the 2007-2012 period. However, volume growth will be restrained by the heightened use of lighter weight, high performance containerboard in light of sustainability and cost control efforts. North America and Western Europe will also see demand improve from the declines of the 2007-2012 period, with both regions continuing to be net exporters of containerboard. The Asia/Pacific region will remain the leading market for containerboard with strong growth in demand anticipated for China, India, Indonesia, and Vietnam. However, although containerboard production is expected to outpace demand, the region will remain a net importer of containerboard. In both the Africa/Mideast and Central and South America regions, containerboard production will expand faster than demand, although both markets will remain net importers. Containerboard demand in Eastern Europe is expected to expand at an average pace.

AF&PA Statistics

Since our last reporting of American Forest and Paper Association statistics releases, the Association has

issued reports on paperboard, containerboard and kraft paper. Below are the key findings:

Paperboard

July: Total boxboard production increased by 1.6 percent compared to July 2012, and increased 0.4 percent from June. Unbleached kraft boxboard production decreased from the same month last year, and decreased compared to June. Total solid bleached boxboard & liner production increased compared to July 2012, but decreased compared to June. The production of recycled boxboard increased compared to July 2012, and also increased when compared to June.

Containerboard

July: Containerboard production increased 4.1 percent over June 2013 and 5.3 percent over July 2012. The month-over-month average daily production increased 0.7 percent. The containerboard operating rate for July 2013 dropped 0.4 points from June 2013, from 99 percent to 98.6 percent.

Kraft Paper

July: Total kraft paper shipments were 135.5 thousand tons, an increase of 3.1 percent compared to the prior month. Bleached kraft paper shipments increased year-over-year 11.4 percent, but the 4.8 percent year-over-year decline in unbleached shipments was enough to bring overall shipments down 2.7 percent year-over-year. Total month-end inventory increased 2.5 percent to 73 thousand tons this month compared to June 2013 month-end inventories.

Trend Indicators from Industry Intelligence Inc.

[Industry Intelligence Inc.](http://www.industryintel.com) has provided market intelligence to more than 600 companies worldwide since it began as Forestweb in 1999. Industry Intelligence delivers a daily report featuring news of the paper and forest products industries. For your subscription visit: <http://www.industryintel.com>

Below is a selection of recent headlines chosen to mirror significant trends in and around the paper and forest products industries.

Buckeye Technologies' shareholders vote 84% in favor of merger with GP, whereby Buckeye's shareholders receive US\$37.50/share and Buckeye becomes indirect, wholly owned subsidiary of GP; 83% also approve proposal regarding merger-related compensation

Consummation of transaction remains subject to the expiration or termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, along with the satisfaction of other customary closing conditions.

Morningstar: PCA has made good progress toward 90% integration goal; industry consolidation over past five years has better matched supply with demand in North America, but new capacity could make current favorable industry structure unsustainable

New capacity will be added to the system over the next five years as industry profitability has reached a point where it has become economical for idle newsprint and paper machines to convert to containerboard production. It is thus likely that the currently favorable industry structure is sustainable.

India's paper consumption to double by 2020 from current 12 million tonnes/year, but paper industry faces key challenges of scarcity, high prices for pulpwood, says Indian trade group; government working group proposes adding more land for plantations

India currently consumes just 3% of the world's paper but has 17% of its population. Its per capita paper consumption is about 10 kilograms versus the global average of 55kg.

Unidentified biomass company looking to build US\$15M-\$20M plant that would convert wood into cellulosic ethanol in Stanley, Wisconsin, with plant slated to open by end of 2014; facility would consume 300,000 'green tons' of trees/year, says local forester

The company would use about 300,000 "green tons" of trees a year, which isn't a problem, because there are 10,000 acres of aspen over the northern third of the county that are harvested over a 45-year rotation.

US corrugated packaging shipments increased to US\$26.4B in 2012, with exports totaling more than US\$1B; but amount of corrugated packaging needed to ship unit of industrial production is down 13.7% since 2000, reports Corrugated Packaging Alliance

Among the facts reported: Old Corrugated Containers (OCC) exports accounted for more than \$1.6 billion in 2012 and 49 percent of the 2012 value of recovered paper exports.

Asia has led world in corrugated containerboard production for past ten years, reaching 103 billion m² in 2012, up 1.2 times from 2002 output versus 21% growth rate globally during that period; China is

largest corrugated containerboard producer worldwide

Japan is the second largest producer of corrugated paperboard in Asia and third largest corrugated paperboard producer in the world.

Stora Enso begins construction of paperboard line that is part of its 19.13B-yuan pulp and paper integration project with local partner in Guangxi, China; after paper machine is completed in early 2016, construction will start on pulp line

The project includes a new pulp line of 900,000 mtpy and two high end paperboard lines of 900,000 mtpy each.

