

Indicator 6.33.

Recovery or Recycling of Forest Products as a Percent of Total Forest Products Consumption

What is the indicator and why is it important?

This indicator identifies the extent to which forest products are recycled or reused and provides a measure of the national efficiency of forest products usage. Recovered products are an important raw material for many forest products industries and some industries outside the wood products sector. Recycling forest products reduces the quantity of waste deposited in landfills or incinerated and enables a country to increase consumption of wood products without an increase in timber harvesting. With increased recycling and stable exports timber harvest and timber prices would decrease.

Key sources of post-consumer wood and paper materials that are recovered for reuse in products include paper and paperboard, wood pallets, construction waste, demolition waste, and wood and paper in municipal solid waste. For this indicator recovered amounts do not include amounts of waste wood and paper that are used for energy.

Two basic measures are used for this indicator:

- The recovery rate is the amount of wood or paper recovered for reuse in products (includes exports) divided by the amount of source products consumed in a year.
- The utilization rate is the amount of wood or paper recovered divided by the amount of products produced in a year.

The utilization rate indicates the degree to which use of recovered wood or paper holds down or substitutes for use of virgin wood in U.S. production of wood and paper products.

What does the indicator show?

The recovered paper utilization rate increased from 22 to 38 percent between 1970 and 1996, but then stabilized at 37 to 38 percent between 1996 and 2006 (fig. 33-1). In contrast the recovery rate for paper and paperboard increased from 22 percent in 1970 to 45 percent in 1999 and then continued to rise to 51 percent in 2006. In the past decade, the recovery rate has continued to increase although the utilization rate has leveled off because almost all the increase in recovery since 1996 has gone to exports. Exports of recovered paper increased from 3 percent in 1970 to 18 percent and then nearly doubled since

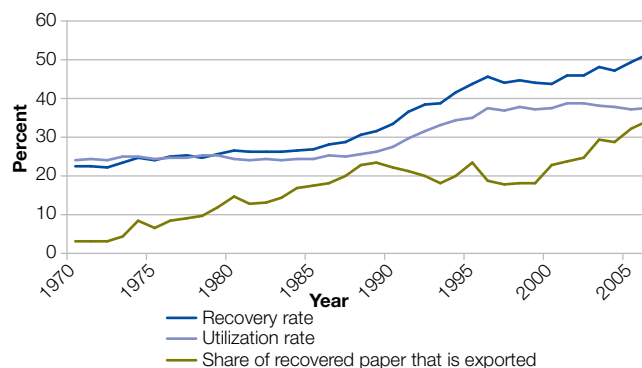
1999, rising to 34 percent in 2006. For the purpose of comparison, in 1999 the total consumption of paper and paper products by all developed countries was 252 million tons annually, and their average recovery rate was 43 percent.

The utilization rate of recovered wood products (for reuse as wood products) is uncertain because of incomplete data. We estimate the amount of recovered wood that is reused for products to include all recycled wood pallets and one-half of the wood recovered from municipal solid waste. We further assume that: (1) the other half of wood from municipal solid waste (MSW) is used for fuel or uses that do not displace wood products use; (2) wood recovered from demolition and construction sites goes for uses (e.g., fuel or mulch) that do not displace wood products use; (3) the amounts of wood recycled via deconstruction are still small; and (4) recovered amounts are all used in the United States with no exports. With these assumptions the estimated recovered wood utilization rate has increased from an insignificant amount in 1990 to 10 percent in 2006 (fig. 33-2). The recovered wood utilization rate for wood pallets alone has increased from 2 percent in 1993 to 34 percent in 2000 and 38 percent in 2006.

What has changed since 2003?

U.S. recovery of paper is has increased from 45 percent in 1999 to 51 percent in 2006 with virtually all of the increasing recovery share going for exports.

Figure 33-1. Paper and paperboard recovery rate, utilization rate, and share of recovered paper that is exported, 1970–2006.



Sources: USDA Forest Service and American Forest and Paper Association

Are there important regional differences?

