Recycled Fiber Opportunities

Minnesota’s Forest Resources at a Crossroads

This brief summarizes existing and potential opportunities available in Minnesota for utilizing recovered fiber in paper and allied products manufacturing. Using recycled fiber is an important issue since paper products comprise more than 40 percent of landfill waste. But due to contaminates like resins, glues, and plastics, many papers are difficult to recycle.

There are nine paper and paperboard mills located in Minnesota. Seven of the nine mills make some type of printing and writing paper, one makes recycled boxboard and corrugating medium, and one makes roofing felts. These mills are:

1. Potlatch Corporation, Northwest Paper Division, Cloquet;
2. Potlatch Corporation, Northwest Paper Division, Brainerd;
3. Lake Superior Paper Industries, Duluth;
4. Blandin Paper Company, Grand Rapids;
5. Boise Cascade Corporation, International Falls;
6. Champion International, Sartell;
7. Hennepin Paper Company, Little Falls;
8. Certainteed Corporation, Shakopee; and

The Midwest Region

The Midwest (North Dakota, South Dakota, Nebraska, Kansas, Iowa, Missouri, Minnesota, Wisconsin, Illinois, Michigan, Indiana, and Ohio) is the second largest paper and paperboard producing region in the United States. Figures 1 and 2 on the next page show how Minnesota’s paper and paperboard capacity compares to that of the region’s.

The Midwest Region ranks second in the United States in total boxboard products capacity and has the second highest concentration of boxboard mills in the country. This region’s boxboard mills were established to serve the large local packaged goods industry.

There is also a high concentration of miscellaneous and specialty paper mills in the Midwest. The region’s specialty mills include producers of molded pulp, school construction paper, pattern tissue, and specialty packaging or technical papers. Like the boxboard manufacturers, many of the specialty paper mills supply the local packaged goods industry.

The Midwest has the smallest newsprint capacity of the country’s four regions. Many of the older Midwest newsprint mills were converted to production of printing and writing grade papers because they were unable to compete with the newer and larger newsprint mills built in Canada and the southern states. Demand for newsprint in the Midwest is
primarily supplied by Canadian mills.

Supply of Recovered Paper

The term recycling is used very loosely (especially in the context of municipal programs and citizen perception) because not all paper collected for recycling is recovered. Recovery is a term given to discarded, collected paper that is reprocessed into a product. In contrast, paper that is landfilled or incinerated because there is no other market for it is just collected, not recovered.

Various collection (or discard) points are controlled by different entities. Collection from residences, for example, usually falls under the jurisdiction of the municipality, while collection from food stores, offices, and other commercial sources is often the responsibility of individual private haulers. The motivation to recycle is different for each “collector.” In general, municipalities are motivated by cost avoidance (e.g., landfill fees) while private haulers are encouraged by profitability. In Minnesota, municipalities are also motivated by state laws and recycling goals, the need to develop an integrated waste management system that utilizes land disposal as a last resort, and pressure from counties that have responsibility for solid waste management.

Disposal of Paper

Table 1 shows that the recovery of wastepaper depends on where it becomes available since certain collection methods are more successful than others. For example, old corrugated containers discarded and baled at food stores are more easily and efficiently recovered than those containers left curbside amid newspapers and magazines.

Recovery Rates

Paper is recovered at a higher rate in Minnesota than in the other Midwest states because of its well-established collection and processing infrastructure, the presence of the Waldorf Corporation (uses wastepaper for 100 percent of its fiber needs), and the strong environmental ethic prevailing in the state that has encouraged laws and recycling goals. Figure 3 illustrates how the recovery rate is expected to rise by 1995 and then again by the year 2000 due to the growth of curbside and office collection programs and an increase in public awareness and experience.

Demand

The demand for recovered paper will play the greatest role in determining the impact of recycling on the state’s wood products industry. Currently, all market wood pulp (pulp produced for sale on the open market) needed by Minnesota’s paper and paperboard mills is brought in from sources outside the state.
Table 1 - Disposal of paper.

