About Recycling?

Who Is the Recycler?

The **auto body shop** sets aside damaged fenders and hoods from cars that they repair. A scrap metal **collector** who has already visited the town dump to pick up 4 old lawn mowers and 6 broken water heaters brings his truck to the shop, picks up the damaged steel parts, and hauls them to a scrap processing yard in a nearby city. The **scrap processor** weighs the truck, pays the collector for his load, and then directs it to the shredder where, with entire car bodies, old appliances, and other types of steel scrap, they are ground into fist-sized pieces of steel. A **scrap broker** contacts the processor and purchases his pile of now-shredded automobiles and miscellaneous steel, negotiates a sale of this scrap to a steel mill 400 miles away and then arranges transportation for the scrap by truck or railcar. The **steel mill** receives the shredded scrap and mixes it with other types of scrap and raw materials that are then melted in huge furnaces and turned into liquid steel, which is poured, cooled, shaped, and processed into new steel products.

In this story, who is the Recycler? The repair shop that sets aside the damaged parts rather than sending them out with his trash to the town dump? Or is it the collector? Maybe the processor? No? The broker? Or the steel mill who finally consumes the scrap?

The paradox is that none of them individually is a recycler … but together, they are recycling.

Recycling, you see, is not an event, but a process. A process whereby scrap, unintended by-products of manufacturing and obsolescence, is recognized as still having economic value and is turned back into new materials.

Often illustrated as three arrows in a circle, recycling is not separation, not processing, and not re-use alone of materials that have outlived their useful life. All of these activities are required to complete the recycling loop.

What Materials Are Recyclable?

Almost all man-made materials can be recycled … metals, paper, glass, plastics, and rubber are common. Metals are the most recycled, and iron & steel are recycled most of all. Scrap metal markets are highly developed since metals have significant economic value. Mining and processing virgin ores (the alternative to metal recycling) is expensive, environmentally unfriendly, and depletes finite resources. Technology has been developed to efficiently process unprepared metal scrap and to remelt and refine it into new steel, aluminum, copper, etc. Iron and steel have the benefit of being magnetic, a property which permits extremely cost-effective processes to be employed in handling, sorting, and cleaning it.

Volume of Material Recycled
Each Year, in the USA

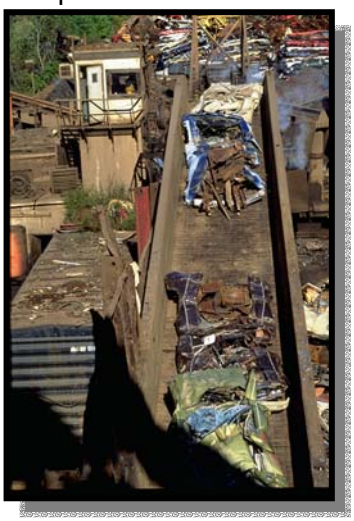
Iron & Steel	62.2 million tons
Aluminum	4.2 million tons
Copper	1.5 million tons
Paper	35.0 million tons
Glass	2.5 million tons

Scrap Processors and Brokers

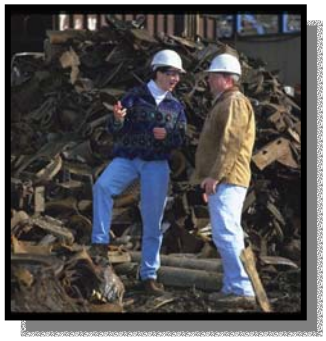
The scrap processor is the entrepreneur who facilitates recycling. The history of scrap processing is filled with stories of small family-owned businesses that have made good. Immigrants who arrived in their new homeland with few resources but tremendous energy and drive started many scrap companies. They took industry's and society's throw-aways and transformed them into marketable products suitable for use as feedstock in the manufacture of new goods. The story of The David J. Joseph Company is not unusual in this regard. An excerpt from the Company's history …

> Joseph Joseph, a native of Germany, settled in Cincinnati, Ohio in 1863 and began a hide and wool trading operation. The business grew and Joseph added his brother, Samuel, to the operation, forming the Joseph Joseph and Brothers Company. In 1885, with the advent of the Industrial Revolution and soaring demand for scrap metal, the Josephs turned to scrap iron trading, abandoning forever the hide and wool business.

