

**Textile Recycling Partnerships:  
Weaving Together or Wearing Each Other Out?**

**A thesis  
submitted by  
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## **Abstract**

This thesis investigates the potential of textile recycling partnerships by examining how initiatives fulfill the goals of creating quality jobs for low-skilled workers, decreasing municipal solid waste costs, increasing environmental benefits, and encouraging residential participation. It examines how the composition of the partnerships and ways partners work together influence the sustainability of their partnerships and the how they pursue their goals. Findings suggest that more integrated partnerships are harder to pursue and maintain than those with less interdependence among actors. Less integrated partnerships between local governments and rag-graders can create environmental benefits and reduce costs to local government. Partnerships including nonprofits increase residential participation and create quality jobs for low-skilled workers while maintaining the environmental and cost savings benefits. However, nonprofits seem to make the partnerships less sustainable. The more actors involved, the more goals are fulfilled, but the initiative is likely to be less sustainable in the long-term.

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# **Chapter 1: An Introduction to the Problem of Textile Waste and the Potential for Partnership**

## **The Problem of Textile Waste and Potential for Partnership**

Although nearly 100% of post-consumer textile waste is recyclable, the EPA reports that the textile reuse and recycling industry only diverts approximately 5% from the municipal solid waste stream (2010). It is surprising that such a large portion of textile waste winds up in landfills because there is so much to gain from reuse and recycling discarded clothing and other fabric. Not only do textile recycling initiatives create environmental benefits; a wide range of organizations derive profits and resources from reusing or recycling the waste. In addition, some organizations create job training and employment opportunities by engaging in collection and sorting.

One reason more of the waste is not being recycled is that the process is complex. It involves several steps, requires a diverse set of skills, and demands substantial consumer participation. Some recommend forging inter-organizational partnerships in order to contend with this complexity. Indeed, charitable collection agencies, textile sorting and recycling companies, and local governments have joined forces to take advantage of their complementary skills sets and resources to convert tons of textile waste into profitable products, while advancing social and environmental goals (Platt, 1997).

Despite the apparent potential of textile recycling partnerships, they have yet to be researched systematically. Brenda Platt's (1997) report for the Institute for Local Self-Reliance, describes several textile partnerships in some detail. However, the report does not analyze which types of initiatives are more likely to work effectively. Nor does it examine the conditions that influence their ability to do so. Moreover, my preliminary investigation of the websites of the initiatives included in Platt's report revealed that many are no longer in operation. This discovery made me curious about how working together can help localities make better use of their textile waste, while contending with the complexities of the textile recycling industry.

This thesis investigates the potential of textile recycling partnerships more systematically and rigorously than Platt's study of the textile recycling system. I draw from theories about inter-organizational coordination and collaboration to examine previously documented and currently operating textile recycling partnerships. The project aims to identify models that have been successful in terms of environmental benefits, job creation, and cost/revenue. I also extend beyond the description to ascertain the characteristics of the partnerships that are associated with such measures of success. In particular, I ask whether the composition of the partnerships and the extent to which partners work together influence the sustainability of their partnerships and the extent to which they achieve their goals.

Currently, there is very little research on textile recycling partnerships. It's worthwhile to learn the extent to which stakeholders

partner in textile recycling initiatives in order to discern which collaborative compositions are most effective and efficient and in what contexts.

### **Key Findings**

Ultimately, these partnerships among local governments, rag graders, and nonprofits helped the actors deal with the complexity of textile recycling, while increasing residential participation in the programs. Many initiatives experienced the benefits of partnership. They took advantage of one another's diverse resources and competencies. When a nonprofit was involved, the initiatives also benefited from more positive community perceptions of the program and an increased number of quality jobs for low-skilled workers. Of the four goals, the initiatives were best at achieving the environmental goal of waste reduction. Many were also adept at reducing government costs and increasing revenue. Local governments were also skilled in educating residents regarding their textile recycling programs. However, without a nonprofit devoted to the employment of vulnerable populations, few quality jobs were created for low-skilled workers with these initiatives.

Many of the initiatives faced challenges around partnership, yet little was done to prevent or mitigate the issues. This finding reinforces prior observations that partnerships are difficult to pursue. I observed considerable turnover among the various actors involved in the textile recycling initiatives. Moreover, most of these initiatives adopted the least

extensive forms of partnership and those that had been more integrated in 1997 eventually decreased their level of collaboration.

These findings lead me to cautiously recommend that local governments partner with professional rag graders to ensure that the initiative achieves environmental benefits, while generating revenue and reducing disposal costs. Local governments may also benefit from a more integrated partnership with nonprofits to use the nonprofit's legitimacy to encourage residents to participate in the textile recycling program, while creating quality jobs for low-skilled workers. More integrated partnerships will require better planning and a greater investment of resources, but the benefits may outweigh the challenges.

#### **Outline of the Following Chapters**

The second chapter situates my investigation of textile recycling partnerships in relation to what we know about waste and recycling in the United States. I show that there are economic, environmental, and occupational reasons to include them in current recycling programs. I describe the textile recycling system and suggest that the complex process of multiple steps and a diverse set of competencies is one reason for low textile recycling rates. I identify these actors and point to the potential of collaboration among them as a means to increase textile recycling rates.

The third chapter discusses the partnership literature, including what partnership entails, the advantages and drawbacks of collaboration, as well

as the possible configurations of the partnerships. The literature is not specifically applied to textile recycling, but it provides the conceptual framework for analyzing the initiatives included in my study

The fourth chapter outlines my methodology for selecting and investigating my case studies. I focused on the ten case studies from Brenda Platt's *Weaving Textile Reuse into Waste Reduction* (1997) because these represent a broad range of different forms of collaboration. They also vary in respect to how much they achieve the different outcomes I have chosen to examine. The majority of individuals that I interviewed were from local government. Thus, this document is likely most useful to individuals seeking information about textile recycling initiatives from a government perspective

The fifth chapter describes the seven case studies for which I was able to interview some of the actors from Platt's case studies. The discussion explicates which actors were involved in each textile recycling initiative, how the partnership has changed over time, and the extent to which the partners worked collaboratively with one another. Additionally, the case studies detail the division of labor among the actors and how they reaped the benefits and contended with the challenges of partnering with other organizations.

The sixth chapter synthesizes the gleanings from the seven case studies with regards to the four desired outcomes of textile recycling and the benefits, and challenges of partnership. More specifically, this thesis examines the composition of the partners and the process of collaborating.

The seventh and final chapter draws conclusions about what I learned about how partnerships helped local governments contend with the complexity of textile recycling. I close this chapter with recommendations for further research to expand on my findings and suggest some approaches local governments might investigate around recycling partnerships.

## **Chapter 2: Textile Recycling in the United States: A Potential Solution to the Waste Crisis?**

This chapter situates my investigation of textile recycling partnerships in relation to what we know about waste and recycling in the United States. I discuss the problems created by waste and the environmental and economic benefits generated by recycling. Research suggests that although recycling rates have increased, there are still many opportunities for reducing waste and increasing recycling. I argue that textiles are a less common recyclable material and that there is the potential to increase the recycling rate nationally through the inclusion of textiles in recycling initiatives.

After this discussion of solid waste in general, I examine the specific challenges of textile waste and its recovery. I then explain why textile recycling involves a particularly complex process that depends on multiple actors with disparate goals or guiding values. I close the chapter with an examination of the potential for coordination among these actors to increase textile recycling and maximize gains.

### **Waste and Recycling in the United States**

According to the Environmental Protection Agency (EPA), Americans produced 243 million tons of municipal solid waste (that is, trash) in 2009, almost a three-fold increase since 1960, when municipal solid waste was 88.1 million tons (2010, p. 2). In 2010, the United States incinerated 29

million tons of municipal solid waste, or 12% of the waste stream (EPA, 2012, n.p). Landfilling and incinerating such waste is not without consequences, both economic and environmental.

Landfills are considered much safer for the environment than they once were because of stricter regulations, instituted by the EPA in 1988, aimed at improving groundwater and air quality (Carless, 1992, p. 24; Taylor, 1999, p. 405; Tchobanoglous and Kreith, 2002, p. 4.3). However, some believe that landfills still pose environmental risks to surrounding communities. For example, Carless posits that leachate can still contaminate groundwater and methane emissions can pollute the air (1992, p. 24-25). G. Fred Lee, a groundwater expert, also argues that the current liners (or protective plastic layers meant to protect groundwater) may be inadequate (Taylor, 1999, p. 406).

While regulations have made landfills far safer, they have also meant that landfilling waste is more expensive. The EPA's 1988 regulations require stricter environmental standards and logistics for landfills, including superior liners, monitoring systems, and advanced staff training, in turn increasing the fixed costs of the operation (Taylor, 1999, p. 405).

Tchobanoglous and Kreith estimate that the operating costs of waste disposal in a landfill can run between \$10 and \$120 per ton, in addition to the construction costs that range from \$25,000 to \$40,000 per ton of capacity per day (2002, p. 1.17 and 1.19).

In order to compensate for an increase in fixed costs, operators must dispose of larger volumes of waste, which typically means expanding their service areas to include other cities, counties, and, in some cases, states (Taylor, 1999, p. 405). Due to the larger service areas, the environmental impacts lie not just within the landfill itself, but also in the interstate transit of the municipal solid waste and the consequent air, water, and noise pollution (Taylor, 1999, p. 405).

The EPA has begun to explore alternatives to landfilling to reduce these environmental and economic costs. The EPA has established a hierarchy of waste reduction options. Source reduction and reuse are considered the most desirable, followed by recycling, and incineration with energy recovery, in order from most to least preferred, with landfills being the least preferred (2011). Source reduction is generally defined as reducing the amount of waste disposed through the manufacture and reuse of more sustainable materials. Reuse is one type of source reduction that refers to the use of a discarded item either for its original or an alternative purpose without undergoing significant changes to its form (Government of California, 2010). In contrast, recycling involves converting a piece of waste into something new (Government of California, 2010). Incineration with energy recovery refers to controlled burns of waste in which the heat generated is converted to energy, which supplies the surrounding communities (EPA, 6 Sept 2011).

Recycling solid waste results in a lower environmental impact than landfilling (Eriksson et al., 2005, p. 241). According to the EPA, recycling reduces greenhouse gas emissions, as well as water and air pollution (2009, p. 10). In fact, recycling reduced carbon dioxide emissions by 178 million metric tons in 2009 (EPA, 2010, p. 4). In addition, recycling reduces the demand for finite resources and energy. Recycling also decreases the need to mine for virgin materials to make new products (Tchobanoglous and Kreith, 2002, p. 1.9-1.10).

In addition to the environmental advantages, recycling yields significant economic benefits (Eriksson et al., 2005; EPA, 26 July 2011; Tellus Institute with Sound Resource Management, 2011, p. 1). The Office of the Federal Environmental Executive states that recycling and remanufacturing generated approximately one million jobs and \$100 billion in revenue (1998, p. 14). A report by the Tellus Institute with Sound Resource Management estimates that the employment figure is closer to 2.3 million jobs (2011, p. 1). According to the EPA, the recycling and reuse industry creates low-, medium-, and high-skilled jobs in quantities that exceed the number of traditional waste management jobs (26 July 2011). Recycling and reuse can also add value to materials that would otherwise be discarded (EPA, 6 Sept 2011; EPA, 26 July 2011).

Incineration with energy recovery, expanding landfills, and consumption reduction are alternative ways to cope with waste. These options do not maintain the environmental or economic benefits when

compared to recycling and reuse. Recycling and reuse as waste reduction strategies are optimal because they avoid the need for more permanent disposal options, while potentially adding value back to unwanted goods (EPA, 6 Sept 2011; EPA, 26 July 2011).

However, recycling also poses challenges in relation to both cost and revenue. For one, recycling can be expensive. While specific figures regarding recycling expenses and revenues are not available due to variability over time and across regions (Tammemagi, 1999, p. 36), Tchobanoglous and Kreith estimate that capital and operating costs of a materials recovery facility range from \$20,000 to \$40,000 per ton per day and \$20 to \$60 per ton, respectively (2002, p. 1.16-1.19). Additionally, I can infer from anecdotal evidence that the revenue from the sale of recyclables is not always consistent. In a 2008 interview with the New York Times, various interviewees reported experiencing plummeting prices for their recyclable materials (Galbraith & Richtel). Consequently, many of the programs were stockpiling or disposing of recyclable materials until the respective market improved, undermining the cost-savings of the initiative. Because of this market variability, it can be challenging to plan an economically viable recycling initiative.

Even in the face of these challenges, recycling rates are increasing throughout the country. According to the EPA, 61 million tons of municipal solid waste were recycled in 2009 (2010, p. 2). This marks an increase from 5.6% in 1960 to 33.8% in 2009. However, total tonnage of municipal solid

waste has also increased significantly from 88.1 million tons in 1960 to 243 million tons in 2009 (EPA, 2010, p. 2). In other words, nearly two-thirds (or 162 million tons) of solid waste remains in the waste stream.

Although the trend of increasing recycling rates is promising, research suggests that considerably more waste can be diverted from the landfill. Experts estimate that up to 80% of municipal solid waste is recyclable (Carless, 1992, p. 7). Thus, much of the material being landfilled could be reused or recycled, indicating that more waste reduction is possible.

The EPA is seeking to expand current recycling programs (Domina and Koch, 2002, p. 17). In order to achieve this strategy, Domina and Koch specifically recommend increasing the list of traditional recyclables to include textiles (2002, p. 17). However, very little is known about textile recycling and how its traditional capacities can be expanded.

#### **The Problem of Textile Waste**

The EPA report *Municipal Solid Waste in the United States: 2009 Facts and Figures* (2010) establishes that discarded textiles account for a significant portion of the solid waste that winds up in the country's landfills. According to the EPA, nearly 8.3 million tons of clothing and shoes were landfilled in 2007. This waste accounts for 3.3% of the municipal solid waste (MSW) stream by weight (EPA, 2008, p. 79). When carpet, towels, sheets, and other fabrics are included, the figure increases to 11.9 million tons, or 4.7% of MSW by weight (EPA, 2008, p. 35). In 2009, this figure increased to 5.2%

percent (EPA, 2010, p. 7).

Textile waste is certainly not the largest contributor to municipal solid waste, as seen in Table 1.1. Paper products, food scraps, yard trimming, plastics, metal, and wood all comprise more of the waste than do textiles.

**Table 1.1: Environmental Protection Agency’s List of Common Recyclable Materials, Their Percent of Total Municipal Solid Waste, and Their Recovery Rates in 2009**

<b>Material</b>	<b>Percent of total municipal solid waste</b>	<b>Recovery rate</b>
Paper and paperboard	28.2%	62.1%
Food scraps	14.1%	2.5%
Yard trimmings	13.7%	59.9%
Plastics	12.3%	7.1%
Metals	8.6%	34.5%
Wood	6.5%	14.1%
Textiles	5.2%	14.9%
Glass	4.8%	25.5%
Rubber and leather	3.1%	14.3%
Other waste	3.5%	Unknown

Environmental Protection Agency. (December 2010). *Municipal Solid Waste in the United States: 2009 Facts and Figures*.

<http://www.epa.gov/wastes/nonhaz/municipal/pubs/msw2009rpt.pdf>

Despite the relatively small share of its contribution to the overall waste stream, textile waste warrants further attention for several reasons. First, landfilling textiles is detrimental to the environment (Bureau of International

Recycling, n.d.). Natural fibers like wool decompose and produce methane, a gas that is problematic for two reasons: its potentially flammable nature and its contribution to global warming (Tammemagi, 1999, p. 8 and 11). Some synthetic fibers do not decompose at all, continuously consuming space and, in turn, becoming a direct cost to the landfill (Bureau of International Recycling, n.d.). Second, even though textile waste is a small portion of total municipal solid waste, it is still costly. The average landfill tipping fee in the U.S. was \$34.29 per ton in 2005, meaning that textile waste cost approximately \$408,051,000 to landfill (Repa, 2005).

