Life Cycle Analysis Encyclopedia Article

Life Cycle Analysis

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Life Cycle Analysis

A typical product has a range of environmental **impact** arising from its manufacture, use, and disposal. A life cycle assessment (LCA) evaluates the entire environmental impact of a product through its life cycle. An LCA might, for example, compare the environmental impact of ordering an item online to going to a store to buy it. The analysis would include the environmental impact of having the item mailed to the purchaser's home directly from the distributor versus having it sent from the distributor to the store, and then having the customer drive to the store to buy it. In this example, an LCA has shown that it can be environmentally preferable to buy products online, but only if the item is sent by standard truck mail rather than by express airmail. Other LCAs have shown that lightweight plastic bumpers are superior to heavier steel bumpers for cars, and that the relative merits of cloth versus disposable diapers depend on how the cloth diapers are dried, because electric drying uses so much energy.

Life cycle analyses of products are typically coupled with efforts to reduce their environmental impact. Extended producer responsibility (EPR) is the concept that the producer of a product is also responsible for recycling the product. In Germany, producers are required to take back the packaging of their products, and in the Netherlands, the cost of cars incorporates a recycling tax.

Internet Resources

Journal of Industrial Ecology. Available from http://www.yale.edu/jie.

U.S. Environmental Protection Agency. National Risk Management Research Laboratory, Life-Cycle Assessment Web site. "LC Access." Available from http://www.epa.gov/ORD.