Marketing Recyclables

Marc J. Rogoff, Ph.D.

Merely collecting and processing recyclables is not considered recycling - these recovered materials must be reutilized as the source materials for new consumer or commercial products. Thus, viable markets for the sale of recyclable materials, which are retrieved in curbside collection and drop-off and buy-back centers, are essential for the success of a community’s recycling program. One of the most commonly reported barriers facing recycling programs are the absence of markets for recycled products. The prices paid by the brokers or end users of these collected and processed materials help subsidize the cost of the overall recycling program. Over the past three decades, the recycling movement has waxed and waned with the shifts in the oftentimes, invisible economic forces of supply and demand underlying these markets.

The purpose of this article is to point out some of the key market variables of which a public works director should be aware and of how many states have recently attempted to strengthen existing markets and develop new markets through a variety of institutional tools.

Market Forces

Before discussing specific materials and their markets, it is useful to consider some basic issues, which affect the consumption (i.e., availability of end-user markets) of recycled materials. On the whole, the U.S. manufacturing sector has been geared to the use of virgin materials. Product manufacturers, in response to society’s consumer attitude, have long been more attuned to consumer convenience (especially since the end of World War II) than to product durability and reusability. However, in recent years, as waste disposal costs continue to escalate and the public is becoming more aware of the beneficial impacts of recycling, more manufacturers are addressing recycling and reuse in a positive manner. Still, though, there are significant barriers which apply to the reuse of reclaimed materials. These limitations can be broadly grouped in three categories:

1. Limitations affecting the demand of materials in industry;
2. Limitations affecting the supply of materials to industry; and
3. Limitations imposed by government.

These limitations are interrelated and greatly affect the supply and demand of the recyclable materials market.

Limitations Affecting the Demand of Recyclable Materials in Industry

Figure 1 shows the demand curve for recyclable materials utilized by industry to produce final products. This curve demonstrates how much of a particular recyclable material industry is willing to purchase at a given price. The shape of the demand curve (nearly vertical) demonstrates that the demand for recyclable materials is relatively inelastic, (i.e., does not change) with respect to supply. Demand for recyclable materials is dependent largely upon production capacity. Other factors affecting industries demand for recyclable materials are manufacturing capital costs, potential contamination problems, and other costs associated with using reclaimed materials.
Manufacturing Capital Costs
Many manufacturers have complete “in-house” manufacturing processes from virgin materials procurement to final product shipment and may be unwilling to alter these processes in order to accept recyclable materials, for which they have less control over quality, quantity and availability. The expense of current technology has prevented many industries from retrofitting their existing manufacturing process, currently using virgin materials, to processes which utilize reclaimed raw materials. High capital costs required to expand production capacity in order to accept more recyclable materials has also limited the demand.

Potential for Contamination
Raw material specifications can often be met by both virgin and recycled materials; however, the buyer, wary of potential contamination problems, may impose stricter standards before purchasing recycled materials. Large quantities of virgin raw materials that meet material specifications can be procured from a single source, whereas reclaimed raw materials must first be collected from a large number of sources, processed and distributed to a few manufacturers. As the number of sources increases, so does the possibility of contamination.

Other Costs
Other costs associated with the use of reclaimed raw materials are increased inspection costs which are accrued during every step of the manufacturing process from collection to final product approval. As a result of the increased production costs associated with reclaimed materials, many of the products produced are more expensive than those produced from virgin materials. In today’s economically driven society, there is seldom a large demand for an equal, but more expensive product. However, many recent polls indicate that the public is becoming more aware of the beneficial impacts of recycling and would prefer to buy products packaged in containers made from recycled products.

Limitations Affecting the Supply of Recyclable Materials to Industry
Figure 1b shows the supply curve for recyclable materials delivered to manufacturers. This curve indicates the quantity of recyclable material suppliers are willing to supply at every possible price during a given period of time. The supply of recycled materials is shown to be extremely elastic because it is relatively easy and inexpensive to get into the supply side of the business. These elastic and inelastic characteristics of supply and demand combine to cause frequent, and often volatile shifts in material prices and supply quantities over short time periods. The recent decline in the price of recovered newsprint in the eastern
Natural resources occur in concentrated form, whereas recycled secondary materials from waste are dispersed and have high attendant collection costs.

Limitations Imposed by Government
Up to this point in the discussion, the recovering and reuse of recyclable materials could be thought of as a simple supply and demand interaction, where the supply of recyclable materials delivered to manufacturers equal the demand for those recyclable materials. Point "A" on Figure 1B represents a typical equilibrium point. As recently as five years ago, many recyclable markets were felt to be at or near their equilibrium points.

Since that time, however, a great deal of state and federal legislation has been enacted which establishes recycling goals for recyclable materials. To meet these newly mandated recycling goals, communities across the country have established recycling and public awareness programs to promote recycling and reuse. The result of these programs was a dramatic increase in the amount (i.e., supply) of recyclable materials available to an industry which did not (and still does not) have the production capacity (demand) to utilize the materials in many cases. This set of events is shown graphically in Figure 1C. Here the original supply curve $S_1$ is shifted right to $S_2$, and the equilibrium point moved from point "A" to Point "B". The new equilibrium point B shows a slight increase in the quantity of materials reclaimed and a dramatic drop in price paid for those materials.

**RECENT TRENDS**

The U.S. is heavily dependent on the Chinese market for absorbing a major percentage of recyclable paper and plastics we generate. So, potential changes to the market initiated by the Chinese is cause for concern and for assessing contingencies. Officials for the Scrap Recycling Industries, China Scrap Plastics Association, and the Bureau of International Recycling all indicated that China may be rolling out a new policy for expanding the list of banned materials and tightening the quality standards of recyclables coming into their country.

While the actual effect on the U.S. recycling market is not clear yet, it is recommended that Florida public works officials keep a close eye on these developments in the near future. This may include asking your project managers to update their pro forma models for the City’s recycling program to evaluate the partial or total temporary loss of these revenue streams.

Marc J. Rogoff is a Project Director with SCS Engineers and can be reached at (913) 810-5547 or mrogoff@scsengineers.com.