Perhaps most significantly for the purposes of this project, landfill is not the only option for textile waste. Jana Hawley (2006, p. 2) maintains that virtually 100% of textile waste can be reused or recycled, while SMART, an industry trade group, suggests in their media kit that the figure is closer to 95%. Despite these figures, SMART estimates that only 15.9% of textile waste is diverted from the waste stream; the EPA reports reclaiming 13.8% (2007, p. 9). As Table 1.1 illustrates, this recovery rate is substantially less than that of other waste sources, including paper and paperboard, yard trimmings, metals, and glass.

Additionally, there is a large amount of untapped revenue from the sale of used textiles. From my interviews, most respondents reported receiving between \$100 and \$200 per ton of used textiles, and the price has been relatively stable. In contrast, other recyclable materials have not experienced the same profits or consistency. While there is little formal

literature about the market rate for recyclables, from anecdotal evidence there has been turbulence in their prices. For example, mixed paper was selling for \$20 to \$25 per ton, a decline from \$105 months earlier (Richtel & Galbraith, 2008). Tin was similar in that it generated \$5 per ton in income, down from \$327 per ton (Richtel & Galbraith, 2008). Nevertheless, textiles are being recycled at rates far lower than other materials, as seen in Table 1.1.. Ultimately, considerably more textile waste could be recovered (that is, reused or recycled) than is currently.

#### **The Potential for Textile Waste Recovery**

Recovered textiles can be used in a variety of ways, including both reuse and recycling options. Many of the clothes fit for reuse can be sold domestically through thrift and vintage shops or internationally to developing countries or low-income populations in developed countries (Hawley, 2006). Hawley estimates that nearly 46% of diverted textiles are sold for reuse (2006, p. 8). However, there is no estimate for how much textile waste is fit for reuse.

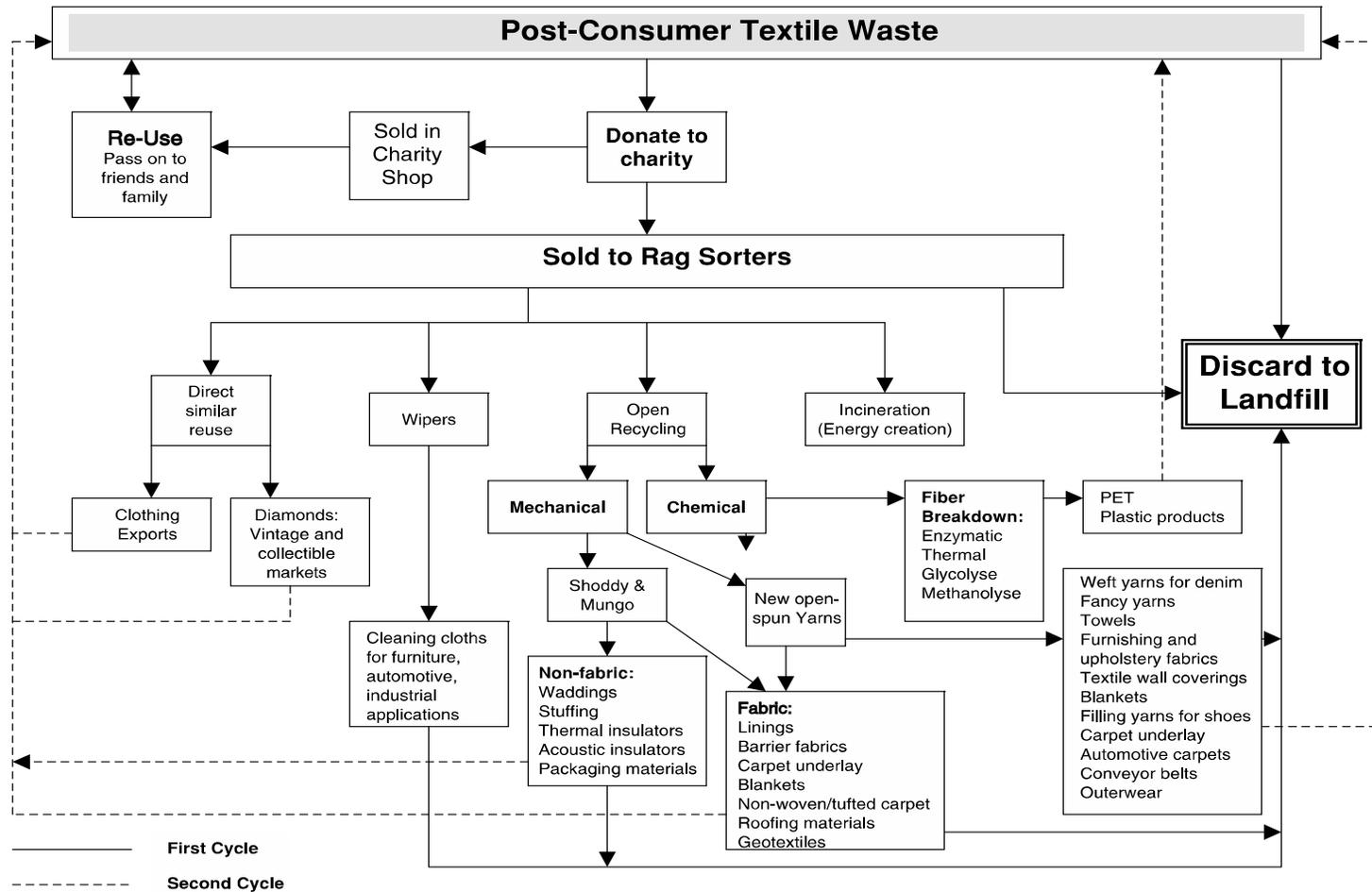
Additionally, textile waste can be recycled to produce a wide variety of post-consumer products, including wipers (for cleaning purposes), rags, stuffing, automotive components, insulation, carpeting materials, yarn, flocking, plastic products, and many more (Hawley, 2006). These products vary in terms of the energy required to recycle them.

The process of cutting fabric to produce wipers and rags consumes the least amount of energy. The more energy intensive recycling process involves shredding the materials to extract fibers, either through mechanical or chemical processes, to create new textiles, non-fabric materials, or plastics. SMART estimates that approximately 30% of recovered textiles become rags and wipers and 20% is recycled into stuffing, insulation, sound proofing, carpet padding, and other materials (n.d., p. 2). It should be noted that both the reuse and recycling of textiles is referred to collectively as textile recycling by the sector itself, and it will be used as such in this document.

**The Complexity of the Textile Reuse and Recycling System:**

The Council for Textile Recycling hypothesizes that the discrepancy between amount actually recovered and amount that could be recovered is due to inadequate collection of used textiles (1997). An additional explanation is that once collected, the system for recycling textiles is complex, involving intricate processes, specific skill sets, and many actors. Figure 1.1, taken from Hawley's *Digging for Diamonds*, portrays this complexity.

Figure 1.1: General Lifecycle Schematic of Post-Consumer Textiles



Hawley, J. (July 2006). Digging for Diamonds: A Conceptual Framework for Understanding Reclaimed Textile Products.

This section describes this complex system with reference to Jana Hawley's research, supplemented with my own research and interview with her. Hawley's flowchart in Figure 1.1, accompanies this discussion.

### *Post-Consumer Collection*

As we can see from Figure 1.1, the process begins with the consumer. Consumers either donate their used textiles to charities or discard them with their other trash and recyclables. Textile waste is collected from consumers through a variety of means, including curbside pick-up, in-store drop-off, and donation bins (Platt, 1997). There are advantages and disadvantages to each mode of collection. The advantage of curbside pick-up is that the collector ultimately accumulates more textiles because it is the most convenient option for the resident (Domina & Koch, 2002). However, the items are likely of a lower quality (or grade) (T. Brownell, personal communication, August 26, 2011). Another disadvantage of curbside collection is the harmful exposure to other recyclables and the elements (R. Harvie, personal communication, August 19, 2011). Both the lower grade and the possible soiling of the textiles tend to reduce the revenue generated from sale of the textiles (R. Harvie, personal communication, August 19, 2011). For in-store drop-off, residents are able to visit their local used clothing stores and donate or sell their items there. I infer that the relative inconvenience of in-store drop-off results in a lower amount of collected textiles. However, individuals tend to feel more comfortable donating higher quality items to in-store drop-

off sites (T. Brownell, personal communication, August 26, 2011). In contrast, donation bins are typically placed in high-traffic areas like the parking lots of grocery and retail stores for residential accessibility (D. Vigilante, personal communication, August 5, 2011). The bins are convenient for consumers, but the containers maintain a higher risk for contamination and textile degradation due to their lack of monitoring. Each of the three forms of collection requires different infrastructure and storage capacities. Ultimately, each form of collection is specialized and generates varying tonnage and grades of recovered textiles. This specialization is conducive to tailoring the collection approach to demands for different grades and quantities further along in this complex system.

#### *Domestic Reuse*

After collection, if the textiles are to be sold in a domestically operated store, the textiles are sorted either in-store or in a regional processing facility by what is saleable in the current season (Platt, 1997, p. 30). Items deemed appropriate for in-store sale will be organized on the store floor. In order to sell used clothing, an organization must maintain a public retail space and appropriate staff, a very specific skillset.

#### *Sale and Transportation to Rag Graders*

Rag graders, the subsequent handlers in the process, will purchase the residual not sold in-store from a collection facility or individual retail

location. Curbside pick-up programs typically entail a separation of textiles from other recyclables in a municipal recycling facility (MRF) where the waste is set aside until a rag grader is able to collect the items (Platt, 1997). This requires storage space and staff hours to store and sort the textiles. Based on my research, donation bins are already filled largely with textiles, so they do not require the same sorting that curbside pick-up and in-store drop-off programs involve. Rag graders typically service the bins.

The textiles are collected by truck from in-store locations, regional sorting facilities, municipal recycling facilities, and donation bins (Platt, 1997). Careful consideration of timing, transport route, and total tonnage collected determine the schedule of these collections (Hawley, personal communication, February 8, 2011). Transportation from stores and collection facilities is a significant cost and specialty for the rag grader, as they are largely responsible for this duty.

### *Skilled Sorts*

At the rag grader's facility, skilled employees perform a more complex sort by fiber, quality, color, size, and season (Hawley, personal communication, February 8, 2011). The employees with more advanced sorting skills are responsible for the finer grading of the textiles (Hawley, 2006, p. 7). For example, skilled staff should be able to determine blends from pure natural fibers by a touch of the hand. Skilled staff are valued

because the more precise the sort, the more money generated from the used textiles (Hawley, 2006, p. 7).

#### *Direct Similar Reuse*

The clothing that is unsuitable for resale in the domestic market is exported overseas in large bales. To be sold overseas, relationships must already be established, which, according to Hawley, is time consuming (2006, p. 4). Rag graders also find what Hawley deems “diamonds,” which are incredibly profitable items like vintage clothing and collectible pieces (2006, p. 11). In order to identify diamonds, an individual skilled in fashion markets may need to be employed (2006, p. 12).

#### *Wipers, Open Recycling, and Incineration*

As seen in Figure 1.1, the items that are unsuitable for reuse are broken down in one of three ways, according to Hawley. The first method is cutting up the clothing into wiping cloths that are typically used in the cleaning of furniture or automobiles. The second is opening the textiles, which entails breaking down the textile into its original fiber form. It can be done either mechanically for natural fibers or chemically for synthetic fibers. The mechanical breakdown creates yarn for new clothing or fabric items. The mechanical breakdown is also responsible for creating insulation and stuffing. The chemical breakdown of synthetics creates new plastic products, including computer and electronic parts. The final option is incineration with

energy recovery. This is especially applicable to textiles, as they are a superior material to burn. Each of these recycling options requires a very unique skillset, as well as specific equipment to handle such tasks.

The entire process just described is quite complex, with many specialties involved, including collection, sorting, processing, and sale. With each specialty comes a different actor, making the process even more complicated. The next section characterizes each of these actors as the basis for my investigation of the potential for purposeful partnership among actors involved in this process as a means to contend with the complexity of the system.

### **Actors in Textile Recycling**

Charitable collection agencies, rag graders, and local governments are the primary actors in textile recycling initiatives. Charitable collection agencies are often nonprofits that sell used clothing domestically to fund their mission. In contrast, rag graders are typically for-profit entities that grade and sell used clothing and materials both internationally and domestically for reuse and recycling. Cities, counties, and municipalities collect used textiles in order to reduce the amount of waste, and consequently costs, that their area generates. Local governments often collect used textiles through curbside and drop-off programs, which are then given or sold to charitable collection agencies or rag graders, respectively. Charitable collection agencies frequently sell residual textiles to rag graders.

In the case that the charitable collection agencies do not produce enough tonnage to warrant a formal relationship with rag graders, some give the materials to government actors who have relationships with rag graders in order to reduce the charitable collection agency's waste disposal costs. Rag graders purchase and collect used textiles from both charitable collection agencies and local governments.

In examining Platt's case studies and Hawley's documentation of textile recycling as a system, four values surfaced that indicate effective textile reuse and recycling. They are as follows:

1. Environmental benefits: Total amount of recycled or reused textile tonnage that would otherwise be landfilled
2. Economic benefits: The cost savings from diverting waste from the landfill and the potential revenue generated from recycling.
3. Quality jobs for low-skilled workers: Positions that involve fair wages with opportunities for skill advancement
4. Resident education: Residential outreach and education programs, informing them of the advantages of and options for textile recycling in their local area

Not all actors in this complex process can fulfill each value when operating individually. In fact, each actor typically achieves one completely and the others less so. Purposeful partnership among actors could maximize each of these four values. The following will detail each actor and explain how they fulfill or fail at actualizing each value.

## *Charitable Collection Agencies*

Charitable collection agencies aim to provide quality jobs for low-skilled workers. Goodwill Industries is one of the largest charitable collection agencies operating domestically and serves as an example of this role. The organization's mission statement is as follows:

*Goodwill Industries International enhances the dignity and quality of life of individuals, families and communities by eliminating barriers to opportunity and helping people in need reach their fullest potential through the power of work. ([goodwill.org/about-us/our-mission/](http://goodwill.org/about-us/our-mission/))*

The organizational mission statement is realized through programming that provides both temporary and permanent positions in Goodwill Industries' distribution and retail locations. Program participants can pursue further training for future employment opportunities, including positions in healthcare, information technology, retail, food services, and manufacturing ([goodwill.org/goodwill-for-you/jobs-and-careers/](http://goodwill.org/goodwill-for-you/jobs-and-careers/)). Goodwill's career services target seniors, youths, individuals with disabilities, individuals with criminal backgrounds, immigrants, and veterans or military families, all populations that often have difficulty acquiring quality jobs ([www.goodwill.org/goodwill-for-you/specialized-services](http://www.goodwill.org/goodwill-for-you/specialized-services)). In 2010, Goodwill's retail sales generated approximately \$2.69 billion, which, in turn, funded the employment and training program, which serves more than 2.4 million individuals (<http://www.goodwill.org/about-us/our-mission/>).

This dedication to job training suggests that the Goodwill Industries and other, similar charitable collection agencies are often the best at providing quality jobs and training for low-skilled individuals. Despite their

impact on diverting textile waste from the landfill or other more energy-intensive recycling processes, charitable collection agencies do not often enumerate explicitly environmental goals in their mission statements. For example, the two billion pounds of clothing Goodwill Industries sells for reuse per year removes these materials from the waste stream, yet the company lacks a company policy on environmental matters.