US Dept. of Energy lauds nation's first commercial scale production of cellulosic ethanol at Ineos Bio's Indian River BioEnergy Center in Vero Beach, Florida; minister says achievement shows value of early-stage investments in innovative technologies

The facility will have an annual output of eight million gallons of cellulosic ethanol per year from vegetative, yard and municipal solid waste as well as six megawatts of clean, renewable power annually.

Resolute Forest Products expects North American rate of decline in demand for newsprint to slow in H2, spurred by demand for advertising inserts, says CEO

Demand for newsprint in North America fell 9.5 percent in the first half of this year, more than the 7 percent maximum drop the company expected. It expects this to improve as a result of increased demand from newspapers ahead of the Christmas and back-to-school shopping seasons.

Rayonier's move away from fluff pulp to cellulose specialties with conversion completed at its Jesup, Georgia, mill going better than expected with on-time June 28 startup, shipments to customers in full swing for qualification period, says executive

The project to convert absorbent materials capacity to cellulose specialties is expected to come in on budget at US\$375 million to \$390 million. Cellulose specialties (viscose- and acetate-grade dissolving pulp) prices are forecast to be 2% to 3% higher in 2013 than in 2012.

Pratt Industries produces 6 millionth ton of 100% recycled paper at its Conyers, Georgia, paper mill; facility began production in 1995

The mill has saved the equivalent of more than 100 million trees and prevented 480 million truck loads of discarded paper from possibly going to landfill. Just a

month ago, Conyers' sister mill in New York City celebrated the production of its 5 millionth ton.

Statistics Corner: The Growing Gap between Paperboard and Paper Production Rates

As illustrated in the figure below, U.S. paperboard production is showing signs of renewed vigor, as it approaches and seems likely to exceed pre-recession levels. The graph also documents the well-known, continuing decline of paper production.

The growing gap is likely to give rise to structural changes. Kerr (Paper360°, July/August 2013) observes that “The largest threat to North American containerboard comes from outside the segment. The markets served by Newsprint and P&W papers are contracting, causing the owners of machines making those grades to look for other markets and convert machines. The bigger question is whether new capacity will enter the market and, if so, will new entrants disrupt the newly consolidated segment.” ■

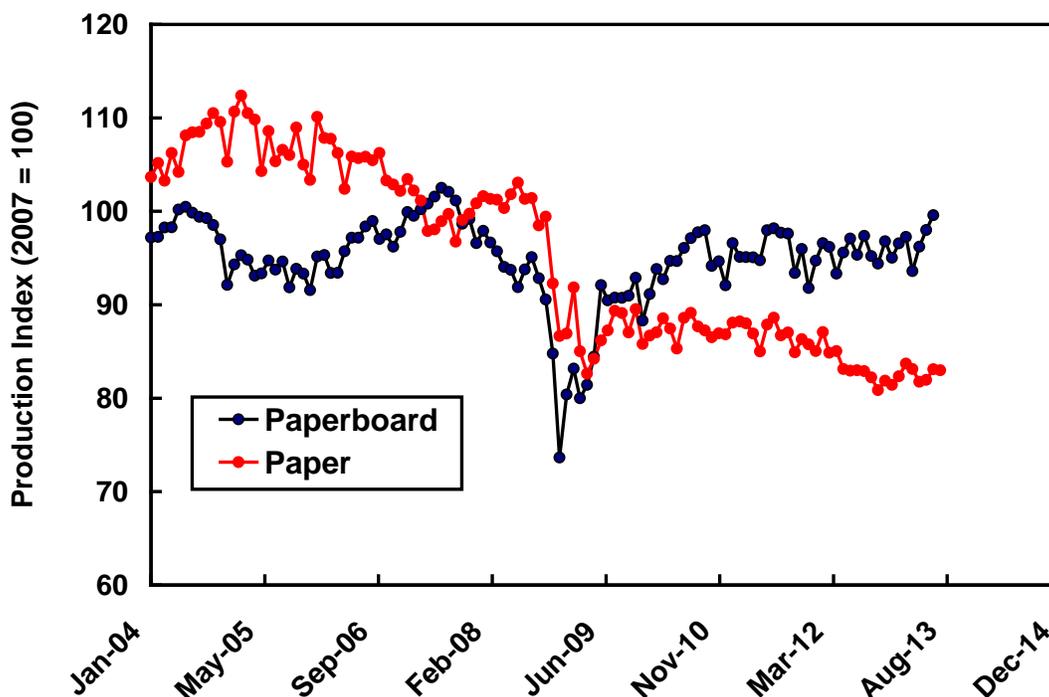


Figure 1. Paperboard and Paper Production Indices (Source: Federal Reserve Board)