

## Defining the Paper Fiber Cycle

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The paper fiber cycle is defined as the flow of new fiber into making pulp and paper, consumption, its subsequent recovery, reuse and end of life disposal. There are several stages in the material life cycle of paper that outline where fiber comes from, what it is made into, what can be recovered, and how many times it can be reused.

1. **Fiber Sources-** Most of the fiber used to make paper products is wood-based, but there are three distinct input sources. These are:
  - **Sawmill byproducts-** a significant source that comes from salvageable materials created by sawmilling raw logs into lumber;
  - **Tree harvests-** in some cases trees are harvested specifically for making paper. Such trees are relatively young and small as larger trees are valued for solid wood products, though, as discussed above, portions of larger trees in the form of byproducts are also used for making paper; and
  - **Recovered Paper-** an active market exists for the collection and resale of recovered paper that is processed into reusable fibers for making a new paper product. Paper is often collected by recycled material companies on behalf of municipalities. The recovered paper is then sold in the open market to paper mills and brokers.
2. **Fresh Fiber Production-** Fresh wood fiber is the predominant input for making paper, but it can be blended with recycled fiber to make a new paper product. It comes from sawmill by product and directly from harvesting trees.
3. **Recycled Fiber Production-** Paper fibers can be reused anywhere from four to nine times depending on the new paper grade that is being produced. However, factors that determine how many times fibers are reused are the ability of the collection system to recover

paper, losses from the deinking process and the decline in fiber strength. Fiber losses from using recovered paper vary from 10 percent to 30 percent depending on the new grade of paper that is being made.

4. **Paper Production-** Paper mills make a variety of paper products to meet performance specifications such as strength, brightness, absorption and insulating ability.
5. **Paper Consumption-** People use paper in so many different areas of their life from reading and writing to sanitary reasons to packaging goods and food. Many end users are becoming more aware about the life cycle effects of using paper and are asking questions about the forest source, forest management practices, production processes and recyclability of the paper products they buy.
6. **Unrecovered Paper-** There are some types of paper products that due to their intended use cannot be recovered or cannot be expected to be recovered at any point in the near future. The types of unrecoverable products are sanitary papers such as tissue and paper towels as well as archival products like reports, medical and financial records and library books.
7. **Trade of Recovered Paper-** Recovered paper is a commodity that is collected and sold throughout the world. While Europe and North America have historically been the principle users of recovered paper fibers, many Asian nations with surging paper demand and relatively little fresh fiber resources having been buying increasing amounts of fiber. China has recently become the largest importer of recovered paper in the world.
8. **Landfill/Incineration-** Sometimes paper is allocated for other uses like energy or composting or disposed. There are different reasons for disposing paper such as end user choice, the costs of collecting it are too high or because it can no longer be reused to make new paper products. There are opportunities to change behavior and encourage increased recovery of reusable fiber. Additionally, in some cases even though paper is disposed, its organic content is valued as a source for generating electricity.