However, charitable collection agencies do not typically sell all of the clothing that arrives at their sites; they dispose of their residual textile waste by landfilling or selling it to textile sorters (Platt, 1995, p. 1). Ultimately, charitable collection agencies are not fully achieving the environmental benefit metric because of the large amount of textiles that is unsalable in-store and their lack of explicit environmental policies around the unsold materials.

Additionally, the charitable collection agencies often have positive images in the areas they serve. Residents may prefer to donate to charitable collection agencies rather than to competing state-run or for-profit operations (Platt, 1995, p. 3).

### *Rag Graders*

Rag graders assume the majority of the environmental responsibility by taking textile waste that is unsold by charitable collection agencies and diverting it from the landfill. These organizations ensure that little to no textile refuse is wasted, as this policy enables the sorters to derive a higher

profit (Hawley, 2006, p. 7). Hawley notes that many of these businesses have a primary goal of profit but are also very committed to the environment (2006, p. 5). An individual in Hawley's interviews explained that the profit margin is sometimes very small in the textile recycling industry, thus environmentalism is something to maintain pride in and commitment to (2006, p. 5). Without these organizations, it would be difficult to reuse or recycle the materials that charitable collection agencies are unable to sell directly to consumers. Due to their devotion to the environment and ability to collect and sell textiles that would otherwise be landfilled, rag graders are often the best at achieving environmental benefits.

Many rag graders provide high-skilled jobs in their facilities. Newer employees typically perform the initial, simpler sort, while the more skilled employees do the more advanced sort by material (Hawley, 2006, p. 5). However, because many of these rag graders do not maintain an explicit policy regarding hiring of disadvantaged individuals, they may not be achieving this goal, unlike many charitable collection agencies. However, it is possible that rag graders' interest in profits may ultimately provide quality jobs for low-skilled workers.

Many of these organizations operate without communicating with residents. Nowhere in Platt's ten case studies or Hawley's detailed description of the industry is there any discussion of how textile recyclers communicate with textile donors. It is possible that the lack of communication may be due to the fact that, as Hawley (2006, p. 5)

documents, oftentimes these organizations are based in an area, especially a large city, that is far from where the textiles are originally collected. Additionally, it is unnecessary to communicate directly with textile donors, as much of the textiles are collected through transactions with other businesses, based on Figure 1.1. However, I infer that when textiles are directly collected from individuals, the individuals typically understand that the clothing bins in parking lots are intended for recycling. With a few exceptions, rag graders are not fulfilling either metrics for training low-skilled workers or educating citizens regarding the benefits of textile recycling initiatives.

### *Local Governments*

Local governments, like cities, counties, and municipalities, typically operate recycling and waste management initiatives themselves or contract out those services to haulers. As seen in Brenda Platt's case studies (1997), waste management programming can range from curbside pick-up of recyclables generally to drop-off bins for textiles specifically. From my own research, it appears that local governments are interested in waste reduction and community benefits from both a cost and environmental perspective. At times, the haulers share these same goals.

Local governments can communicate with residents in ways that many other actors cannot. For example, they maintain access to residents through curbside recycling programs, which could, in turn, increase the

amount of textiles collected (Domina and Koch, 2002, p 17). Their means of communicating are fairly extensive as well, as information about textile recycling can be integrated into traditional recycling and waste publications distributed to residents. Platt offered a variety of sample education materials in her case studies, of which three of the five were created by local governments (1995, p. 34-5).

While many cities, counties, and municipalities are committed to the environment (or to the value of minimizing environmental impact), for some, curbside pick-up of textiles is not a cost-effective solution, even when considering the direct and indirect costs of landfilling or incinerating the waste. In fact, one county from my research did not participate in curbside pick-up of textiles because the initiative was expensive, and it requires other recyclable materials to be excluded from the collection truck (D. Vigilante, personal communication, August 5, 2011). Consequently, some local governments manage textile waste through incineration and landfilling, the least favorable options in solid waste management, according to the EPA (2011). Ultimately, local governments are not fulfilling the environmental metric to the extent that textile recyclers are, despite many of their explicit goals directed at environmental improvement.

Furthermore, based on my research, local governments create a marginal number of jobs through textile recycling programs, because textiles typically comprise such a small percentage by weight of collected recyclables. Thus, few people need to be hired to operate the textile recycling initiative.

As a consequence, there are often no explicit hiring practices targeted at low-skilled workers for government textile recycling initiatives. Local governments are not fully achieving the metric for hiring low-skilled individuals.

### **Potential for Collaboration to Increase Textile Recycling and Maximize Goals**

In summary, this analysis of the actors involved in the textile recovery process suggests that each plays a distinctive role in promoting the values of environmental protection, job creation, and citizen education. Based on my analysis of Platt's case studies and Hawley's documentation of textile recycling as a system, charitable collection agencies can best provide quality jobs for low-skilled workers; local governments, in theory, are best positioned to reach the most residents in the most effective ways; and rag graders create the best environmental outcome in my interpretation. Each actor lends something unique, whether skillsets or infrastructure, to textile recycling. Partnership among local governments, rag graders, and charitable collection agencies could be a way to optimize all values added. The following chapter will discuss what partnership entails, the advantages and drawbacks of collaboration, as well as the possible configurations of the partnerships. I examine the implications for partnering around a textile recycling initiative in Chapters 6 and 7 of this thesis.

## **Chapter 3: Cross-Sector Collaboration and Textile Recycling: A Brief Summary**

This chapter positions textile recycling and its many actors in relation to the inter-organizational and cross-sector collaboration literature. This brief review of core ideas about collaboration provides the conceptual framework I use to characterize and analyze the recycling textile partnerships in the remainder of the thesis. This chapter will focus on the definition of cross-sector collaboration, and its benefits, challenges, and possible configurations, both in the literature and as it applies to textiles.

### **Cross-Sector Collaboration**

Management scholars define cross-sector collaboration in many different ways. While definitions differ with respect to the actors involved and the nature of the commitments, all focus on how actors interact with one another to accomplish more than they can on their own. Bryson, Crosby, and Stone (2006) offer the following as a definition for cross-sector collaboration:

The linking or sharing of information, resources, activities, and capabilities by organizations in two or more sectors to achieve jointly an outcome that could not be achieved by organizations in one sector separately. (2006, p. 44)

Actors involved in cross-sector collaboration typically include government, private for-profit, and private not-for-profit entities (Greenwald, 2008, p. 1; Bryson, Crosby, and Stone, 2006, p. 44; Briggs, 2003, p. 6). These cross-

sector partnerships pursue various activities together. These activities include providing service to clients and sharing information to better prepare for uncertainty and potential problems (Milward & Provan, 2006, p.6). Partnership participants also come together to problem solve and build social capital to combat an existing problem (Milward & Provan, 2006, p.6).

### **Cross-Sector Collaboration in Textile Recycling**

In theory, collaboration among rag graders, nonprofits, and local governments may help increase the recycling rate from how much is currently being recovered to how much could be recovered. Additionally, textile recycling partnerships are a possible example of cross-sector collaboration because the initiatives may involve a private for-profit organization (rag grader), private nonprofit (a charitable collection agency), and the public sectors (a local government).

### **The Benefits of Cross-Sector Collaboration**

Inter-organizational partnership can create additional resources and mitigate some of the issues caused by the actors working by themselves without coordination with others involved. Management scholars argue that cross-sector collaboration is a way that organizations can reduce risks and achieve outcomes that otherwise could not be attained by an individual organization or sector (Briggs, 2003, p. 3; Bryson et al., 2006, p. 46 and 51; Oliver, 1990, p. 245). Common benefits gained include resource exchange,

combined competencies, legitimacy, and shared risks and costs in uncertain conditions.

The first benefit, resource exchange, is key in partnerships, as actors exchange tangible resources. Briggs discusses how partnerships leverage the operational resources of participating organizations, including staff, infrastructure, information, and physical resources (2003, p. 5). For example, collaborating with the government brings specific advantages to a partnership, like facilities and potential revenue streams that would otherwise be inaccessible to other sectors.

The second benefit of partnerships, combined expertise and competencies, is particularly apt, as so many organizations currently specialize in just a few areas. Therefore, collaboration can help organizations maximize their own competencies, while minimizing the costs of pursuing activities outside of their specialty (Oliver, 1990, p. 245). Cross-sector collaboration can compensate for each sector's weaknesses in solving a problem (Bryson, 2006, p. 46). Collaboration can even fill in gaps of service that were present when the actors were operating individually (Briggs, 2003, p. 3). Briggs notes that bringing competencies together through partnership is particularly important in sectors where approaches to solving the problem are fragmented (2003, p. 3).

The third benefit of cross-sector collaboration is possibility of enhancing the perceived legitimacy of the actors in the eyes of important constituents or other stakeholders.. Partners can help one another gain

credibility with external actors on whom they depend for resources or authority (Bryson et al., 2006, 47; Oliver, 1990, p. 246). For example, a private organization may partner with a government entity in order to create the perception that the initiative is in the public's interest (Briggs, 2003, p. 7). Nonprofits can also lend legitimacy to a project, especially when the charitable organization maintains a significant amount of support in a given community (Briggs, 2003, p. 8).

The fourth benefit, shared risks and costs in uncertain conditions, means that partnerships can plan accordingly and attempt to compensate for sudden fluctuations in the environment in which these initiatives operate. For this reason, cross-sector collaboration is common in sectors where issues emerge or change rapidly, like the environment (Briggs, 2003, p. 6). Organizations and individuals seek to form partnerships in order to predict, prevent, or better plan for shocks in the area in which they operate (Oliver, 1990, p. 245). Sometimes a change in the environment is the impetus for partnering, but these changes can also be the downfall of the initiative, as I discuss in greater detail in the following section (Bryson, 2006, p. 45).

#### **Potential Benefits of Cross-Sector Collaboration in Textile Recycling**

In theory, government agencies, for profit haulers and rag graders, and nonprofit organizations could work together to capitalize on the four benefits of cross-sector collaboration: resource exchange, combined competencies, legitimacy, and sharing risks and costs associated with uncertain conditions.

Resource exchange in textile recycling initiatives could entail the sharing of each actor's property. The following chapters will explore if resource exchange occurs, and if so, what pieces of property they are sharing. Closely related to resource exchange, combining competencies in textile recycling could occur because these different actors maintain unique specialties and, therefore, unique ways of fulfilling the four values discussed in the previous chapter. Bringing these specialties together may improve the outcomes for textile recycling partnerships.

In the following chapters, I will examine whether there is a need for these initiatives to generate community support (an example of conferring legitimacy). If so, I will discuss which actors are able to lend legitimacy to the textile recycling program and how the partnerships gain that legitimacy.

Additionally, textile recycling partnerships operate in the context of a global economy. In the following chapters, I investigate whether the actors' collaborating might mitigate some of the issues experienced by fluctuating markets and environments.

### **The Challenges of Cross-Sector Collaboration**

For a variety of reasons, working collaboratively is more difficult than operating individually (Briggs, 2003, p. 3; Bryson, Crosby, Stone, 2006, p. 44). Common challenges for partnerships include maintaining trust and ensuring accountability, contending with difficult power dynamics, the transaction costs of working together, and responding to a changing

environment. Most of these challenges are inter-related.

The first challenge to partnerships, maintaining trust and ensuring accountability, is necessary if one organization is to rely on another to fulfill their designated duties and tasks. Yet trust is not easily attained; it must be earned through history and experience with one another. In fact, Bryson et al. state that trust is created by

“...sharing information and knowledge and demonstrating competency, good intentions and follow-through; conversely, failure to follow through and unilateral action undermine trust.” (2006, p. 48)

Bryson et al. elaborates that the more that partners have interacted in the past, the more likely they are to trust one another in the collaboration (2006, p. 46). However, the opposite might also hold true. Newly formed partnerships face significant hurdles due to their lack of experience partnering with one another and, therefore, their lack of trust. Bryson et al. argue that if the partnership is to succeed, partners must make trust-building a priority, as the partnership shares information and fulfills duties (2006, p. 48).

Partnership necessarily requires participating actors to relinquish control over a resource, function, or piece of information. Partnerships can be difficult for some actors, as they attempt to maintain control of the initiative. Issues around power can be especially difficult, when each sector has a unique institutional framework (Bryson et al., 2006, p. 50). For example, the for-profit sector may be focused on competition and efficiency, while the government may be focused on law creation or adherence (Bryson

et al., 2006, p. 50). These different institutional frameworks may cause issues around power because each actor maintains different priorities and perspectives of the partnership. If they cannot reach a mutual understanding or compromise, the partnership may ultimately fail. Conflict can emerge during the planning stages, when problems get defined and roles designated. Bryson et al. argue that in order to be successful, each partner must agree on the problem and define their roles in solving it (2006, p. 46). Beyond the agreement over the problem, power imbalances can occur when one actor coerces another actor into an undesired role or function. Some actors will inherently have more power and influence than others (Bryson et al., 2006, p. 48). In some cases, they may have better access to scarce resources than other actors. In fact, struggles for control over the partnership may be an actor's attempt to gain control over scarce resources (Oliver, 1990, p. 243-244).

Partnering with other organizations requires a significant amount of planning and, in turn, resources, staff time, and effort, which are known as transaction costs. Before outcomes can be observed or achieved, actors typically accumulate a substantial amount of transaction costs. Typically, the costs are higher than they appear. This is often due to partners' different perceptions of the problem or their difficulty merging their operational capacities.

As previously noted, uncertainty can be an impetus to partner, yet it can also be an impediment as the partnership progresses. Actors must closely

monitor the environment in which they operate (or their context) if they are to be successful. Briggs notes that, at times, the actors focus on the relationship and process being a success, while ignoring the context in which the operation functions, which makes the initiative more likely to experience an outcome failure (2003, p. 2). Bryson et al. note that partners must build flexibility and strategies into their partnership if they are to deal with fluctuations in the environment (2006, p. 50). However, this kind of preparation would increase transaction costs. Ultimately, context matters in cross-sector collaboration.

#### **Potential Challenges of Cross-Sector Collaboration in Textile Recycling**

Partnerships around textile recycling may experience many of the issues commonly seen in the cross-sector collaboration literature, including problems with trust and accountability, power dynamics, the transaction costs of working collaboratively, and the ability to change in response to an uncertain environment.

The first challenge, trust and accountability among partners, could stem from the organizations' different values and what is often a lack of familiarity with one another. First, I will investigate whether actors do, in fact, have varying goals. If the interviewees express that the actors do have differing goals and are perhaps unfamiliar with one another, I will investigate if there were trust and accountability issues because of it.

Power may come into play with textile recycling initiatives. I will

investigate the nature and impetus of the power struggle, as well as whether there are power imbalances. Scarcity may also play a role in power imbalances. Therefore, I will evaluate whether there is a scarce resource involved in textile recycling partnerships and whether it is a source of power conflicts.

Additionally, there could be transaction costs associated with textile recycling partnerships, especially surrounding planning and implementation. I will investigate whether actors had issues with the cost of planning the basic logistics of the initiative, as well as costs associated with the partnership itself. For example, discussions of potential conflict, problems with the market, or other possible challenges with the partnership itself could also be issues to plan for.

Textile recycling partnerships may experience adversity in the face of unexpected issues, like economic fluctuations. A portion of my research will center on the nature of these economic fluctuations and the extent to which they affect the partnerships.

