

C I N T R A F O R

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Wastepaper in the United States: Outlook for Wastepaper Consumption to the Year 2002

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Executive Summary

This paper provides a projection of wastepaper consumption for the year 2002. Such a projection is difficult because there is no existing database to characterize how wastepaper gets used in each end product yet we know from fragmentary sources that uses are changing. A procedure was developed to allocate collection to uses in several stages in order to balance collection with uses and to characterize how uses have been changing.

Estimation of Paper Composition and Wastepaper Allocation

Historic data of virgin pulp consumption, paper production and wastepaper recovery¹ are the starting point of the first stage. A number of sources provide an initial estimation of paper composition² by each grade. Initial requests of virgin and secondary pulp to supply this composition are then developed in a spreadsheet. A linear relationship is assumed between paper production and pulp (virgin and secondary) consumption. These requests are then compared to reported virgin pulp consumption and a preliminary allocation of secondary pulp by paper grade³. Minor adjustments in both sets of coefficients (composition and allocation) are made based on a hierarchy of the best known paper composition estimates until a definitive balance is reached by the years 1980, 1985, 1990 and 1995. Paper composition and wastepaper allocation in 1995 are then used in the set of assumptions for the 2002 projection.

Paper Production Projection

Assumptions for demand and capacity are needed to calculate wastepaper consumption in 2002. Capacity projections are derived from available sources⁴. Production is derived from projected capacity by using a range of operating rates. The range of operating rates corresponds to three scenarios of high, average and low activity in the industry based on an economic analysis of historic performance of paper grades⁵.

Wastepaper Consumption Projection

The wastepaper consumption projection is derived from projected production, again assuming a linear relationship between projected paper production and pulp consumption as well as between secondary pulp consumption and wastepaper consumption (by grade). The assumed share of secondary pulp in each paper grade is multiplied by its projected production to project secondary pulp requirements in 2002. Pulp requirements are then translated into wastepaper consumption. Wastepaper recovery is also obtained from projected production. First, apparent consumption is estimated and then recovery is obtained from apparent consumption by using a range of recovery rates.

¹ API, 1980-1992, AF&PA, 1993-1996.

² Mills Survey, 1980-1995; Biermann, 1996; Paper Task Force Report, 1995.

³ AF&PA 1996; Miller Freeman's The News in ONP, 1994; Franklin, 1990, 1982; Mills Survey, 1980-1995; Jaakko Poyry Oy, 1996.

⁴ API, 1980-1992; AF&PA, 1993-1996; Pulp and Paper North American Fact Book, 1998; FAO, 1998; Lockwood Post's Directory of Pulp, Paper and Allied Trades.

⁵ API, 1980-1992; AF&PA, 1993-1996; Pulp and Paper North American Fact Book, 1998; U. S. Bureau of Labor Statistics, 1998; Economic Report of the President, 1996; Congressional Budget Office, 1999

Results

The results of the projection show a significant increase in wastepaper consumption from 1995 to 2002 albeit not as high as it was from 1985 to 1990 and from 1990 to 1995. Since most of new production is projected to come from recycled and unbleached kraft paperboard, the two major wastepaper consumers in the industry, the projected growth rate of wastepaper consumption is almost twice the growth rate in paper production, increasing utilization rates in the industry by more than three percentage points (34.45 in 1995, 37.4% in 2002). Growth rates depend on the demand scenario. Available economic forecasts show a slowdown in the economy in 2000 and 2001⁶, which make the low demand scenario the most likely. Paper and paperboard production are projected to grow 10.3% (1.4% per year) in relation to 1995, a rate significantly lower than the historic production growth rate from 1990 to 1995 (13.6%, or 2.6% per year) and from 1985 to 1990 (17.1% or 3.2% per year). Production growth from 1980 to 1985 (in the midst of an economic recession) was just 7.8% (1.5% per year)⁷.

Wastepaper consumption growth is mostly linked to production growth rather than to an increase in wastepaper utilization, since assumed composition has not been significantly modified from 1995 estimations. Estimated 1995 wastepaper allocation was assumed unchanged, so allocation patterns in 2002 are basically those of 1995. Projected wastepaper consumption growth will be 20.1% (2.65% per year) in the low scenario in relation to 1995. Even though this figure is far from historic consumption growth from 1990 to 1995 (44.4% or 7.6% per year) and from 1985 to 1990 (32.8% or 5.8% per year), it still is a significant increase⁸. Economic conditions from 1985 to 1995 were mostly favorable to the industry and to wastepaper in particular, except for the early 90s.

By paper grade, recycled paperboard keeps its position as the main consumer of wastepaper in the industry. Projected wastepaper consumption from this grade might increase up to 4,700,000 (31.9% or 4.0% per year) to 5,500,000 tons (37.7% or 4.7% per year). Among wastepaper sources, OCC is the most important (65% of wastepaper consumed). Unbleached kraft paper and paperboard mills are the second major consumers of wastepaper in the paper industry. Since projected production growth is low, at least in relative terms (4.3 to 6.2% depending on scenario, or 0.6 to 0.9% per year), wastepaper consumption is expected to be in the range of 5,200,000 to 5,300,000 tons compared to 5,000,000 tons in 1995, a 4.2-5.8% increase (0.6-0.8% per year), most of it coming from OCC (73%).

