

A Sustainable Environment: Our Obligation to Protect God's Gift

by

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We Need More Recycling at the Expense of Landfilling

A review of global landfilling rates shows that the U.S. is considerably behind Europe when it comes to landfilling. While today many countries in Europe are landfilling less than 5% of the municipal solid waste (MSW), here in the U.S. it is closer to 55%. In the Chicago area, it may be even worse. A recent report by the Better Government Association indicated that only 9% of the Chicago MSW is recycled. This is the lowest of any major metropolitan area with the second lowest being Houston at 17%. It seems to follow the comments of my last two articles which is that we don't care enough to do the right thing.

A report issued by Greentech Media provides data as to the amount of MSW each country landfills, recycles, or converts to energy. While the report is five years old, it gives a good indication of how far the U.S. is behind Europe. Germany, The Netherlands, Austria, Sweden and Belgium recycle about 65% of the MSW and convert about 35% to energy. In effect, none of their waste goes to landfills. The EU as a whole, however, landfills 38% of its waste while the U.S., according to the same report, landfills 69% -- which today is about 55% as mentioned above. One of the reasons that landfilling is so much less in Europe is because it does not have as much open space that exists in the U.S. Consequently, the European countries are more committed to making sure their waste can be diverted from landfills.

To achieve the low landfilling rates in Europe, they have developed technologies to convert the organic fraction of the MSW to energy. For many years, incineration was employed to convert waste to energy. Now the organic fraction is either converted to compost or to a biogas by employing anaerobic digestion. Both of these processes are being employed in the U.S. but not to the same extent as Europe.

To provide an example of why the U.S. is so far behind, I recall a situation about 25 years ago when a process was developed to convert non-recyclable cellulosic waste to a fuel. This waste material consisted of plastic coated cardboard, wax coated corrugated cardboard, chemically treated paper, and other waste that could not be recycled because of its content. The process that was developed consisted of shredding the cellulosic waste and grinding it to under 1/2 inch. Waste polyethylene or propylene film was added to the mixture at about 10-15% of the total. This mixture was then passed through a pelletizer to produce cylindrical pellets about 1/2 inch in diameter and 1-2 inches in length. Depending on the final application, the pellets could also be made into 1 1/2 inch cubes. The addition of the plastic film increased the heat value of the pellets from the average heat value of cellulose of 5,500 BTU/lb to closer to 10,000 BTU/lb which was not much less than stoker grate coal.

These cellulosic pellets were sold to organizations that operated stoker grate boilers and replaced a portion of the coal feed with the pellets. In general, these pellets were priced cheaper

than coal and were environmentally cleaner. The pellet producer was able to price the pellets competitively because it was also gaining revenue from the disposal of the cellulosic waste. This pellet producer had an operation in Wisconsin and one in Virginia. At the Virginia operation, one of the waste feedstock was cigarette paper. A nearby cigarette company produced about one million off-spec cigarettes per day and could not afford of disposing the valuable tobacco. So it reclaimed the tobacco while disposing of the paper which had been chemically treated to provide wet strength so that it is not dissolved by the smoker's saliva.

After three years of operation of these two facilities, the technology and demand was proven giving the company the confidence to expand into other markets. This was a great example of what today is called the circular economy. However, the parent company being in the waste disposal business was focused on maximizing its landfill revenues. Consequently, it shut down these two operations because they were diverting waste away from the landfills. Today, this would not have happened as most of the waste disposal companies are into the circular economy and are looking for more opportunities to make more use of the waste and thus increase their revenues. It has become critical to the waste industry as most of their customers are finding ways to reduce their waste production -- at the cost to the waste industry.