### **Partnership Models**

Partnerships are not dichotomous pursuits; they operate at varying degrees of integration. Research suggests that as the intensity of the partnership increases, so does the chance for failure. The degree of partnership can be measured using Briggs' scale of collaboration. There are other scales available, but Briggs' is a synthesis of much of the partnership

literature:

1. No cooperation: Actors work independently from one another.
2. Communication model: Actors share information informally. There is little interdependence between the actors, but the information shared is valuable to decision-making. Maintaining this relationship takes little effort. This kind of partnership is valuable when exploring an issue and potential solutions.
3. Cooperation model: Actors share information and agree to work on a problem without making extensive commitments to one another. Partners also decide to share their activities in some way, but these activities may not be formally agreed upon. Additionally, accountability is not formally expected.
4. Coordination model: Actors formally share scarce resources, information, and activities and make commitments to one another over division of labor and shared responsibilities. They are typically held formally accountable for their responsibilities. This requires a significant amount of time for maintenance and accountability.
5. Federation model: The actors formally change their organizational service and structures to accommodate each other, while including all of the activities of the aforementioned forms of partnerships. Actors will look for ways in which their activities can more formally come together into a unified system. The costs of assuming this kind of partnership are greater, and thus, the benefits should also be proportionally greater.

In order to choose among these different models, actors must carefully consider the potential for exchange and the challenges of relationships. For example, if the benefits gained, whether resources, expertise, legitimacy or risk reduction, seem to outweigh the challenges that come with partnerships, a more integrated partnership may be possible. However, the more integrated the partnership, the more effort must be put into maintaining the relationship, including trust-building exercises, conflict resolution strategies, and general costs from assuming a partnership. Thus, benefits gained must be weighed against assumed relationship costs.

Additionally, some initiatives are labeled as partnerships, but in actuality the initiatives are merely contracted-out services (Briggs, 2003, p. 6). Identifying partnerships versus contract work may be confusing because it is unclear how many parties assume accountability (Briggs, 2003, p. 6).

#### **Partnership Models in Textile Recycling**

Using the partnership literature, I will investigate how these actors may pursue partnerships, so that they may capitalize on each actor's different resources and skills. Additionally, my research will center on how the extent of collaboration, using Briggs' partnership scale, influences how the actors cope with the challenges of partnership. In the next chapter, I turn to the methodology I will use to investigate the potential of collaboration in textile recycling initiative.

## Chapter 4: Methodology

### Case Selection

In order to examine the role of partnership in textile recycling initiatives, I investigated the ten case studies from Platt's *Weaving Textile Reuse into Waste Reduction*. These cases provided a good basis for this study for two reasons. They were considered successful and they represent a broad range of different forms of collaboration as measured by Briggs' modified scale of partnership.

In 1997, at the time Platt's document was published, the initiatives in total reported recycling 647 tons of textile waste, using varying time periods, from one week to one year, as seen in Table 2. Additionally, 45 employees were involved at least tangentially in the textile recycling process, meaning that jobs, however marginal, were created from adding textiles to the list of recyclables. Nine of the ten case studies pursued citizen education and outreach.

As seen in Table 4.1 using the information from Platt's case studies, the initiatives vary from no coordination to coordination.

**Table 4.1: List of Brenda Platt's Case Studies, Their Partnership Configuration, Partners, Revenues and Losses, Amount Recycled in a Year, Additional Jobs, and Status**

Site*	Type of collaboration**	Partners	Revenue and losses	Amount recycled in a year	Additional jobs	Status
San Jose	No coordination	San Jose (LG), San Jose Rag (TR), San Diego Textiles (TR), Southwest Design (TR), Georgia Travis Center (ONP)	Received \$7.8 million in revenue, cost \$41 million for entire recycling program (1995)	50 to 80 tons per year	.5 FT jobs at Western Waste, unknown for the City	Still in place
Chatham County, North Carolina	Communication	Chatham County (LG), Helping Hands Mission (WNP)	Cost \$80,000 to build structures. Minimal costs for operating	Unknown	1 (35 FT workers spend 5% of their time working with textiles)	Still in place
Carroll County, Iowa	Cooperation	Carroll County (LG), Employment Resources' (WNP), (TR)	Received \$450K in revenue, cost \$550K to operate for entire recycling program (1995)	51 tons	6 devoted to textile and paper recycling	Still in place
City of LA/ Salvation Army	Cooperation	Salvation Army (ONP), ABC Wipe and Cloth (TR), and City of LA (LG)	Unknown	39.8 tons per year	1 driver, 22 sorters (not from just this project)	Ended
Cobb County	Cooperation	Cobb County (LG), Dumont Textile Recycling (TR)	No costs or revenue in pilot	9.3 tons in 5 months	Marginal duty of 3 FT jobs	Ended
Montgomery County	Cooperation	Montgomery County (LG), Dumont Textile Recycling (TR), Shepherds Table (ONP)	Receives \$80 per ton of textiles, costs about \$88 per ton	156 tons per year	10 hours per week	Scaled back to transfer stations
New Threads	Cooperation	New Threads (ONP), (TR), (SSA)	Raised \$209K, cost \$297K to operate in (1996)	3 tons per week	7 FT jobs	Ended
Somerset County, NJ	Cooperation	Somerset County (LG) and Dumont (TR)	County earned \$17K from selling textiles, costs for textiles only unknown	161 tons per year	1 FT job	Ended 2008

Site*	Type of collaboration**	Partners	Revenue and losses	Amount recycled in a year	Additional jobs	Status
Calvert County, Maryland	Coordination	Calvert County (LG), Dumont Textile Recycling (TR), and Melwood Training (WNP)	Melwood earned \$100 for each ton sold to Dumont, costs are otherwise unknown	8.9 tons per month	Approximately 2, mostly from Melwood	Ended partnership with Melwood, but still recycles textiles at drop-off station
St. Paul's	Coordination	City of St. Paul (LG), NEC (ENP), SuperCycle (RH), Goodwill(WNP)	Cost Goodwill \$1.5 million to operate, revenue statistics are unknown	168 tons per year	1 FT job	Still in place

**Sources: City's websites**

\* Platt, B. (1997). Weaving Textile Reuse into Waste Reduction. Institute for Local Self-Reliance: Washington, D.C. Accessed 22 September 2010: [www.ilsr.org/recycling/textilereport.pdf](http://www.ilsr.org/recycling/textilereport.pdf)

\*\* Briggs, X. (May 2003). Perfect Fit or Shotgun Marriage?: Understanding The Power and Pitfalls in Partnerships. Community Problem-Solving Project @ MIT: Cambridge, MA.

**Legend:** ENP= Environmental nonprofit, LG-Local government, ONP=Other nonprofit, RH=Recycling hauler, SSA=Social Service Agency, TR=Textile Recycler, and WNP=Workforce development nonprofit

## **Data Collection**

I utilized the Internet and contact information available in Platt's case studies to learn more about the initiatives and to contact potential interviewees. Initially, I augmented the case studies with Internet searches to discover if the programs were still operating and to find any online documentation of the case studies. I used government and company websites to find contact information for individuals or departments who worked or are working on the projects. I searched for individuals who were mentioned in the case studies but are no longer affiliated with the organization or department that ran the initiative. Interviewees came from initiatives that currently exist and that have ended.

I conducted semi-structured interviews wherein I attempted to glean information on partnership, the four aforementioned metrics, and how partnership affected those metrics. Generally, I asked what their organization was responsible for, how they formed, and how they perceived their experiences with partnership. Some of the interview questions included:

1. How do you work with textile waste? Collection? Sorting? Sale?
2. Why did you decide you couldn't do this alone?
3. What did you value about your partner?
4. What was hard about working with them?
5. Did the partners have any conflict? If so, what was the nature of the conflict?

6. How did you create and maintain the partnership? Formal agreement? Official communication? Planning?
7. Who was responsible for educating the citizens?
8. How many tons of clothes did you collect in a year?

A full list of interview questions can be found in Appendix A. I took notes during the interviews, rather than recording or transcribing entire conversations.

I began my interviews in January 31<sup>st</sup>, 2011 and concluded them September 6<sup>th</sup>, 2011. In all, I interviewed twelve individuals via telephone: Jana Hawley, Brenda Platt, a rag grader, two from nonprofits that functioned as rag graders, and eight individuals from the public sector. In addition to the phone interviews, Brenda Platt provided insight into one of the case studies for which I could not find a contact. Ultimately, I augmented seven of the ten case studies. A list of all those interviewed appears in Appendix B.

It should be noted that a majority of interviewees work for a city, county, or municipality, or did at one time. Thus, much of the information gleaned from these case studies is from a public sector perspective and so does not form an exhaustive picture of textile recycling partnerships. However, the following case studies and recommendations are particularly relevant to how local governments contend with the abundance of waste. Those unaffiliated with the public sector, but who are interested or maintain a stake in textile recycling, may also find the following information interesting.

I analyzed the interviews by writing up descriptive case studies that used four metrics to show what the actors accomplished. I used the Briggs' scale to examine their experiences of partnerships, with reference to their impetus for forming and the various configurations that they took. The case studies also discuss the extent to which the actors benefited from the partnerships, in terms of resource exchange, combined competencies, legitimacy, and stability in a changing environment. On the other hand, I also look at the challenges they experienced by pursuing partnerships, like issues with trust and accountability, power dynamics, transaction costs, and ability to respond to a changing environment.

Using the case studies, I synthesize the gleaned information and infer how partnership influences the efficacy of textile recycling initiatives. The discussion also includes generalizations about the initiatives irrespective of the different forms of partnerships. I then discuss potential benefits and challenges from different configuration of partnerships, using the abbreviated Briggs' scheme. I also offer recommendations for future research and pose potential questions to provide a more extensive picture of partnership's role in textile recycling initiatives. Finally, I suggest that future research look at more diverse textile recycling initiatives that have different collaborative configurations and types of actors.

## **Chapter 5: Seven Textile Recycling Case Studies and Their Implications for Partnership**

The following seven case studies utilize information gleaned from Platt, Hawley, and interviews with individuals from cities, counties, and municipalities to examine the role of partnerships in textile recycling initiatives. Each case study will discuss the work various actors assumed and the benefits and challenges of working together. I discuss the cases in the order presented in Table 4.1. Cases are organized from the least amount of collaboration (no coordination) to the most (coordination), based on information from Platt's case studies. If their partnership type has changed based on the interviews, I will discuss the details of such change.

### **No Coordination: San Jose, California**

San Jose is unique in that it aims to achieve zero waste by 2022. In order to achieve this goal, they have developed a residential curbside pick-up program where textiles are collected from residents and commingled with other recyclable materials. The municipality contracts with a private hauler that assumes responsibility for the entire recycling process. The City of San Jose, California's textile recycling initiative is classified as 'no coordination,' as the city contracts out all textile recycling activities to a hauler. The city's textile recycling initiative is still in place from when it was documented in 1997 by Platt. This case description is based on my interview with Robert

Harvie who currently works at Integrated Waste Management in the City of San Jose.

Currently, San Jose contracts with a private hauler to collect and sort commingled recyclables. Residents are encouraged to bag the textiles separately, yet, according to Harvie, only 5% of the residents ultimately do so. Thus, much of the textiles are contaminated in the residential recycling bin prior to collection. Contamination is exacerbated during the transit of all commingled recyclables. The private haulers then sort the materials at their facility and bale the used textiles, which are then sold to another organization that creates rags and stuffing from the materials. The City of San Jose is responsible for educating citizens by sending out a recycling guide to new residents or upon request to existing residents. Additionally, the municipality delivers a one-sheet on recyclables once per year to inform residents of the recycling program.

The city does not receive any revenue from the sale of the textiles. However, because the city's primary goal is zero waste, they have prioritized maximizing environmental benefits and minimizing environmental costs. Considering that San Jose diverted 1,600 tons in 2011, the municipality's initiative could be considered successful, using an environmental standard. Because of the massive amount of textiles recycled, I can infer that the participation rate is quite high, which makes sense as the city promotes the program through annual mailings. Harvie mentioned that the municipality had considered partnering with Goodwill around drop-boxes. However,

Goodwill was uninterested, as the organization already has a steady supply of quality textiles. Harvie was unable to provide more information on the Goodwill's reasoning for not partnering.

The city experiences few challenges in working with other actors, as San Jose does not directly operate the textile recycling initiative. Rather, the hauler deals with the other actors, including the rag grader. Harvie stated that the city is currently very happy with the haulers under contract. Additionally, it should be noted that the cost of this initiative is significantly higher than that of the other case studies. Textile removal costs the hauler approximately \$200 per ton. Harvie explained that the private hauler finds and pays a rag grader to recycle the contaminated textiles. The municipality pays the hauler a set amount per household for collection, processing, and marketing of recyclable materials as stated in the contract with the hauler. The hauler must pay for these textiles to be recycled because they are such a low-grade and are very contaminated. Harvie explained, "There just isn't a paying market for this grade of textiles."

**Communication: Chatham County, North Carolina**

Chatham County's textile recycling initiative is unique in that residents can drop off and pick up furniture, household goods, and clothing at small sheds (or Swap Shops) located at each Collection Center that the county provides to its residents for disposal of solid waste and recycling. The Swap Shops were designed to promote reuse and keep items that are

otherwise still reusable out of the landfill. Using Platt's case studies, this initiative was originally classified as 'communication' because the relationship between the municipality and nonprofit did not involve a formal division of responsibilities. This is because in years past, Chatham County occasionally transferred the unwanted Swap Shop textiles to a local nonprofit, Helping Hands Mission. The Swap Shop program was still in operation at the time of my interview with Teresa Chapman who currently works as the Waste Reduction Coordinator for Chatham County. However, relationships with other nonprofits have dissolved around the textiles, and the initiative is no longer an example of collaboration and is now classified as 'no coordination.' Consequently, the county disposes of unwanted Swap Shop textiles in a landfill. This initiative ultimately keeps some materials out of the landfill that otherwise would have been disposed of, and at a very low cost.

County-run Collection Centers are pivotal to Chatham County's recycling process. As mentioned previously, when residents are disposing of their other garbage, they can also drop off furniture, household goods, and clothing at small sheds, known as Swap Shops, located at the Collection Centers. Because Chatham County does not have an operating solid waste landfill, the waste is then hauled to a privately owned transfer station and then to a private landfill in another county 80 to 90 miles away. The employees of Chatham County's collection centers sort the materials left in the Swap Shop. Clothing that is suitable for reuse is sorted and hung in the Swap Shop. Clothes that are dirty, torn or otherwise unwearable are

disposed and ultimately deposited in the landfill. All county residents who have paid the annual solid waste disposal fee can visit the Swap Shops and select items free of charge. Each Swap Shop costs approximately \$2,000 to \$3,000 to construct. This is compared to the tipping fee of \$60 per ton of waste. While the capital costs are quite low, the fact that they have to landfill textile waste at \$60 per ton indicates that a partnership may reduce costs further.

At the time of Platt's interview, Chatham County was giving the unclaimed clothing to nonprofits for resale or transmission to rag graders. That relationship between the county and local nonprofits no longer exists. I was unable to interview an individual who was present when this partnership existed or ended. Chatham County maintains relationships with and promotes a variety of local thrift shops, which resell unwanted household goods donated by county residents. Some nonprofits like the thrift shops operated by the Parent-Teacher Associations do have a textile recycling program established for any clothing they can not sell. Currently, there is no formal arrangement for the nonprofits to take unclaimed items from the Swap Shops, with the exception of the volunteers who might use the Swap Shops as a county resident.

Chapman explained some of the issues they are experiencing pursuing its own textile recycling initiative. Chapman explained that the quality of storage required to keep these items mildew and rodent free might increase costs further. These issues are closely tied the amount of space and volume of

recovered materials. There are no figures on how much textile waste is diverted from the landfill through the Swap Shops.