Total U.S. recovered paper consumed at U.S. mills increased by 2 percent between 2003 and 2006, from 33.7 to 34.5 million tons. Industry reported data indicate recovered paper consumption increased in mills in every region except the North. In 2006 the South had the highest recovered paper consumption (15.4 million tons) but the lowest recovered paper utilization rate (29 percent). The next highest level of consumption was in the North (13.4 million tons) where the utilization rate was (50 percent), followed by the Pacific Coast (4.8 million tons and a 49 percent utilization rate) and the Rocky Mountains (1.2 million tons, where utilization rate was highest [59 percent]) (fig. 33-3).

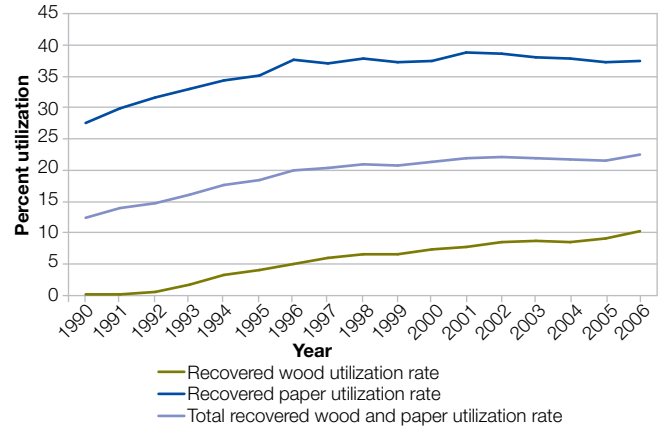
Why can't the entire indicator be reported at this time?

Data are not available on the amount of wood reused for products from demolition and construction sites and from deconstruction of building. We have assumed amounts are currently small. Value of recovered material, except for grades of recovered paper, are not available on a national scale.

Relation to other indicators

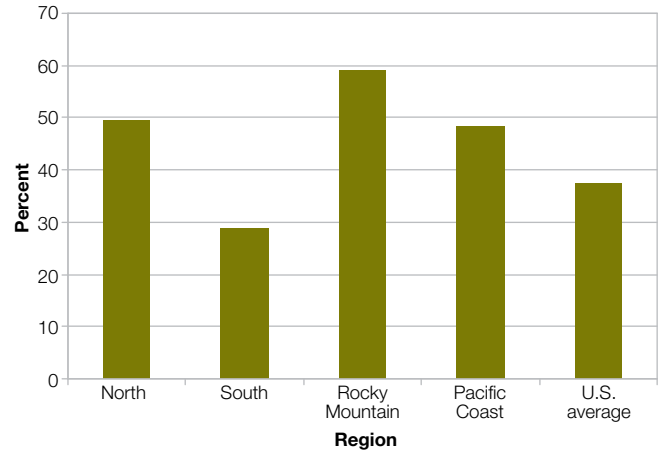
The recycling rates (utilization rates) for wood and paper influence the amounts and kinds of wood that is harvested in the United States (Indicator 2.13) and the effect of the harvest treatments on forest growth (Indicator 2.11). To the extent that recycling decreases harvest jobs, income, and revenue to landowners is affected (Indicator 6.36, 6.37, and 6.40). These rates also influence the amounts of carbon stored in forests (Indicator 5.22), the length of time carbon is stored in products (Indicator 5.23), and the energy that is obtained by burning post-consumer wood and paper (Indicator 5.24). The degree to which recovered paper is recycled in the United States rather than being exported depends on price competitiveness. This competitiveness is determined in part by the amount of U.S. investment in capital (Indicator 6.34) and in research and education (Indicator 6.35).

Figure 33-2. Recovered wood and paper utilization rates, separately and combined, 1990–2006.



Sources: USDA Forest Service and American Forest and Paper Association

Figure 33-3. Recovered paper utilization rate by region, 2006.



Sources: USDA Forest Service and American Forest and Paper Association