<table>
<thead>
<tr>
<th>Points of Collection of Recovered Paper</th>
<th>Residences</th>
<th>Offices</th>
<th>Food Stores</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old newspapers</td>
<td>75%</td>
<td>10%</td>
<td>0%</td>
<td>15%</td>
</tr>
<tr>
<td>(newrooms, public areas, retail locations)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old magazines</td>
<td>50%</td>
<td>14%</td>
<td>0%</td>
<td>36%</td>
</tr>
<tr>
<td>(newstands)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old corrugated containers</td>
<td>23%</td>
<td>4%</td>
<td>39%</td>
<td>34%</td>
</tr>
<tr>
<td>(commercial and industrial locations)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed paper*</td>
<td>27%</td>
<td>0%</td>
<td>6%</td>
<td>34%</td>
</tr>
<tr>
<td>(commercial and industrial locations)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office wastepaper</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>High grade deinking</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>(printing and converting plants)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulp substitutes</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>(paper mills, printers, converting plants)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Approximately 67% of total regional mixed paper is not considered collectible.

Consequently, in order to impact Minnesota’s annual timber harvest, recovered paper must not only replace current or projected wood pulp demand, it must affect Minnesota’s wood demand. The demand for recovered paper from Minnesota mills is expected to increase by 1995 due to an increase in the availability of deinked pulp made from post-consumer office wastepaper and high grade deinked paper. The effect the use of this recycled pulp will have on Minnesota’s wood products industry will depend on the type of pulp it replaces. Three options exist:

1. Recycled pulp replaces purchased pulp. If recycled pulp replaces purchased pulp, there will be little or no effect on the level of wood harvested in the state since the purchased pulp being replaced is not a product of the Minnesota timber industry.

2. Recycled pulp replaces planned virgin pulp capacity. If recycled pulp replaces planned additional virgin pulp capacity, the demand for wood could be reduced by up to 125 to 175 thousand cords or about 3 to 5 percent of the current used harvest.

3. Recycled pulp replaces existing virgin pulp capacity. It is unlikely that recycled pulp will replace existing virgin pulp capacity because of the cost of idling existing facilities.

Conclusion

Increased collection and use of recovered paper in Minnesota could reduce the demand for wood in the future by as much as 400,000 cords. (To put this in perspective, 400,000 cords of wood compressed into one solid chunk would fill half of Minnesota’s Metrodome, or if loosely piled, would nearly fill the
Environmental Concerns & Other Driving Forces

Legislative & Regulatory Trends

Production Technology

Economics of Production

Alternative Sources of Fiber

Fiber Characteristics of Recovered Paper and Requirements for Its Processing

Product/Market Opportunities

Generation and Recovery of Paper

Demand for Recovered Paper

Metrodome.) The most likely range will be 150,000 to 300,000 cords, however, due to several factors including economics, political influences (state laws and regulations), and the limitations connected to the recovery and processing of wastepaper and associated products.

The full circle of issues that surrounds recycling is shown above. These issues are presented in a circular fashion because no special order is implied; the issues are all interrelated and interact in a variety of ways for different participants.

Definitions

- **Boxboard**: Paperboard used in a wide variety of products including card stock, folding cartons, setup boxes, and milk cartons.

- **Containerboard**: The component materials used to manufacture corrugated shipping containers (commonly called corrugated boxes) and other corrugated board products.

- **High grade deinking**: Paper recovered from printing or converting operations (excludes office wastepaper).

- **Mixed paper**: Various qualities (grades) of paper not normally considered recoverable or recyclable such as tissue and toweling.

- **Paperboard**: A relatively stiff, heavy material, thicker than paper, made from paper pulp.

- **Post-consumer waste**: Materials that have served their intended purpose and have been discarded or recovered.

- **Virgin pulp**: A mixture of cellulose material that is made from trees and used to make paper and paper products.

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