Chapman indicated that Chatham County would like to pursue a more integrated partnership with local nonprofits around textiles. The partnership could give any unwanted clothes from the Swap Shops to a nonprofit, which could perhaps sell the items to a textile recycler. The nonprofit would require collection containers, as well as a truck and full-time driver who would incorporate the Swap Shop sites into a dedicated route and schedule. Chapman did not anticipate that this partnership would generate any revenue for the county. However, she noted that it might result in cost-savings or be cost-neutral. One issue the county must consider before entering into any partnership on this initiative is that there could be competition over scarce resources (i.e. the used textiles). Chapman explained that residents who have paid the annual solid waste might worry that the community group would get the better items, although that wouldn't be the intention of the program.

The county is also exploring the idea of a partnership with local retailers like Wal-Mart, who have residual clothing, as well as clothing stores and other thrift shops. Chapman explained that this more integrated type of collaboration around used textiles would also carry its own challenges. Chapman stated that "a partnership like this takes a lot of coordination and staff time"—staff time that their division does not necessarily have. Thus,

Chapman worried that the transaction costs may be too high to pursue a partnership.

**Cooperation: Montgomery County, Maryland**

Montgomery County's textile recycling initiative involves residents donating their used textiles at a county waste transfer site. The county has a contract with a rag grader that collects and transports the materials to their facilities. I classified the recycling initiative in Montgomery County as 'cooperation' because the County and their contracted rag grader formally pool resources and leverage one another's expertise for joint collection and transportation. In an effort to understand why their initiative maintained its degree of integration with other actors, I interviewed Peter Karasik and briefly emailed Eileen Kao, who both currently work on Montgomery County's textile recycling initiative. However, because Kao and Karasik were not present at the initiative's inception, they were unable to comment on why the county initially partnered with other actors to pursue a textile recycling initiative.

Currently, Montgomery County has a contract with a textile recycler, World Trade Corporation 2, who provides trailers for the county to fill at their transfer station. Residents can recycle their textile waste at the transfer station while disposing of their other waste. Montgomery County also runs a truck once a week to three or four other sites that have residual textiles, in turn helping the county fill their truck up faster and capitalizing on

economies of scale. The sites are so small as not to warrant their own trailer from World Trade. According to Kao, World Trade sorts through the material at their facility where some of the used clothing is then sold and reused overseas. The residual is broken down and turned into other materials. Montgomery County is responsible for educating their citizens about the initiative through the county website.

Resource symbiosis is an advantage of this partnership. Montgomery County benefits from the exchange because World Trade provides them with the trailers and transportation. At the same time, World Trade gains from the partnership by acquiring space for their trailer at the Montgomery County's transfer station, which is a high traffic, central collection point. The county also supplies a small amount of the labor for collection.

The county assumes a few thousand dollars in costs from the operation, but Karasik estimated that the textile recycling program generated approximately \$19,000 in direct revenue from World Trade in 2010 in addition to diverting 124 tons of waste for the county, potentially making the initiative profitable. Although Karasik believes that World Trade's job of collecting textiles is "straightforward," the rag grader provides a service that Montgomery County could not offer. Consequently, combined competencies are another advantage in this partnership.

The county reported no challenges in contracting with World Trade, and Karasik noted that "World Trade has done a good job." However, Montgomery County would like to increase the volume of textiles collected

and arrange for pick up to be more frequent so that the discarded materials reach the sorting sites more quickly. Karasik explained that there is more risk that the textiles will deteriorate or mold if they are not collected frequently. The contracted rag grader would likely not accept the materials and, in turn, the county would not be paid for the diverted textiles.

#### **Cooperation: New Threads**

The New Threads recycling initiative is distinctive in that it is the one partnership led by a nonprofit organization. I categorized New Threads as cooperation because the organization leveraged specialties and pooled resources with local social service agencies to provide quality jobs for low-skilled workers—their primary objective. However, little is known about this partnership, and it seems that, ultimately, it did not affect the outcome of this program, as the organization was not successful at providing jobs for low-skilled workers when the initiative was forced to lay off much of their workforce. They ceased operations in 1999. I was unable to contact any New Threads' former staff. However, Brenda Platt provided some insight into the organization's closure to supplement her 1997 account.

The nonprofit organization originally formed to create quality jobs for low-skilled workers and provide sustainable community development. New Threads recruited their staff through local social service agencies in order to fulfill their goal of employing those who are marginally employable. The organization functioned as both a used clothing store and rag grader. They

collected used textiles, sorted them appropriately, sold used clothes both domestically and overseas, and reclaimed fibers for the creation of new products. Essentially, the organization embodied almost all functions of the textile recycling system. At the time that Brenda Platt documented the initiative, they were still building staff, acquiring equipment, and modifying their collection and sorting facility to meet their needs.

In 1999, Marilyn Wood, the president of New Threads, reported to Platt that revenue at their domestic shop was down. Wood implied that the decreased revenue was due to global forces where international producers of new clothing created and sold clothing at prices comparable to that of the used clothing sold at New Threads. Additionally, New Threads stopped receiving payment for the clothes that they were selling to overseas markets. Wood reported that that period was the lowest point for the used clothing market in the past forty years. These two factors led the organization to lay off their workforce and seek a new direction that could fulfill their ultimate goals of providing jobs for those who are marginally employable and pursuing sustainable development. Ultimately, Wood ended the organization permanently in 1999.

**Cooperation: Somerset County, New Jersey**

The Somerset County textile recycling initiative is unique in that over time, it has pursued both curbside pick-up and on-site drop-off textile recycling programs. Therefore, the county is one of the few interviewees who

are familiar with the trade-offs associated with different collection methods. Somerset County currently partners with a rag grader that collects and transports the materials to their facilities. However, in the past, the county performed curbside pick-up, while a nonprofit, Planet Aid, collected the items from their facilities. It should be noted that Planet Aid is a nonprofit that functions primarily as a rag grader. In the media, their nonprofit status is controversial and their economic development programs have been called into question (Sullivan, 2004; Idlebrook, 2009; Thompson, 2007). In both iterations, I categorized the initiative as 'cooperation' because the actors formally divided functions and pooled resources. In order to gain insight into how partnership affects different collection modes, I interviewed Diana Vigilante, who has worked with the recycling program in Somerset County through its various transformations from curbside pick-up to residential drop-off.

Somerset County's recycling initiative evolved over time. The initial version was a curbside collection program, which ran from 1992 to 2008. In the initial curbside pick-up program, the county collected the used textiles and the for-profit rag grader, Dumont, provided residents with plastic bags to separate and protect the textiles during collection. In later iterations of this partnership, Planet Aid replaced Dumont, yet they did not provide collection bags. In their partnerships with Planet Aid and Dumont, the county used their own trucks with separate compartments for different recyclables to collect the used textiles. The textiles were separated from other materials in

the trucks to reduce contamination. The county stored the textiles at their recycling facility to be collected monthly by the contracted rag graders. The rag graders, both Planet Aid and Dumont, sorted and baled the textiles for sale overseas. Vigilante reported that over time, the county has received between \$100 and \$200 per ton of used textiles. However, she did not provide the exact figures that the county received from Planet Aid and Dumont. Since 2008, Somerset County has pursued a traditional drop-off program in which residents can bring used textiles to the local recycling facility. The materials are stored until the contracted rag grader can collect them.

Somerset County experienced many of the benefits of partnering, including legitimacy, resource symbiosis, and combined competencies. First, Vigilante acknowledged that partnering with Planet Aid lent legitimacy and validity to the initiative in the eyes of the residents. The county placed Planet Aid's name in public relations materials, in order to "pull at the heart strings" of residents and encourage them to donate. Second, as seen in many of the other partnerships, the county provided space to store the textiles until the rag grader was able to collect the materials, while the rag grader offered collection and transit of the materials. The county also utilized their compartmentalized recycling trucks and staff initially to collect the textiles. Vigilante acknowledged that adding another commodity to the list of recyclables collected on the recycling truck, like textiles, helps offset the cost of recycling initiatives as a whole. Third, these partnerships capitalize on

combined competencies, in which the county has superior access to citizens and their textile waste through its curbside collection program, while the rag graders utilize established facilities, staff, and relationships to ensure that these textiles have a second life.

Based on the four goals, the initiative could be considered successful, as the county collected 157.13 tons at its peak in 2004 when Planet Aid was involved. In contrast, Somerset County most recently collected 16.18 tons. This decline is largely due to a change from curbside pick-up to residential drop-off. In addition to the environmental benefits, the county collected \$100 to \$200 per ton of used textiles from the rag grader, potentially making it a profitable venture for the county.

However, these partnerships are not without challenges, as Somerset County has experienced the challenges of both scarcity and accountability in partnering around textile recycling. The curbside collection program ended because there was limited space on the collection truck. Vigilante explained that the county traded textile space on the collection truck for chip board space because “there was more tonnage in chip board.” Thus, it was not necessarily scarcity of quality used textiles, but scarcity of space on the compartmentalized truck that forced the textile recycling initiative to be modified from curbside to drop-off.

Additionally, the County has experienced accountability issues with formerly contracted rag graders. Vigilante explained that, at times, the county did not get paid for the textiles collected. Additionally, one contractor

was not fulfilling their duty of picking up the textiles, which was a problem for the county's small storage facility. Vigilante noted that Somerset County has both bidding laws and time-limits for their contracts. These measures ensure that contractors who are not fulfilling their duties can be replaced.

**Coordination: Calvert County, Maryland**

The Calvert County textile recycling initiative is distinct in that it originally was a more integrated form of partnership. Originally, the municipality partnered with a local nonprofit to collect the used textiles, so that the nonprofit would create jobs for disadvantaged populations. The used textiles were then sold to a rag grader. This initial configuration of the partnership was classified as 'coordination' because the municipality committed resources to explicitly benefit the other actors. In order to gain perspective on this initial configuration, I interviewed Steve Kullen, who worked for the municipality on Calvert County's textile recycling initiative. Currently, the municipality collects the used textiles through on-site drop-off and collaborates with a rag grader to transport the materials. Their partnership is classified as 'cooperation' because they share resources and formally divide labor. William Teter, the individual currently responsible for the municipality's program, was able to provide insight into Calvert County's present textile recycling initiative. Additionally, I contacted Audrey Traff at Mid-Atlantic Clothing, the current contracted rag grader on this initiative. However, no one was available for interview that was with the municipality

between Kullen and Teter's terms of service. Thus, I can say very little about the changes between the two iterations of the textile recycling initiative.

Kullen reported that Dumont, a rag grader based in Philadelphia, originally initiated a partnership with the County. The rag grader sent Kullen an invitational video that presented the idea of incorporating textiles into the County's current list of recyclables. Kullen stated that after visiting Dumont, he "was sold on the idea." The partnership began soon after. Kullen wanted to create a relationship with Dumont in order to establish a link that would benefit the local nonprofit organizations. Kullen wanted to ensure that local nonprofits had access to seasonally appropriate clothes. His relationship with Dumont was intended to provide the nonprofits with seasonal clothing, such as jackets in winter. In normal business interactions, these nonprofits would likely never directly work with Dumont. The initiative is still in place, yet Dumont has since been replaced as the primary rag grader.

While Steve Kullen was with Calvert County, the government contracted with Melwood, a nonprofit organization focused on job training for people with disabilities, to collect all textiles from Calvert County's convenience centers (or waste drop-off centers). After a sort by those at Melwood, the clothes were shipped off to Dumont. Dumont would then pay Melwood for the used textiles. The program expanded when Kullen helped arrange collection trailers for local nonprofits. This enabled the nonprofits to sell directly to rag graders, while avoiding the tipping fee typically associated with nonprofits' disposal of unwanted used textile. Dumont supplied on-site

trailers to the non-profits. He reported that while he was at the county, there were no formal contracts, at least with the local nonprofits, because there was a belief that nonprofits can work effectively with the private sector.

Melwood and Dumont are no longer involved in Calvert County's textile recycling initiative, and little is known about the transition to its current state. According to William Teter, the current municipal employee responsible for the program, Calvert County currently collects textiles in bins at the six convenience centers and the landfill. He reported that they have official contracts with the rag grader, with contractual time limits in place. Mid-Atlantic Clothing Recycling (MAC), the contracted rag grader, collects the textiles every week from the seven collection centers. Teter reported that MAC then sorts the clothes. Those that are suitable for reuse are sold overseas, and those that cannot be reused are broken down into something new. However, MAC clarified that they do not sort—" [they] sell to people all over the world who do sort." The textiles are baled without sorting and sold by the container to developing countries.

Years ago, MAC used Harbor City Services (HCS), a nonprofit dedicated to vocational training for people with legal or substance abuse issues, as their contracted collector and sorter. HCS provided the collection facilities, as well as the skilled labor to perform sorts. However, as MAC expanded operations, the rag grader outgrew both the collection facility and staff capacities of HCS. Currently, MAC does not prioritize quality jobs for low-skilled workers.

Kullen reported that the initial relationship with Dumont facilitates resource sharing; Dumont provided the trailers to Calvert County, while the County provided the set-up location for the trailer. Calvert County's relationship with Melwood was similar, in that the County provided the property while Melwood used the materials as an opportunity for a job-training program. The initiative also capitalized on the competencies of all actors involved. Dumont collected and sorted the materials, as it had more appropriate facilities and trained staff. Similarly, Melwood had the facilities and staff to do an initial sort of the clothing and ship it to their rag grader.

Kullen's informal conversations with local nonprofits were intended to develop greater opportunities for the organization by establishing a partnership with the textile recycling dealer. While the county was developing and expanding its collection program, it did not want the community to perceive it as competing with the local nonprofits, which derive much of their funding from the sale of used clothing.

Similar to what the initiative was during Kullen's time, the municipality and rag grader maintain complementary resources and skills, and the initiative is able to capitalize on that. The rag grader benefits by using municipal property for the storage bin to be placed. The county benefits from the rag grader's, in this case MAC's, transportation of the materials from the landfill and collection centers. Calvert County's current initiative also capitalizes on combined competencies: MAC's ability to collect

and ship textiles to final overseas markets, and the County's access to residents.

Additionally, MAC's partnership with Drug Abuse Resistance Education (DARE) helps enhance MAC's image in the eyes of residents. According to Traff from MAC, residents see that MAC gives a certain amount of money per bin to the state to fund the DARE program to support avoidance of drug use and violent behavior, particularly among youths. Teter elaborated that the county receives \$100 per year per collection bin for their local DARE program, while the state and national DARE program receive \$100 and \$300 per collection bin per year. Traff explained that Calvert County is very much in support of DARE. However, without interviewing Calvert County residents, I am unable to determine if and to what extent this is true.

The fact that the initiative benefits DARE is advertised in Calvert County's and MAC's promotional materials, while DARE promotes the program through its website. Teter reports that in addition to the legitimacy derived from the DARE component, the County recommends that residents first donate used textiles to local nonprofits, and then donate to the County bins, which fund DARE. Teter explained that this facet of the program works with the reverse seasonality of clothing donations. Reverse seasonality, in this case, means that residents often donate winter clothes during summer and vice-versa; a majority of these items are unsalable in many used clothing

stores. The municipality is then able to recover textiles that would otherwise be disposed.

In the previous configuration, Kullen reported some “general management” problems with Melwood, in which they did not complete duties on-time. However, the issues were marginal, and Kullen said face-to-face conversations quickly resolved them. Teter stated that his predecessors experienced issues with previously contracted rag graders when they “violat[ed] their contract through non-performance.” Non-performance in this case means that the containers were in disrepair and the clothes were not being collected promptly.

