

Vol. X, No. 1

April 15, 2010

Understanding Drivers of Recycled Fiber Use

A paper presented at the most recent TAPPI Engineering, Pulping and Environmental Conference sheds new light on what motivates people to make use of recycled fiber. In “Trends in the Use of Recovered Fiber – Role of Institutional and Market Factors,” Maija Hujala, Kaisu Puumalainen, Anni Tuppuru and Anne Toppinen explore how market-related and country-specific factors affect levels of recycled fiber use. They collected data on waste paper utilization rate (waste paper consumption as a fraction of total fiber consumption) for the period 1995 - 2007 in 22 countries. (See “Statistics Corner” below.) They also collected data from the same countries on a variety of potentially influential factors: gross domestic product (GDP) per capita, environmental awareness, cultural factors, technological capability, availability of virgin fiber and production of paper grades that most readily accommodate recycled fiber as components of their furnishes.

Nearly all of the investigated factors exhibited statistically significant correlations with waste paper utilization rate. Among those having the greatest positive effects were GDP per capita, production of packaging paper and board as a fraction of total paper production, and two cultural indicators: “power distance index (PDI)” and “masculinity (MAS).” PDI and MAS are two of four “cultural dimensions” formulated in 1980 by G. Hofstede after analysis of surveys of over 88,000 employees from 72 countries. In high PDI cultures people accept that power is distributed unequally, and respect for authority is high. PDI had the expected positive effect on recovered paper use; consumers and paper industry decision-makers in such cultures should be more willing to comply with recovery targets set by policy-makers. MAS is an expression of the degree to which a society’s values stress assertiveness as opposed to caring. The observation that high-MAS cultures tended to utilize more waste paper

surprised the researchers; they had expected that femininity, implying a greater concern for the well-being of future generations would positively influence waste paper use, but the reverse is apparently true. The effect of GDP is explainable in terms of the likelihood that wealthier countries have better infrastructure and correspondingly better organized waste paper recovery systems.

Among the negative effects, the most significant were those of forest area, growing stock, and patents granted per capita. The first two measure the long-term availability of virgin fiber; greater virgin fiber availability, as expected, reduces the incentive to make use of recycled fiber. The negative effect of patents per capita, a surrogate for technological capability, suggests that more developed countries tend to export waste paper to less developed countries rather than use it domestically.

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Recent Forestweb Headlines

Forestweb publishes a weekly news report tracking recent developments in and around the paper and forest products industries. Subscription information is at <http://www.forestweb.com/Corporate/index.cfm>

Below is a small sampling of headlines from recent issues, together with brief synopses.

April 12

AF&PA: February U.S. paper and paperboard production increases 7.3% year-over-year; printing and writing, containerboard post gains

Production of 6.367 million tons in February, was an increase of 7.3% from a year earlier. However, this figure represented a 6.2% decline over January’s total, snapping a run of gains.

Ilim to invest US\$700M in new 720,000 tonnes/year kraft pulp mill in Bratsk, Siberia; company targets start-up date of H2 2012

The new pulp line will produce 720,000 tonnes of bleached softwood market pulp a year.

April 5

Global pulp prices set to increase in April on strong market conditions expected to continue into coming months

Most of the announcements are for US\$50 per tonne.

Brazil's Eldorado Celulose e Papel contracts Pöyry for pre-engineering and preparatory work for infrastructure for planned 1.5 million tonnes/year pulp mill in Mato Grosso do Sul

The final investment decision is expected later this year.

March 29

AF&PA's 50th Annual Survey of Paper, Paperboard, and Pulp Capacity reports U.S. paper and paperboard capacity declined 2.5% in 2009 to 93.9 million tons and is expected to fall a further 3.4% in 2010

Amidst a severe global recession, 14 U.S. mills were permanently closed in 2009, shutting down 16 paper and paperboard machines, and an additional 11 machines were permanently shut down at other mills.

AF&PA: Record-high 63.4% of paper consumed in U.S. was recovered for recycling in 2009 as industry hits 60% goal three years ahead of schedule

This exceeds the industry's 60 percent recovery goal three years ahead of schedule.

March 22

NewPage to purchase Domtar's coated groundwood paper product lines and book of business, expects transaction to be completed in April

The purchase follows Domtar's decision to exit this business and close its Columbus, Mississippi, paper mill.

Legislative moves in U.S. might allow pulp and paper producers to claim US\$1.01/gallon cellulosic fuel tax credit

Credit would be for black liquor produced and fired since Jan.

