Evaluating Recycling Rates Provides a Missing Link to Sustainability

Raleigh, NC (August 13, 2012) – As part of efforts towards a more sustainable society, primary focus has centered on key areas of community infrastructure such as food, water, energy and managing wastes. While most of these areas of infrastructure acquire data to actively control and track these resources, managing solid waste has historically suffered from a lag in the availability of data, or a lack of data altogether. While in some cases data is being used from an operations standpoint, information such as the amount of waste generated or recycled, which guide operations, goal setting and policymaking, can take a year or more to become available.

Recent efforts by the Environmental Research and Education Foundation (EREF) are rapidly closing this gap and redefining how such data can be used to make solid waste more sustainable and cost effective. Recently EREF developed a novel approach to analyze recycling collection data. Twelve months of recycling collection data from Chesapeake, Virginia, a mid-sized city with a population of 225,000, were provided to EREF by TFC Recycling and Sonrai Systems with the question: Is there anything you can do with this data that might help increase recycling rates? “Initially we thought this would be a great project to plug into our intern program,” noted EREF President and Chief Executive Officer Dr. Bryan Staley, “but what we found has allowed us to evaluate the data in a unique way that could redefine how recycling programs are managed.” The analytics developed provide a couple pieces of critical information that have not been used in the past.

One key advancement is the way in which recycling and participation rates are determined for a city. For example, in the past recycling rates have typically been computed on a citywide basis, where the tonnage of incoming recyclables from a city is measured at a materials recovery facility. Then this tonnage is used to compute a recycling rate per home or individual. While this provides an average recycling rate for the entire city, it does nothing to assist solid waste division personnel to actively manage their recycling program on a routine basis or within specific areas within the city. “In other words, managers do not know how variable participation and recycling rates are within certain areas of their city and it takes a long time to get rate information into the hands of those who can use it. By the time data is provided that might indicate a problem, the data is typically a year old or more, which makes it difficult to compare to stated goals and implement educational and incentive measures in a timely manner,” noted Staley.

The EREF methodology takes advantage of recent advances in tracking techniques and couples the data collected with geographical information system (GIS) data. The data can be sourced from high-tech approaches like radio frequency identification (RFID) to data collected manually by solid waste personnel; the only key requirement is that the data be coupled to a geographical location and a
collection time. This allows for participation and recycling rates to be computed for a neighborhood, street or even an individual residence which means, in many cases for the first time, cities know exactly where their recycling program is working and where it is not. “If I know rates are above average or below expectations in certain sections of the city, we know specifically where to spend our time and dollars on educating and incentivizing residents to recycle. This is crucial and saves taxpayer dollars because we no longer need to do ‘blanket’ spending across the entire city on the recycling program,” explained David Thompson, Solid Waste Director with the City of Chesapeake.

But why might recycling or participation rates be lower in one area versus another? And how does one design a program that is effective in raising rates for low areas of participation? This is the second crucial piece of information that the EREF analytics provide. Staley explains, “Once we have geospatially coded data, we then overlay demographic information which allows us to determine if any correlations are present that indicate why a particular rate may be depressed.” For example, the data analyzed thus far show that low participation rates correlate highly to certain demographic variables like income or housing type (e.g. single family homes vs. townhomes). This means education or greater awareness may not be the primary solution that results in an increased participation for a particular area. Other factors may play a role.

In addition to recycling, the same analytics can be applied to discarded wastes destined for a landfill or waste-to-energy facility. “The potential impact of the approach developed is huge, and could be the biggest thing to hit the solid waste industry since single stream recycling. The benefit of increasing recycling participation rates means cost savings and job/tax creation,” said Michael Benedetto, President of TFC Recycling. “The ability to provide tailored, targeted incentives within a city is an enormous stride forward. These analytics provide the information needed to do this by identifying underperforming areas and guiding the development of strategic rewards and outreach programs,” stated Bill Dempsey, President of Recycling Perks, which increases participation rates by giving people rewards for recycling. Tony Romano, Vice-President of Sonrai Systems noted, “We are just starting to see the enormous potential in how collection data can be used and have been able to provide RFID-based data to EREF as part of their initial efforts on this project. We are excited to be involved in this groundbreaking work.”

EREF plans to apply the analytics developed to a number of additional cities nationwide in the near future. For more information on how to participate in this program, please contact EREF at (919) 861-6876 or bstaley@erefdn.org.

**EREF** is a 501(c)3 class charity that funds and directs scientific research and educational initiatives for waste management practices to benefit industry participants and the communities they serve. For more complete information on EREF funded research, its scholarship program and how to donate to this great cause, visit [www.erefdn.org](http://www.erefdn.org).

###