**Coordination: St. Paul, Minnesota**

St. Paul’s textile recycling initiative is unique in that it is and was spearheaded by a local environmental nonprofit, the St. Paul Neighborhood Energy Consortium (NEC) and a nonprofit spin-off of NEC Eureka! Recycling. St. Paul contracted and contracts with NEC and Eureka!, respectively, to implement a curbside pick-up program of household items, including textiles (clothing, rags, shoes, curtains, belts) and housewares (pots, pans, small appliances). Currently, Eureka! contracts with a rag grader, UsAgain, to collect the used textiles from their storage facilities. At the time of Platt’s case studies, I defined the initiative as ‘coordination,’ as it involved a pooling of scarce resources (e.g. the used textiles) among the city, two haulers, the Goodwill, and NEC to the benefit of those actors involved. The city contracted

with NEC to plan and implement a curbside recycling program where two haulers collected the recyclables, the Goodwill sold the used textiles deemed salable in-store and the residual to a rag grader. Currently, the City of St. Paul, Eureka!, and a for profit rag grader, UsAgain, are the primary actors in a partnership classified as 'cooperation' because they are sharing resources without the explicit agreement to benefit the other actors involved. St. Paul contracts with Eureka! who now functions as the hauler to collect the textiles via curbside pick-up and sell them to the rag grader, UsAgain. In order to better understand the original and current configurations, I interviewed Mary T'Kach, who formerly worked for the St. Paul Neighborhood Energy Consortium (NEC), and Tim Brownell, the current president of Eureka!

Initially, NEC involved many stakeholders, including the city, two different recyclables haulers, multiple local charities, and the Goodwill, as well as their own organization. T'Kach believed that a formal agreement existed between NEC, the haulers, and the Goodwill. Under this formal agreement, the hauler would collect recyclables through curbside pick-up, and the Goodwill would collect the items from the hauler under agreed upon conditions, which T'Kach was unable to detail further. T'Kach explained that "The NEC and Goodwill worked together to address concerns that local residents and charities had regarding the NEC choosing Goodwill as their sole partner and therefore sole beneficiary of the collected materials. The end result was a program whereby any local charity could get free materials (clothing and household items) from the Goodwill if they felt their donation

stream was being affected by the curbside collection program. A few charities used this option, however, it was not a concern that materialized for the vast majority of the charities at the time.”

The NEC used their existing two haulers for this program and simply added textile and household goods stream to the other materials being collected at the time. NEC took on the public education component with fliers, distribution of collection bags, news articles, cable television spots, public speaking at meetings, and press releases. As I was unable to interview an individual from the Goodwill, it was unclear whether the organization saw this as an opportunity to employ and train its target populations. However, Platt’s case studies state that curbside materials, including both household and clothing items, created one full-time job for the initiative from the Goodwill’s perspective. T’Kach stated that “The Goodwill received revenue from the materials and this most likely went to support their overall organizational mission of job training.”

Brownell explained that Eureka! now pursues a similar curbside collection program that includes used textiles among other recyclables. Residents separate the clothes from other recyclables in a bag. In the sorting facility, handlers pull out the textiles and set them aside. UsAgain then collects the textiles from Eureka! and sorts them. Brownell explained that because of the heavy equipment and resulting safety issues, they do not have an explicit hiring policy for otherwise vulnerable populations. However, Brownell explains that “Eureka! feels that this work does not need to be

subsidized and that those doing all of the work, from sorting staff to any other position in the industry should be well paid with benefits...We believe this industry can help us expand well paying jobs that are needed throughout our economy." Eureka! provides educational materials to residents through the mail, including a recycling guide. Additionally, Eureka! provides the tags that indicate whether a resident is improperly bagging or disposing of used textiles. The initiative currently diverts approximately 200 tons per year of textile waste.

In the first iteration of the textile recycling partnership, working with the Goodwill lent legitimacy to the initiative. According to T'Kach, residents were drawn to the fact that the initiative helped create jobs and job training for people who needed this and provided a convenient way for residents to donate items to local charities. Brownell explained that because NEC was a local nonprofit in a small town, the organization lent additional legitimacy in the eyes of the residents to the initiative, compared to an initiative headed by the government. I infer that this is partially due to a general distrust of the government and partially due to people's attraction to the positive perceptions of nonprofits.

Additionally, Eureka! aims to create integrated relationships around textile recycling that are devoted to citizen education, which may have resulted in resource exchange. For example, one of the primary reasons that Eureka! chose to work with UsAgain is that the rag grader is an organization more involved in the program education component. While I am unable to

speak to whether UsAgain's involvement increases textile recycling participation rates in St. Paul specifically, I can infer that an organization with public education around textile recycling might promote the concept and bring awareness more generally. Additionally, it may attract other actors with similar interests, like Eureka!, to partner with UsAgain.

The primary challenge the initial partnership faced was the quality of the household goods, not textiles, the Goodwill received. The initiative collected housewares that were far inferior to what the Goodwill was receiving through in-store drop-off. Brownell explained that lack of quality household items ultimately led to the Goodwill ending the collection of household items and textiles. Housewares were then removed from the curbside collection program. Brownell explains that this is why Eureka! now partners with a different organization that takes only textiles, UsAgain. Additionally, T'Kach reported that, at times, NEC had issues with drivers in the collection vehicles not notifying residents when they had set out materials improperly or had set out the wrong types of materials (e.g. large pieces of furniture), but otherwise the initiative ran very smoothly.

## **Chapter 6: Discussion of Findings from the Seven Case Studies: Evidence of the Potential and Limitations of Textile Recycling**

This chapter synthesizes the gleanings from the case studies described in the previous chapter. I begin by discussing how the case studies have achieved the four goals of environmental benefits, cost savings, quality jobs for low-skilled workers, and public education. I then examine how collaboration has influenced the way the initiatives have contended with the complexities of textile recycling discussed in Chapter 2. I first analyze the extent of collaboration in the partnerships and how the partners' relationships to one another changed over time. I then look more closely at the composition of the partnerships to explicate how these initiatives took advantage of the actors' distinctive skills and resources. I close the chapter with an analysis of how the partnerships encountered the challenges of partnership described in the literature.

### **Findings about Case Studies' Achievement of Outcomes**

Most of these partnerships have achieved at least some of the four objectives identified in Chapter 2. As Table 6.1 conveys, they have had successes in terms of waste diversion, cost savings, citizen education, and jobs generated.

**Table 6.1: Achievements of the Recycling Partnerships**

<b>Case Study</b>	<b>Partnership Model (1997)</b>	<b>Partnership Model (2011)</b>	<b>Still Existing</b>	<b>Amount Recycled</b>	<b>Jobs Created</b>	<b>Revenue/Cost</b>	<b>Citizen education</b>
San Jose, CA	No coordination	No coordination	Yes	1600 tons (2011)	Marginal	Costs \$200 per ton for the hauler	Recycling guide and one-sheeter
Chatham County, NC	Communication	No coordination	Yes	NA	Zero	Costs \$2000-3000 per Swap Shop	Not available
Montgomery County, MD	Cooperation	Cooperation	Yes	124 tons	Marginal	Receives \$150 per ton, little overhead and operating costs	Website promotion
Somerset County, NJ	Cooperation	Cooperation	Yes	157.13 (2004's curbside program) and 16.18 (2010's drop-off program)	Marginal	Receives \$100 to \$200 per ton	Brochure and website promotion
Calvert County, MD	Coordination	Cooperation	Yes	NA	Marginal	\$100 per bin per year donated to county DARE program	Information on website and at drop-off site, promotional materials in newspaper and mailer
St. Paul, MN	Coordination	Cooperation	Yes	200 tons per year	Marginal	Receives \$160 per ton	Education pieces, including mailings, recycling guides, and tags

As seen in Table 6.1, the total amount of used textiles collected by the four initiatives for which data were available ranges from 16.18 tons to 1600 tons. Data limitations precluded the analysis of what percentage of the total textile was collected through these initiatives. Nor was it possible to determine how many tons of used textiles were being landfilled before the initiatives took place or by what percentage the textile waste collected reduced the total amount of waste deposited in landfills. Nevertheless, these findings suggest that the initiatives diverted a sizable amount of textiles from the waste stream.

The fact that the three partnerships with curbside pick-up programs recycled the largest amounts of textiles suggests that this approach to collection may be more effective than on-site drop-off. As we would expect, the smaller localities recycled less than the cities. However, the initiative's location in a densely populated area explains only some of the variation. The fact that San Jose recycled 8 times as much as St. Paul suggests that there are other relevant factors. More comprehensive data about the volume collected in relation to population size and other relevant factors, such as the area's environmental attitude, is necessary to affirm this conclusion.

Several of the cities, counties, and municipalities received between \$100 to \$200 per ton in exchange for the used textiles, with the average being approximately \$150 per ton. By contrast, in San Jose, California, it cost the hauler approximately \$200 per ton to recycle the used textiles. Harvie, an employee of San Jose's Integrated Waste Management program, explained

that, because the local government is attempting to divert as much waste as possible, they collect a large amount of the lowest grade of textiles that many rag graders will not purchase. Although Chatham County's textile recycling programs do not generate income for the county, the program saves the county approximately \$60 per ton of diverted textiles.

None of the existing initiatives created a significant number of jobs from the local government or hauler's perspective, as seen in Table 6.1. MAC, the rag grader from Calvert County's initiative, could not provide job information for just Calvert County's textile recycling program because they serve a much larger area beyond just this one county. The Goodwill in St. Paul's 1997 initiative created one full-time job devoted to materials collected through curbside pick-up. However, Platt's report did not provide specifics on how many jobs were created from this specific textile recycling initiative. Additionally, I was unable to interview Planet Aid from Somerset County's initiative. Therefore, I cannot provide information on the number and type of jobs that organization created. According to those I interviewed, it is difficult to discern the effects on employment from textile recycling initiatives unless there is a specific employment program derived from the used textiles.

Educational materials distributed to the public play a vital role in the textile recycling initiatives I studied. In order for the initiatives to be successful, they rely on participation from residents. Thus, residents must be informed of the initiative and have a positive perception of the textile recycling program. Five interviewees reported creating a variety of materials,

ranging from recycling guides, one-sheets, mailings, tags, websites, to other general informational materials for their textile recycling programs. Some interviewees implied that education materials influence the total amount of used textiles collected.

Ultimately, all of these case studies partially fulfilled at least one of the aforementioned metrics. However, most textile recycling programs were best at achieving the environmental metric of diverting waste from the landfill. The initiatives varied with respect to how much tonnage each recycled. This may be due to other factors unrelated to the textile recycling initiative like population of the area served and therefore total amount of waste disposed and recovered. These initiatives seemed to be cost-saving, if not profitable, for many local governments involved. Education materials were also widely pursued by all programs. However, most initiatives created a marginal number of jobs without targeted hiring policies for vulnerable populations.

#### **Findings about the Extent of Collaboration and the Partnerships' Survival and Evolution**

Because I do not have data to compare costs before and after the operation of these recycling initiatives, I am not able to analyze the direct impact of collaboration on environmental benefits, cost savings, quality jobs for low-skilled workers, and public education discussed above. Nor did I have sufficiently comparable data to analyze the variation in outcomes across the case studies. However, we can understand how the process of collaborating and the composition of the partnerships influenced the local

governments' efforts to encourage residential participation and overcome the complexity of textile recycling.

The extent to which the recycling initiatives joined forces to collaborate with one another affirms prior research that partnership is difficult. As seen in Table 6.2, none of the partnerships I studied adopted the most intensive level of interdependency on the scale of collaboration presented in Chapter 3; they did not fully integrate their activities to operate as one cohesive program. Most of these initiatives were in the middle range of the scale with four being classified as "cooperation" or "coordination." I classified two as "cooperation" because they agreed to informally work together on a problem without formal expectations from one another. Two were classified as "coordination" because there were formal agreements for committing resources to further joint activities. One program was classified as "no coordination" because the relationship was purely contractual. One program was considered "communication" because the actors only shared information without engaging in coordinated activities or dedicating resources to the initiative. Even in the more extensive partnerships, each actor assumed a sequential function in the process and rarely, if ever, engaged in the same activities collectively.

The survival rate of these partnerships is one indication that these textile partnerships were beneficial to the textile recycling enterprise. Despite the challenges of working across organizational boundaries, six of the seven documented case studies are still in existence. However, changes

in the configuration of the partnerships in the 15 years since Platt documented these initiatives suggests that working together was difficult. Although three of the surviving six partnerships maintained the same level of collaboration, the other three shifted operations to a less integrated form of partnerships. San Jose, Montgomery County, and Somerset County maintained the same level of integrated partnership in these 15 years. In contrast, Chatham County decreased from communication to no coordination and Calvert County and St. Paul both lessened the degree of collaboration from coordination to cooperation where partners have fewer obligations to one another. Thus, four of the six existing initiatives are currently classified as cooperation.

**Table 6.2: Stability and Change in the Case Study Partnerships**

<b>Case Study</b>	<b>Partnership Model (1997)</b>	<b>Partnership Model (2011)</b>	<b>Increase or Decrease of Partnership</b>	<b>Still Existing</b>
San Jose, CA	No coordination	No coordination	Same	Yes
Chatham County, NC	Communication	No coordination	Decrease	Yes
Montgomery County, MD	Cooperation	Cooperation	Same	Yes
New Threads	Cooperation	NA	NA	Closed
Somerset County, NJ	Cooperation	Cooperation	Same	Yes
Calvert County, MD	Coordination	Cooperation	Decrease	Yes
St. Paul, MN	Coordination	Cooperation	Decrease	Yes

## **The Influence of the Composition of the Partnerships on the Facets of the Recycling Process**

A closer look at the composition of the partnerships sheds light on how the actors took advantage of one another's distinctive competencies and resources to encourage residents to participate in textile recycling initiatives and contend with the complexity of the recycling process. As seen in Table 6.3, four of the six case studies involve a city, county, or municipality in some role. The cities of St. Paul and San Jose are also involved in their textile recycling initiative, yet they contract out the recycling program itself to other actors instead of performing the roles listed in the table. With the exception of Chatham County, a for-profit rag grader is an actor in each of the current initiatives. Five of these initiatives involve or have involved a nonprofit. The textile recycling programs were able to capitalize on these varying actors' different interests and specialties in each of the facets of the recycling process: collection and transportation from (or by) resident or nonprofit to site, transportation to rag grader or nonprofit, sorting, and reuse. In Table 6.3, each column indicates a function in the textile recycling process and which actor assumed that function.

**Table 6.3: Actors' Functions in Textile Recycling Process**

<b>Case Study</b>	Collection and transportation from (or by) resident or nonprofit	Transportation to rag grader or nonprofit	Sorting	Reuse
San Jose	Hauler	?	?	Rag grader
Chatham County (1997)	Resident	Local government	Local government	Local government and nonprofit
Chatham County (2011)	Resident	None	Local government	Local government
Montgomery County	Resident and local government	Rag grader	Rag grader	Rag grader
Somerset County (2008)	Local government	Nonprofit	Nonprofit	Nonprofit
Somerset County (2011)	Resident	Rag grader	Rag grader	Rag grader
Calvert County (1997)	Resident, local government, nonprofit	Rag grader	Rag grader	Rag grader
Calvert County (2011)	Resident	Rag grader	International or domestic buyer	Rag grader
St. Paul (1997)	Hauler	Nonprofit	Nonprofit	Nonprofit and rag grader
St. Paul (2011)	Nonprofit	Rag grader	Rag grader	Rag grader

*Collection and Transportation from Resident or Nonprofit*

In the first step of the textile recycling process, textiles are collected from residents and transported to the site for storage, sorting, and/or disposal. Of the ten iterations of the case studies, residents appear in the

table six times, local governments three times, a hauler twice, and a nonprofit twice. It should be noted that the nonprofit responsible for collection in St. Paul functions as a hauler. Residents likely appear in the table most frequently because they have the closest relationship to the used textiles. The city, county, or municipality relies on residents and their proximity to used clothing to collect the textiles on the local government's behalf. The success of the initiative depends on residential participation, as they are the initial owners of the textile waste.