1. It would be US\$1.01 per gallon, rather than the \$0.50/gallon black liquor tax credit that expired in December.

Finnish forest products mills to start up gradually over next few days following end of stevedores' strike, but industry will be 'cleaning up the mess' for long time, says FFIF

The flow of export revenues was cut off after the stevedore strike halted the forest industry's deliveries.

Statistics Corner

Recovered Paper Utilization Rates

The following table, taken from the paper cited in the lead article of this issue, lists the recovered paper utilization rates (waste paper consumption as a fraction of total fiber consumption) in 1995, 2000 and 2007 by country:

Table 1. Recovered Paper Utilization Rates

Country	1995 (%)	2000 (%)	2007 (%)
Argentina	42	52	58
Austria	43	48	50
Belgium	29	46	63
Brazil	31	35	39
Canada	21	23	31
Chile	-	39	41
China	40	42	65
Finland	6	6	7
France	49	57	62
Germany	62	65	70
India	33	28	53
Italy	53	59	57
Japan	52	56	60
Norway	11	15	22
Philippines	-	77	79
Poland	37	40	34
Romania	-	42*	60
Russia	-	11	26
Spain	69	72	73
Sweden	17	17	18
United Kingdom	64	70	71
USA	34	37	35

*2002 figure

Some of the effects described in the article can be illustrated by data in this table. For example, countries with limited availability of virgin fiber, such as the U.K., have high utilization rates, while those having abundant virgin fiber resources, such as Finland, have low rates. Among countries with abundant virgin fiber, wealthier ones, such as the USA, have higher utilization rates than less wealthy ones, such as Russia.

Note that the figures in Table 1 are utilization rates, as distinct from recovery rates. As shown below the 2007 recovery rate in the U.S. was 56%, as opposed to a utilization rate of 35%. Exports account for the difference.

Update: U.S. Paper Recovery Rate Accelerates

In our March issue we presented statistics showing that the U.S. waste paper recovery rate increased from less than 39% in 1993 to nearly 58% in 2008. Figures released after our March issue’s publication date document a continued sharp increase.

As shown in Figure 1 below, the 2008 recession-related decline in consumption continued through 2009, while the amount recovered declined at a much lower rate.

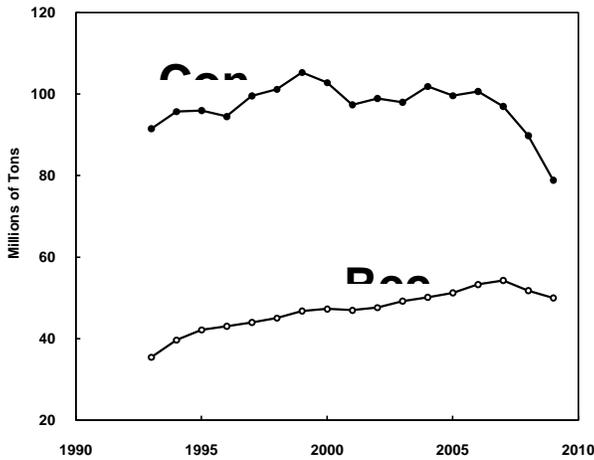


Figure 1. U.S. Paper Consumed and Recovered

As a result, the recovery rate increased to a record-high 63.4% in 2009 from 57.7% in 2008. This exceeds the industry’s 60 percent recovery goal three years ahead of schedule. According to American Forest and Paper Association (AF&PA) President and CEO Donna Harman this is “a testament to the work of the industry and the commitment of millions of Americans who recycle at home, school and work on a daily basis.” The AF&PA further states that “to balance growing global demand for recovered fiber and decreased paper consumption, increasing recovery nationwide remains a priority.”

Figure 2 shows the recovery rate as recorded annually from 1993 to 2009.

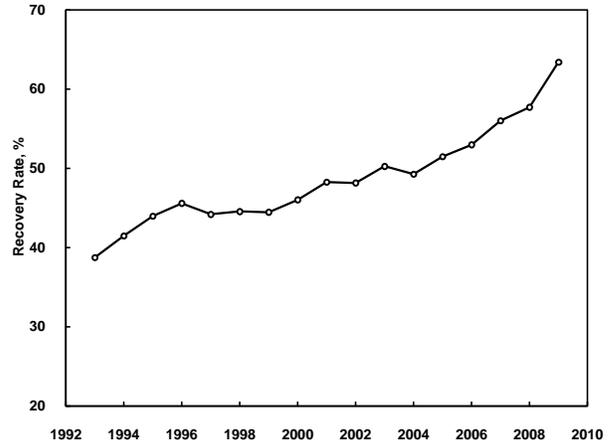


Figure 2. U.S. Paper Recovery Rate