Scrap metal processors employ a variety of equipment to sort, size, and clean unprepared scrap so that it is suitable for melting and can be economically shipped to mills and foundries around the world. Scrap metal is cut with acetylene torches and large shears that can crush and cut whole rail freight cars, compressed into bales by hydraulic presses, and shredded by huge rotary hammermills powered by 7,000 horsepower motors.



The scrap broker is the essential link that brings order to what, without him, would be an inefficient, chaotic market. Unlike many other raw materials, scrap is not traded on any commodity exchange. There is no one place to go if you need to buy scrap or if you have scrap to sell. But by continuously collecting information about scrap supply and demand, and then using that information to buy and sell, the broker "makes a market" for scrap recyclables. With thousands of scrap generators and hundreds of scrap consumers on every continent, the number of purchase-sale combinations is staggering. If it were not for the broker, recycling scrap would be more difficult because buyers would have less access to supplies and scrap producers would have less access to alternative markets.



Click here to view a schematic of the ferrous scrap market.

The Scrap Consumer

The consumer of scrap is the most important member of the recycling community, because without a market, without someone willing to buy it, scrap has no value. Scrap is an unintentional result of industrialized economies and consumer societies. No one makes scrap on purpose. But, if there is demand for it from mills and manufacturers of new products, then it will be collected, processed, purchased, and re-used.

Unlike consumer and most industrial products that are made to satisfy a particular need, little can be done to stimulate demand for scrap. Companies who produce televisions, food products, medicines, cosmetics, machinery and every other manufactured product advertise and promote in order to increase demand. The scrap company may advertise its service and reputation, but can do nothing to increase the demand for its products. Simply put, if a scrap consumer does not *need* scrap to support his operations, he will not buy it … no matter how attractively packaged, promoted, or priced.

Markets for recyclables are encouraged by consumer education about the benefits of recycling, by public policy promoting the purchase of products with recycled content, and by legislation and regulation that does not penalize recycling activities while encouraging or supporting those which produce or rely on virgin materials. The Institute of Scrap Recycling Industries, the USA-based trade association that represents the interests of scrap companies, has introduced the concept of Design for Recycling ® specifically to encourage the development of markets for recyclables. Design for Recycling ® seeks to promote the design and manufacture of goods that, at the end of their useful lives, can be recycled safely, efficiently, and economically. Its goal is to encourage preproduction planning for recycling by eliminating hazardous and nonrecyclable materials from the production process.

Environmental Impact of Recycling

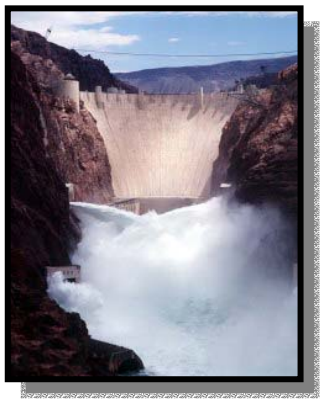
By diverting a large tonnage of material from the waste stream and replacing the use of virgin materials in manufacturing, recycling generates tremendous environmental benefits. Taking cast-off products which contain elements and compounds already refined from virgin materials like oil, ores, coal, and wood and using those old products in the creation of new products saves numerous steps in the manufacturing process. Reduced energy requirements are significant. Less pollution is created. Use of water and other natural resources are a fraction of what is required when starting with virgin materials. Less waste is created and precious landfill space is conserved.

Compared with producing one ton of steel or paper from virgin materials, the use of recycled scrap conserves:

	Steel	Paper
Water	74%	64%
Air Pollution	86%	74%
Water Pollution	76%	35%
Virgin Materials	90%	saves 17 trees

Energy Savings from the use of scrap:

Steel	74%
Aluminum	95%
Copper	85%
Paper	64%
Plastics	80%



The volume of scrap iron and steel purchased in the United States each year

- **would use more than 184,000,000 cubic yards of landfill, if not recycled, at a cost in some communities of $30-35 per yard.**
- **would cover a two-lane highway from Stockholm to New York at a depth of 10 feet.**
- **could be made into a #10 (1 ¼") rebar that would reach from the earth to the moon 23 times.**