One way the partners worked together was in producing and disseminating public education materials in order to increase residential participation. Sometimes the local governments assumed responsibility for this for the benefit of all who gain from higher volumes of collected textiles. The involvement of additional actors seems to augment outreach to residents. For example, Dumont's distribution of the collection bags encouraged greater participation in Somerset County's initiative.

Composition of the partnership can also influence residential participation, as suggested in Chapter 3. Because I was unable to interview residents, I cannot comment on how they perceived these textile recycling initiatives. However, local governments reported that residents perceived the initiatives more positively because of a nonprofits' involvement in the program. When a nonprofit was involved, the government actor typically promoted it heavily. According to Mary T'Kach, residents perceive the initiative more positively and were more likely to donate their textiles when

a nonprofit was involved. For example, NEC used the Goodwill's name to increase the amount collected by promoting the job training programs that people's donations created. Additionally, Somerset County promoted their partnership with PlanetAid in order "to pull at the heart strings of the general public." While some local governments do not formally partner with an organization that could lend legitimacy to the initiative, they may gain from merely suggesting that residents donate to local nonprofits first. For example, Montgomery County, San Jose, Neighborhood Energy Consortium and Eureka! encourage residents to donate to their local nonprofits first and give the residual to the government initiative. Ultimately, legitimacy is important in textile recycling initiatives, as the whole process is dependent on residential participation, which is dependent on residential perception of the program.

When residents are not involved in the collection process, local governments, nonprofits, and a hauler perform the duty of collecting the textiles from residents and transporting the textile waste to the sorting, storage, or disposal site, using a collection truck. This truck enables them to capitalize on economies of scale by transporting larger amounts of waste per trip to the site.

It could be surmised that there are economies of scale in having haulers perform this duty, as St. Paul and San Jose collected the most amount of textiles from a larger group of residents. In contrast, the smaller service areas, like Calvert County, Chatham County, Montgomery County, and

Somerset County, may be relying on residents to perform this duty, as it would be more difficult for cities, counties, and municipalities to assume the same scale of operation.

It should also be noted that Calvert County was unique in that both residents and the county collected the textiles for Melwood, a nonprofit, to then transport, sort, and sell to rag graders. Ultimately, the cities, counties, and municipalities benefited from having others in the collection process; engaging others increased the amount collected and thus reduced the amount of textile waste that would be landfilled.

#### *Transportation to Rag Grader or Nonprofit*

In the second step of the textile recycling process, textiles that have been collected from residents and nonprofits are transported to the next actor for sale or processing. Typically, the used textiles are collected from the local governments' waste sites. Of the eight iterations of the case studies where this step is performed and information is available, rag graders appear in the table five times, nonprofits twice, and a local government once.

My findings regarding rag graders' interests in textile recycling are consistent with Hawley's research discussed in Chapter 2: Rag graders have a vested interest in collecting the textiles in a timely manner, as the materials may deteriorate if left uncollected for extended periods and, in turn, become unprofitable.

One of the nonprofits who collected the textiles functions as a rag grader. Thus, their expertise and interest in this step is similar to that of the rag graders. However, the other nonprofit collected the textiles so that the items could be sold at their local stores. This nonprofit was the Goodwill, and they maintained a large operation, including a collection trailer and processing facility.

Although I was unable to identify how Chatham County transported the used textiles from Swap Shop to the local nonprofit, it can be inferred that they invested in that expense in order to reduce their expenditures on disposal of the used textiles.

Based on my interviews, when rag graders are involved in the transportation of the used textiles, they maximize the quantity that arrives at processing and sorting facilities for reuse and recycling. In comparison, when nonprofits, at least the Goodwill in this case, assume this duty, they ensure that the textiles make it to their facilities in order to create jobs for their program participants. The subsequent resale further funds their missions. When the local government, at least Chatham County, is involved the emphasis is on removing it from the waste stream and the possibility of reuse.

### *Processing and Sorting*

In the third step of the textile recycling process, textiles are processed and sorted appropriately in order to sell the materials overseas or for

domestic reuse and recycling. Of the nine iterations of the case studies where information is available, rag graders appear in the table four times, nonprofits twice, local governments twice, and an international buyer once. In some cases, my interview affirms Hawley's analysis of rag graders, and in others, it varies from her findings.

According to Hawley, rag graders typically value a highly skilled sort of textiles, as it means they can specialize to better satisfy customer demands (2006, p. 5). With more specific grades, the rag graders can ideally sell more materials for recycling and reuse (Hawley, 2006, p. 5). Moreover, skilled sorts may create greater environmental benefits, as the rag grader will attempt to find the best use for each grade of textiles. However, it should be noted that I was only able to interview one rag grader, MAC from the Calvert County case study. MAC did not utilize a skilled workforce for sorting, which deviates slightly from Hawley's findings, as MAC outsources the sorting to overseas purchasers. MAC, simply processes, bales, and sends the materials overseas to be sorted further.

Nevertheless, based on my interviews, professional skills are important. For example, the local government, Chatham County, maintains staff at their Collection Centers and Swap Shops. These individuals perform a basic sort and processing of clothes by merely removing soiled and torn pieces and sorting the items by gender. However, this staff is not devoted to handling the textiles, so they would be considered unskilled compared to the skills required by rag graders.

My interviews suggest that rag graders do not prioritize creating domestic job opportunities for hard to employ populations. The one rag grader I interviewed, seemed uncomfortable hiring people from vulnerable populations without the necessary support system in place. In comparison, Goodwill targets vulnerable populations for their staff needs. I am unsure of Planet Aid's hiring policies, as I was unable to interview them. Additionally, MAC, the rag grader from Calvert County, argues that their lack of sorting domestically creates jobs in developing nations that receive the unsorted bales. However, I was unable to confirm whether that initiative actually creates jobs overseas.

The Goodwill from St. Paul's 1997 initiative sorted and processed the clothes that were collected from residents and then sold what was saleable in-store. Using information gleaned from Platt's case studies (1997), the Goodwill has skilled sorters on staff to determine what could be re-sold in-store. However, these sorters are likely not as skilled as those hired by rag graders, as rag graders are looking for categorization of their textiles beyond what is saleable in the current season and what is not (Platt, 1997).

Ultimately, I am unsure how much the Goodwill was actually able to deem resalable in-store. Calvert County's partnership with Melwood is similar in that the nonprofit used the materials collected by the county and residents as an opportunity to create jobs for disabled individuals. These individuals would perform a very basic sort and sell the clothes to Dumont, which helped further fund the nonprofit's mission. Calvert County chose to

configure their partnership in this way in order to generate jobs for otherwise vulnerable populations. It should be noted that while these nonprofits employed vulnerable populations to perform basic sorts, they might have sacrificed additional environmental and economic opportunities that are associated with a skilled sort.

The city, county, or municipality gains environmental benefits from this step, as the material that they have recovered has now been sorted and can be reused or recycled appropriately. It is unlikely that most materials could be recovered without a skilled sort. However, rag graders have the professional skills to sort more selectively for the purpose of directing materials to the most efficient subsequent recycling process, compared to that of local governments and nonprofits. There is a trade-off between efficiency and job creation for vulnerable populations, as rag graders may not be the most willing to hire from vulnerable populations. In contrast, nonprofits are likely more willing, but the positions are less skilled than those at rag grading facilities. Therefore, there may be a trade-off between the employment of vulnerable populations and the environmental benefits of a more skilled sort.

### *Reuse*

In the reuse step of the textile recycling process, textiles are sold or donated for reuse. Local reuse enables residents to see first-hand how their textiles are being reused, therefore making a more positive impression on

residents. Of the ten iterations of the case studies where information is available, rag graders appear in the table seven times, a nonprofit three times, and one case study in two iterations with a local government. It should be noted that one of the nonprofits (Planet Aid) that sells used clothing overseas functions much like a rag grader. Thus, their interests and expertise are similar to that of the rag grader.

In the majority of these case studies, rag graders facilitated the reuse of discarded textiles. This is because rag graders are the only type of actor that maintains overseas relationships with textile purchasers, typically located in developing countries. It should be noted that much of the reuse that rag graders accomplish is international, which carries a greater environmental impact due to transit costs, compared to domestic reuse.

In contrast, when local governments or the nonprofits (with the exception of Planet Aid) were involved, the clothing was resold or donated for reuse domestically. The initiatives in which the nonprofits with social service missions assumed responsibility for coordinating the process of selling the discarded clothing created retail jobs for the target populations. The three nonprofits involved in the function of reuse include the Goodwill from St. Paul, Helping Hands Mission in Chatham County, and Planet Aid from Somerset County. Little is known about the Chatham County nonprofit, Helping Hands Mission. However, in St. Paul in 1997, the Goodwill, after sorting the clothes into saleable and unsaleable, sold the clothes in their retail locations. The nonprofit maintained the facility for this process and

employed cashiers and other retail floor staff. Thus, they were achieving the outcomes of environmental benefits and job creation. The local government, Chatham County, that coordinated the reuse of discarded clothing through their Swap Shops did not create jobs of this sort.

Although not present in Table 6.3, New Threads, the nonprofit that closed in 1999, created additional jobs because they not only resold the discarded clothing; they also crafted new products from clothes that used textiles, known as upcycling. An anecdotal example of upcycling involves old t-shirts and sweatshirts being turned into skirts. The organization was similar to Goodwill, in that they utilized the used clothing to fund their ultimate mission of job creation for vulnerable populations.

Additionally, I interviewed one individual who reported the opportunity for reuse outside of the formal textile recycling partnership. Steve Kullen explained that he provided the connection for Dumont and a local nonprofit to work together outside of the textile recycling partnership. Calvert County's partnership with a rag grader created the opportunity for local used-clothing stores to stock their shelves with more seasonally appropriate clothing. If the local thrift shop was short on jackets, the thrift shop could purchase additional jackets from the contracted rag grader, Dumont.

Ultimately, I found the broadest set of gains in terms of environmental and job creation benefits when nonprofits with social service missions were included in the partnership. In contrast, rag graders were able to maximize

environmental benefits, as they were the sole actor to sell the clothes for international reuse that would otherwise have been landfilled, as evidenced in Chatham County. Local governments can also generate environmental benefits, yet landfilling residual textiles is likely the only option in the case that not all textiles are reused and there is not a formal partnership with rag graders.

### *Recycling*

While not present in Table 6.3, recycling is an important function of the textile recycling process. The used textiles that were not discarded, sold as clothing, or crafted into new clothing items were sold for further processing. The government and nonprofit partners of these initiatives could not provide details about what happened with the textile waste after the sale. In this sense, they are not actually participants in the partnerships. Rather, they are participants in a market-based exchange. From my interview with MAC, I learned that they sell used textiles to textile recyclers, but they did not elaborate on the type of recycling the items were to undergo. As I was unable to interview other rag graders and textile recyclers, I am not able to shed light on their specific contributions beyond the value of diverting additional waste from the landfill.

### *Summary of how the partnership's composition influenced each facet of the recycling process*

In sum, because each type of partner brought a different set of resources and expertise, the composition of the partnership influenced which

goals received the most emphasis. Partnerships involving rag graders benefited from the organization's relationships with overseas purchasers and ability to transport clothing to their sorting facilities. This was advantageous, as it increased the amount collected and sold, maximizing the environmental outcome.

Partnerships involving nonprofits benefited from the organization's commitments to reuse to fund their employment program, therefore creating a positive impact on the outcomes job creation for vulnerable populations in addition to environmental benefits and reduced government expenditure on landfill costs. Nonprofits' involvement also seems to encourage residents to participate. However, nonprofits' involvement entails the tradeoff of less selectivity in the sorting process and the implications for maximizing the possibility of more refined post-consumer processing.

Those in which a local government retained more of the responsibilities benefited from the government's property, both vehicles and facilities, to reduce the amount of textile waste being landfilled, which reduces the costs associated with that waste as well. Local governments also were able to inform residents of the textile recycling initiatives through public education materials. Therefore, having a local government involved ensures that there are environmental, cost-savings, and public education benefits.

Additionally, the more integrated partnerships involved the greatest diversity of actors, which involves capitalizing on each actor's specialties and

expertise. For example, in the instance where the partnership was classified as no collaboration, only two actors were involved—the municipality and the hauler. The partnership originally classified as communication (now no coordination) also had few actors involved, ranging from residents, the government, and a local nonprofit when it was classified as communication to the governments and residents when it was classified as no coordination. In contrast, the more integrated partnerships classified as coordination and cooperation often involved local governments, nonprofits, residents, and rag graders. However, increasing the diversity of partners also potentially increases the extent to which an initiative faces challenges, based on the literature. Therefore, the following section will examine those challenges.

### **Challenges of Partnership**

The preceding sections of this chapter explicated how recycling initiatives benefited from collaboration among the local government, nonprofit, and for-profit actors. However, these partnerships are not without their challenges. Trust and accountability among partners was an issue reported by four of the interviewees. At times, New Threads and Somerset County were not paid in a timely manner by their rag grader. Ultimately, this was a contributing factor in the closure of New Threads. Somerset County, Calvert County, and St. Paul, Minnesota, maintained relationships with partners who did not uphold their responsibilities. Their unfulfilled duties ranged from minor infractions, like failure to tag inappropriate disposal of

textiles, to more serious problems, like not servicing the trailer on the agreed-upon schedule. Alternative contractors replaced many of the partners who were unable to perform their contracted duties. Thus, failure to follow through with commitments was a key reason several of these partnerships ceased collaborating with one another or reduced the extent of the collaboration.

There are transaction costs associated with textile recycling partnerships, especially surrounding planning and implementation. Many of the initiatives I studied worked out an agreement over where textiles will be stored (i.e. on whose property) and in what container, who will maintain that container, and how often that container will be serviced. These arrangements seem to have clarified responsibilities and facilitated smooth operations. At the same time, this kind of planning consumes staff time and resources. While only one respondent—Teresa Chapman of Chatham County—mentioned transaction costs, this issue is worth noting. She explained that the county would like to have a more integrated partnership with local businesses or nonprofits, yet because resources and staff time are limited, the county is not able to invest in the planning and implementation necessary to carry out such a partnership at the time of the interview.

The literature on partnerships suggests that power imbalances among actors who have competing interests and varying control of resources and processes can impede collaboration. No interviewees explicitly mentioned this as an issue in their partnerships. Nevertheless, it should be noted that

many of the actors involved, with the exception of the cities, counties, and municipalities, were replaced from when the time Platt documented these case studies to 2011 when this thesis was written. The local governments' consistent involvement suggests that while there may not be power imbalances, there may be asymmetrical accountability. I infer this asymmetrical accountability is due to the fact that they are typically the actor contracting out the various functions of the textile recycling initiative.

Additionally, I may not have found significant conflict among the partners because many initiatives involved limited scopes of collaboration. Because much of the coordination was sequential (rather than integrated), partners depended on the actors to perform their part of the process in order to begin their own. However, with the exception of the rag graders and textile processors, textile recycling was only a small proportion of the actors' operations. Thus, failure to follow through with formal or informal obligations may not have had substantial consequences on other actors in the process. This relatively limited interdependency would mitigate other sources of power imbalances, such as command over critical resources or contractual relationships.

Contending with changes in the environment is another challenge that curtails partnerships. Some interviewees in this study said that they experienced adversity in the face of economic fluctuations, such as market and transportation prices. While the market for used textiles is currently good for many actors involved, global trends have ended at least one

initiative: Marilyn Wood's New Threads. She stated in a letter to Brenda Platt that the nonprofit folded because new clothing could be produced globally as cheaply as used clothing could be sold domestically, thus threatening the used clothing export market.

