Local Waste Management Strategies

The improper handling of waste has adverse affects that are experienced by the environment and humans. When animals such as seabirds and sea mammals consume floating waste, food chains are affected and populations can decline. A good example of this is the Great Pacific Garbage Patch, which boasts a land area twice the size of France (Grant, 2009). Waste management issues are recognized by cities all over the nation, and certain municipal governments can, and have, taken steps to lessen these impacts. For example, in Attleboro, Massachusetts, an EPA program was developed to charge money for excess waste disposal. In Philadelphia, Pennsylvania, solar-powered trash compactors were placed around the city to decrease volume and litter. Furthermore, San Jose, California has implemented a plastic bag ban for environmental reasons. These innovations and laws are models for other local governments to follow, because they have shown success in reducing waste and keeping cities clean.

Residents in the U.S. have little incentive to generate less trash, because waste collection payments are at a fixed rate no matter how much or how little waste is generated (EPA, 2012). However, the U.S. Environmental Protection Agency’s (EPA) ‘Pay-As-You-Throw’ (PAYT) program addresses this issue. It is a unit pricing system where residents are charged for municipal solid waste (MSW) collection per unit of waste accumulated rather than through a fixed fee (Canterbury, 1999). Simply put, the more trash generated, the more residents pay (and vice versa). Being that this is an EPA program, any California city that successfully adopts PAYT will, by default, be in compliance with CalRecycle’s requirements for reduced landfill
and increased recycling. According to communities that have adopted the PAYT program, not only is waste volume reduced, but the overall cost of MSW collection decreases as well, which encourages alternatives such as recycling (Canterbury, 1999). There are two different methods to measure the MSW: a volume-based system and a weight-based system. Volume-based systems charge residents based on the number and size of their containers, while weight-based systems weighs the MSW collection at the curbside and bills the residents for this service per pound (Canterbury, 1999). While the weight-based system is more effective, it is also more expensive and harder to implement. This is why most cities opt to use the volume-based method instead.

The city of Attleboro, Massachusetts, experienced success with the PAYT program even though it was originally met with opposition. A cost/benefit analysis showed that unlimited waste pick-up would increase fixed, residential fees by $60 coupled with a 15% annual increase; Compared to the PAYT system, which would only increase fees by $30 with no additional increase (Skumatz & Freeman, 2008). Attleboro opted to use a volume-based system with prepaid bags instead of normal trash containers. This charged a $15.00 monthly fee that allowed residents to dispose up to, “36-gallons of trash weekly, and unlimited dual-stream, curbside recycling” (Skumatz & Freeman, 2008). After a successful first year, the PAYT program had lowered the residents’ fees to $24/year due to an increase in recycling and a decrease in MSW collected (Skumatz & Freeman, 2008). Attleboro is a great example of the success the PAYT program can have in reducing MSW and increasing recycling.

Municipal garbage cans are necessary in order to give people a designated location to place their trash and reduce street litter. However, inevitable issues arise such as: quick overflowing, the constant maintenance needed to empty them, and the intermixing of recyclables. In 2008, Philadelphia adopted the BigBelly program, which replaced their wire
basket containers with solar-powered trash and recycling compactors called BigBellies (The BigBelly Program, 2013). These trash and recycle bins are the same size as normal outdoor trash containers, but they can hold a substantial amount more due to their compacting features. This helps save money and fuel by significantly decreasing the vehicle time spent on collecting the trash (Poss et al., 2009). In addition, by offering recycling cans, people are less likely to intermix recyclables and waste in the same bin as is seen with conventional garbage cans (Poss et al., 2009). Other sources of compaction require an electrical grid connection or fuel source, which are both costly and inefficient (Poss et al., 2009). Solar energy is a cleaner alternative, and it also allows the BigBellies to be placed, “in remote locations where other forms of power are impractical and uneconomical” (Poss et al., 2009). Philadelphia has experienced very positive results by adopting the BigBellies. According to the Philadelphia website, “collections were reduced from an average of 17 per week using three crew shifts to about 3 per week using one crew shift” (The BigBelly Program, 2013). The production of these items is a lot more costly than normal garbage container production; however, the money, fuel, and time saved via compaction and solar-energy will pay themselves off in the short and long term. If a California city were to adopt this program, they would be in compliance with CalRecycle by upholding the ideas behind AB 939: helping conserve landfill space and encouraging recycling on the spot.

Plastic bags have many conveniences, however, the adverse effects following the manufacturing and disposal of these bags make them a high priority in waste management. Manufacturing plastic bags requires natural resources such as petroleum and natural gas and accounts for 4% of total oil production in the world (Ellis, 2005). Though plastic bags are reusable, they are not biodegradable. Quite often, plastic bags are normally thrown out and end up in landfills where they disperse and cause many adverse effects (Ellis, 2005). Lightweight
plastic bags are susceptible to being carried off by the wind and flying into areas where animals may consume them (Ellis, 2005). Thousands of animals that ingest the toxins emitted from plastic bags die each year (Ellis, 2005). A plastic bag ban has been implemented in cities throughout California in order to combat these negative effects.

These wide range of issues caused cities like San Jose, California to develop a Single-Use Carryout Bag Ordinance (SB-270). In California, under AB 2449, stores and retailers are unable to enforce a plastic bag fee. Since a fee cannot be put on plastic bags, San Jose opted to ban them altogether and to incur a $.10 fee per paper bag bought (ICLEI, 2012). The objective of this Ordinance was to prevent this issue of manufacturing and disposing of plastic bags altogether and to increase consumer use of reusable bags (ICLEI, 2012). The funding of this Ordinance came from the Environmental Services Department’s Zero Waste Program, which is monetarily supported, “by waste-management related fees, charges and grants” (ICLEI, 2012). The City of San Jose released a Draft Environmental Impact Report (DEIR), which showed the impacts from this Ordinance. A reduction of 500 million retail plastic bags annually has the potential to decrease San Jose’s plastic bag disposal by about 1,140 tons per year (ICLEI, 2012). This reduction is expected to decrease greenhouse gas emissions by as much 9,600 tons of C02e; additionally, San Jose plans to increase the paper bag fee to $.25 which is projected to reduce C02e by 15,000 tons (ICLEI, 2012). San Jose has taken the steps to reduce the negative impacts presented by plastic bag manufacturing and disposal. The DEIR performed showed the positive impacts of banning the bags, and is a strong example for other cities to follow.

Poor disposal practices are causing hazardous levels of waste accumulation. The three local strategies presented in this paper all provide different, yet viable, methods for addressing waste management for the environment, human health, and wildlife safety. Implementing a
PAYT program incentivizes residents to find alternative methods of disposal; whereas, the BigBelly solar-powered compactors do not influence the amount of garbage generated, rather they consolidate the trash to save maintenance time and fuel. The plastic bag ban, on the other hand, aims to eliminate the source of waste altogether in order to prevent its adverse effects at all levels. BigBelly containers would prove more efficient in high-traffic cities, because the maintenance time and fuel consumption would be greater than in low density areas. However, in the PAYT program, it would be more difficult to record waste generation in highly populated cities due to the greater number of residents the municipal government must account for. Conversely, the plastic bag ordinance would perform well in either a low or high density setting. Municipal governments have shown that it is possible to implement programs and ordinances that can help mitigate the excessive accumulation of waste. By using these solutions as models, other local governments can improve their waste management practices and keep the environment clean.

Works Cited


ICLEI - Local Governments for Sustainability. “Case Study: San Jose, CA’s Single-Use Bag Ban.” 17 June 2012.


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