For the other grades, estimated consumption of wastepaper in 1995 in tissue mills almost reached 4,000,000 tons. Tissue production is projected to grow within the range of 10.7 to 12% from 1995 to 2002 (or 1.5-1.6% per year). Therefore, projected wastepaper consumption growth is estimated to be around 11.2 to 12.5% (1.5 to 1.7% per year), or 4,300,000 to 4,400,000 tons, mostly coming from pulp substitutes and high grade deinking (a combined 41%). Newsprint mills consumed 3,000,000 tons of wastepaper in 1995 (estimated) and are projected to reach around 3,300,000 tons in 2002 (11.4-12.1% increase from 1995 to 2002 or 1.6% per year). This growth rate is lower than the estimated from 1985 to 1990 (44% or 7.5% per year) and from 1990 to 1995 (52.2% or 8.8% per year), when most newsprint producers shifted to recycled-content newsprint. Most of wastepaper consumed will come from ONP (75%). Printing and writing papers are projected to increase their wastepaper consumption by about 400,000 tons above 1995 levels, most of it from pulp substitutes and high grade deinking, (38 and 34% respectively). Estimated wastepaper consumption in semichemical corrugating medium was about 1,900,000 tons in 1995, and will likely reach 2,100,000 in 2002. Most of it will come from OCC (86%)

By wastepaper grade, most of new consumption will correspond to OCC (roughly 3,500,000 tons out of 6,400,000 tons in the low production scenario). In 2002 OCC will make up about 53% of all wastepaper consumed (compared to 46% of all wastepaper consumed in 1980, 48% in 1985, 49% in 1990 and 52% in

⁶ Congressional Budget Office. Real GDP Growth. 2000, 1.9%; 2001, 1.8%.

⁷ Historic production data from API, 1980-1992; AF&PA 1993-1996.

⁸ Historic wastepaper consumption data from API, 1980-1992; AF&PA 1993-1996.

1995⁹). Projected OCC consumption will be in the range of 20,000,000 to 20,700,000 tons in 2002, a 21.4-25.3% increase (2.8-3.3% per year) in relation to 16,500,000 tons¹⁰ consumed in 1995.

In 1995, almost 4,900,000 tons¹¹ of ONP were consumed by the industry. According to the simulation, in 2002 between 5,700,000 and 5,800,000 tons of ONP will be demanded by paper and paperboard producers. That means an estimated 17.4-19.9% growth from 1995 (2.3-2.6% per year).

Pulp substitutes and high grade deinking are mainly used in printing and writing grades, tissue and, in a lesser proportion, recycled paperboard. In 1995, roughly 2,400,000 tons¹² of pulp substitutes were used by the industry. Projected consumption reaches 2,800,000-2,900,000 tons in 2002 (15.4-18.5% growth or 2.1-2.5% per year). The industry demanded 3,000,000 tons of HGD¹³ in 1995. In 2002, projected demand will reach 3,500,000 to 3,600,000 tons, resulting in an 17.6-20.7% increase (2.3-2.7% per year).

Finally, in 1995, 4,500,000 tons¹⁴ of mixed wastepaper were consumed by paper and, especially, paperboard producers. Projected consumption in 2002 might be around 5,500,000 to 5,700,000 tons, a 23-27% growth (3 to 3.5% per year) due to the strong recycled paperboard growth. This growth might situate mixed wastepaper above ONP as the second most consumed wastepaper grade in the short term.

Supply and Demand Balance Projection

Projected apparent consumption of paper and paperboard in 2002 will range from 108,300,000 tons to 109,800,000 tons. Recovery of paper is derived from those levels depending on a range of recovery rates (45 to 52%). Depending on the rate selected, the amount of wastepaper available for other uses (obtained by subtracting wastepaper consumed by the paper industry from wastepaper recovered) varies. In 1995, with a 44% recovery rate, 26.21% of wastepaper recovered was used for construction purposes, molded pulp or was allocated to export markets¹⁵. According to the 2002 simulation, if the recovery rate were 45%, only 21.3-22.4% of wastepaper recovered would be available for other uses. If the recovery rate were 48%, the percentage of wastepaper recovered allocated to other uses or to export would be similar to that in 1995 (26.3-27.3%). A 50% recovery rate would result in 29.2-30.2% of wastepaper recovered available for other uses, while a 52% rate, the highest considered, would result in 32.0-32.9%. Therefore, and according to the projections derived from the study, a recovery rate over 48% would likely increase the gap between recovery and demand signifying weaker secondary fiber pricing.

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⁹ Historic wastepaper consumption data from API, 1980-1992; AF&PA 1993-1996.

¹⁰ Historic wastepaper consumption data from API, 1980-1992; AF&PA 1993-1996.

¹¹ Historic wastepaper consumption data from API, 1980-1992; AF&PA 1993-1996.

¹² Historic wastepaper consumption data from API, 1980-1992; AF&PA 1993-1996.

¹³ Historic wastepaper consumption data from API, 1980-1992; AF&PA 1993-1996.

¹⁴ Historic wastepaper consumption data from API, 1980-1992; AF&PA 1993-1996.

¹⁵ Historic wastepaper consumption data from AF&PA, 1996.