I will now analyze in which types of partnerships these challenges were more pronounced. Issues around trust and accountability were more common among partnerships identified as cooperation or coordination as opposed to no coordination and communication because actors expected less from each other in the lower forms of partnership. This issue also seemed to emerge mostly around rag graders who did not fulfill their collection duties. While no interviewees reported transaction costs as a challenge, one actor explained that it would be a challenge if they were to pursue a greater extent of collaboration. Thus, we can infer that if an initiative pursues a higher level of collaboration, transaction costs will likely increase. The issue of economic fluctuations was seen in different degrees of partnership. I infer that rag graders may primarily bear this challenge, as they are at the whim of gasoline and global textile markets. Rag graders are actors seen in varying forms of partnership, from those identified as no coordination to coordination, indicating that all textile recycling partnerships, regardless of the degree to which they integrate, could be affected by economic fluctuations. It is possible that these fluctuations, which immediately impact the rag grader and their ability to fulfill duties, slowly have consequences for the whole partnership.

From the case studies, I infer that the composition of the partnership influenced the changes in the extent of collaboration. For example, Chatham County, Calvert County, and St. Paul declined to lower forms of collaboration, while New Threads ended. At least in the cases of Chatham County, Calvert County, and St. Paul, their partnership configuration declined because their relationship with a nonprofit actor devoted to job creation and poverty assistance ended. In contrast, the other case studies did not involve a nonprofit with the exception of Planet Aid in the Somerset County case study and Eureka! in the St. Paul case study. In both of these cases, Planet Aid and Eureka! functioned primarily as a rag grader and a hauler, respectively. This suggests that partnering with nonprofits devoted to job creation and poverty assistance may be more difficult than partnership with other actors or kinds of nonprofits. These actors are also unique in that they may not be as easily replaceable as rag graders.

Ultimately, these case studies suggest that partnership helps contend with the complexity of the textile recycling system, while encouraging residential participation. Each actor brings unique interests and specialties to further each of the four goals previously mentioned. The more integrated partnerships experienced more goal fulfillment because of a greater diversity of actors. However, these more integrated partnerships were not without challenges and all have decreased their interdependence. The following chapter will discuss these findings, while suggesting areas for future research.

## **Chapter 7: Conclusions and Recommendations**

The following chapter will examine how partnerships leverage compatible goals and complementary skills and resources. It will also examine the extent to which the composition of the partnerships furthered the four goals. Collaborating around textile recycling also has limitations. For example, more integrated partnerships experience more challenges because, as the cross-sector collaboration literature suggests, partnership is difficult. Collaboration is likely limited in textile recycling initiatives because some actor's goals are not fully compatible with those of local governments. This chapter will also explore alternative explanations for why collaboration was limited. These findings contribute to the limited literature on textile recycling. Specifically, it better positions local governments and nonprofits in Hawley's research of textile recycling as a system, therefore, painting an even more complex picture of the already complicated textile recycling industry. This research also updates Platt's case studies and determines what sort of roles various actors have in these partnerships. I also recommend further research to expand on this study surrounding both textile recycling and its implications for partnership. Finally, this chapter concludes with suggestions for investigating new models for textile recycling partnerships.

### **The Potential of Partnerships for Textile Recycling**

Hawley's research centered primarily on rag graders and their role in the textile recycling system. This research expands on Hawley's findings to

include both local governments and nonprofits and how partnership among these actors helped fulfill the four goals and be otherwise successful and sustainable. This thesis also updates Platt's work to gain a contemporary picture of how these actors collaborated and what role each of them has assumed in a textile recycling partnership. This section will examine how the actors leveraged compatible goals and complementary skills and resources and how partnerships contributed to the four goals.

#### *Leveraging Compatible Goals and Complementary Skills and Resources*

Textile recycling partnerships helped the organizations from the six case studies contend with the complexity of recycling, while encouraging residential participation. This occurred because the different actors' goals and specialties aligned in different, often complementary ways. For example, local governments are motivated to remove textile waste from their waste stream for environmental and/or economic reasons. The cities, counties, and municipalities in my study dedicate their resources to fulfilling these objectives. They employ the staff and maintain the facilities to collect and store the waste until the next actor can handle it. Rag graders are eager to take the waste from local governments or other actors because selling those textiles for reuse or recycling purposes is their primary revenue source. The rag graders in my study acted on these interests. They also dedicated expertise and resources to the initiative. Their professional expertise allowed them to perform selective sorting. The rag graders also dedicated

vehicles and facilities to transporting and sorting the waste, respectively. Rag graders also cultivated relationships with actors overseas to orchestrate the sale of the used textiles that are not salable domestically. The contributions of each of these types of actors to the recycling initiatives reflect the alignment of their interests, expertise, and resources.

Nonprofits also play a role in the collection, sorting, and sale of textiles in some of the initiatives I studied. They collect textiles. They sort the textiles, albeit with less refined selectivity than the professional, for-profit rag-graders. They also sell the items deemed salable in their retail locations. They engage in these activities in order to generate revenue for their social service operations and to further their goals of job creation for vulnerable populations. Nonprofits' goals are not as well aligned with those of rag graders or local governments as the latter two are with each other; textile recycling is one of many means to achieve their goals rather than the primary means to do so. Consequently, if a textile recycling initiative is not helping them fulfill their goal of job creation, a nonprofit may decide to end the partnership. Indeed, this seems to have been the reason several of the nonprofits discontinued their involvement in my case studies between the time of Platt's work and mine. In contrast, cities, counties, and municipalities rarely ended their partnerships with rag graders altogether, but rather replaced a specific rag grader when the local government felt they were not completing their assigned duties.

Residents, the fourth actor involved in textile recycling initiatives, are key to these initiatives' success. The local governments, nonprofits, and rag graders depend on residents' willingness to contribute their unwanted textiles so that the items can be collected and processed. The initiatives I studied engaged in public education to increase residential participation. In my study, local governments were the most active in creating materials to promote these programs to the general public. However, interviewees reported that a nonprofit's involvement in outreach programs was more favorable than an initiative only involving a rag grader and a government actor. This may be because individuals prefer to contribute their used textiles to a nonprofit rather than a local government or for-profit company. In the case studies I examined, the nonprofits did not produce educational materials. Thus, the public education metric depends on a local government's ability to communicate with residents and a nonprofit's appeal to the general public. These findings lend support to my argument that partnerships allow actors to pool competencies to help ensure that used textiles are diverted from the landfill.

#### *The Partnerships' Contributions to the Four Goals of Textile Recycling*

The composition of the partnerships influenced how the initiatives further the four goals of textile recycling I delineated in Chapter 2: environmental benefits, cost savings, residential participation, and quality jobs for low-skilled workers. Specifically, I examined how the actors engaged

in the textile recycling process, rather than the extent to which partnerships enhanced outcomes relative to initiatives that do not involve partnerships.

Each of the initiatives was excellent at pursuing the environmental goal. Local governments and rag graders were particularly good at this, because they were motivated to divert and collect, as much waste as possible. In some respects, rag graders' contributions to this goal were particularly pronounced. They were the most effective at grading used textiles, as they required the maximum redirected from the landfill and the least amount of energy-consuming processing. However, rag graders were also more likely than government or nonprofit actors to ship the clothing overseas for reuse. By contrast, nonprofits sold clothes for reuse without utilizing international transit, though those textiles that could not be sold for reuse domestically were landfilled or sold to rag graders. There are trade-offs when choosing between domestic reuse, international reuse, and recycling, and often the best choice is unclear. It seems that the choice among those three options is largely dependent on which actors are involved in the partnership.

Most of the initiatives advanced the economic goals in so far as they reduced the public's expenditure on waste disposal and generated revenue for the local government. However, it should be noted that some of the cities, counties, and municipalities involved in these initiatives also incurred costs. These costs include the amount paid through contract to have haulers recycle the lower grade textiles in San Jose and the marginal costs associated with adding another recyclable to curbside pick-up programs. I was unable to

discern the amount of revenue generated by the nonprofits and for-profits, as it was beyond the scope of this study.

The public sector also fulfilled the public education metric. It promoted public awareness through websites, one-sheeters, brochures, and recycling guides. This information is easily incorporated into other recycling and waste disposal materials.

Employment is the least fulfilled of all metrics among the partnerships I studied. Only when nonprofits dedicated to creating jobs for vulnerable populations were involved in the partnership, was this goal pursued. As seen with New Threads, an organization dedicated to job creation for vulnerable populations, skilled positions were created, but these positions were limited by the success or, in this case, failure of the nonprofit.

### **The Limitations of Partnership for Textile Recycling**

Although the evidence suggests that partnerships enhanced local capacity for achieving these outcomes, my study also suggests that the potential of partnerships is difficult to realize. Based on the case studies, actors collaborated to a limited extent in these textile recycling partnerships. In fact, the extent of collaboration decreased over time in several of the case studies. Additionally, many of the actors documented in Platt's case studies are no longer involved in these initiatives, with the exception of the cities, counties, and municipalities themselves, suggesting that there is a high level

of turnover among non-municipal participants. Furthermore, one case study, New Threads, ended both their operations and partnership with others.

Many of these initiatives entailed less extensive interdependence among actors. The literature suggests that these less integrated partnerships are easier to pursue (Briggs, 2003; Bryson et al., 2006). Additionally, more interdependence may not lead to enough benefits to compensate for the challenges of mutual reliance. When partnerships re-configured to be less integrated, the actors almost invariably sought to share fewer resources, eliminate joint problem solving, and stop investing in partnership planning. Some of this lessening of interdependence may also be due to the loss of individuals who had originally championed the partnership.

These initiatives faced many of the challenges to collaboration noted in the literature. These include problems with trust and accountability, economic fluctuations, asymmetrical accountability, and transaction costs (Briggs, 2003; Bryson et al., 2006; Oliver, 1990). Trust and accountability problems were common in the textile recycling partnerships. The most frequently noted examples were due to rag graders' failure to fulfill their designated duties of collection and maintenance. Although I was unable to interview rag graders for this study, my research suggests several explanations for why they were prone to accountability failures. As for-profit enterprises, they are more susceptible to fluctuations in the market for used clothing and raw materials for processing into new products. This will be particularly crucial if economic fluctuations, like gas prices and international

clothing markets, affect rag graders' fulfillment of duties. For example, if gas prices are too high, rag graders may be unable to collect textiles and service containers in a timely manner. Their inability to fulfill their collection duties can have consequences for the entire partnership, particularly the local government who relies on other actors to remove the used textiles from their waste stream.

Additionally, rag graders are the most vulnerable actors to changes in the used textile markets, since they are typically responsible for selling the materials overseas. If there is not a profitable end market for these textiles, rag graders may cease collection duties as a result. In this way, all actors can be affected by fluctuations in the market. These instabilities in the used textile markets deserve to be studied more closely. Marilyn Woods from New Threads hypothesized that the price of new clothing is comparable to that of used, which affected the success of her initiative since individuals were opting for new, rather than used, clothes. The relationship between the new and used markets must be explored if we are to understand why consumers purchase so many clothes and produce so much textile waste.

Transaction costs were mentioned less frequently than the other challenges. In fact, transaction costs was only mentioned as a hypothetical problem, in the case the county pursued a more integrated partnership. No interviewees explicitly stated that there were problems with their initiative's power dynamics. However, there is asymmetrical accountability among actors, likely favoring the local government. I infer that there is asymmetrical

accountability because cities, counties, and municipalities are the only stable actor throughout each case study's existence. Additionally, I primarily interviewed individuals from local governments that reported no problems with this asymmetrical accountability. However, interviews with rag graders and nonprofits may provide a deeper understanding of the power dynamics of these initiatives.

Additionally, I contend that many actors, especially those from the public sector, did not see these initiatives as partnerships so much as contracted services. As Milward and Provan (2000) suggest, many services traditionally provided by the government are now contracted out to for-profit and nonprofit entities, leaving asymmetrical accountability where the nonprofits, rag graders, and haulers are accountable to the local government without the reciprocal. The culture of these initiatives may be perceived as more contract-oriented, and less a collaborative effort. This is supported by the fact that many actors from the case studies had no strategies in place to align goals, build trust, or maintain the partnership, in turn increasing the possibility that their partnership would fail. Cities, counties, and municipalities who have competitive bidding regulations more easily replace other actors, especially rag graders who have failed to complete their duty, which further decreases the interdependence of the collaboration. Therefore, other actors are accountable to the local government, but not vice versa. I argue that this results in uneven accountability, creating an additional challenge to the partnership. Furthermore, contract-oriented culture may

explain why none of the same actors presented in Platt's case studies (with the exception of cities, counties, and municipalities) are still currently involved in these initiatives.

### **Recommendations for Further Research**

More research is necessary to account for some of the limitations of my study and to draw broader generalizations about the potential for partnerships in textile recycling initiatives. My research focused primarily on the process of textile recycling where at least one actor other than the city, county, or municipality itself was involved. Future research could examine how textile recycling relates more to outcomes. In order to provide us with a better picture of how these initiatives are progressing towards the ideal 95% textile recycling rate, research would involve better quantitative data of total tonnage diverted and textile waste figures prior to the initiative's inception. Additionally, research could compare textile recycling initiatives with and without partnerships, while controlling for factors that might influence outcomes. This would yield comparable data, which provides a better picture of which partnerships yield the best outcomes.

I only interviewed some of the actors involved, and many of them years after their involvement. Future research with more longitudinal data on textile recycling initiatives could examine how the programs unfold over time. This longitudinal data could also interview a broader range of actors, including nonprofits and rag graders, rather than just the local governments.

While my research was limited to local governments, rag graders, and nonprofits, it would be interesting to explore whether there are still other actors involved in textile recycling initiatives and how their different configurations influence outcomes.

Additionally, because my interviews did not reveal much about the more advanced forms of partnership, research into highly integrated collaborations around used textiles could be incredibly useful in determining what these initiatives gain and the challenges they face. It appears that the more advanced forms of partnership often involve nonprofits, an actor that rarely appeared in the programs I examined, yet one that best fulfills the employment and domestic reuse metrics. I recommend further research into public sector and nonprofit perspectives on nonprofits' involvement in textile recycling initiatives, including potential benefits gained and factors preventing their involvement.

An additional trend noted in my research is that the size of the city, county, or municipality influences the type of initiative pursued. For example, in the larger cities of St. Paul and San Jose, curbside pick-up programs of used textiles are more feasible, as they capitalize on economies of scale. In contrast, smaller counties in rural or suburban areas may simply utilize bins and trailers provided by rag graders at their waste collection and transfer stations. I infer that it is rarely economically feasible for smaller counties to pursue a curbside pick-up program. Future research may determine in what

contexts curbside pick-up programs and on-site drop-offs make economic sense.

Additionally, the environmental culture of the cities themselves may influence the outcomes of these programs. For example, a textile recycling initiative in the Northeast or California may receive more support than initiatives in the South, as residents of the former regions typically favor environmental programming. I recommend additional research into how environmental culture and residential support affect the outcomes of textile recycling programs.

#### **Recommendations for Practice for Further Investigation**

In addition to my recommendations for future research, the following provides a few recommendations for practice. First, in place of a purely contractual relationship, a more integrated, or at least a better-planned, partnership among actors could help contend with some of the challenges that many of these initiatives face. For example, actors could plan alternatives for timing issues or institute joint problem solving sessions. These solutions might increase the transaction costs of the initiative, but could lend to its long-term success.

Additionally, I propose that nonprofits and rag graders examine a potential union around staff skills development, in which vulnerable populations begin working at the nonprofits performing basic sorting and then advance to positions with the rag graders, where more skilled sorting is

performed. This hypothetical program would assist in furthering the employment metric, while capitalizing on the employment support system of the nonprofits and the advanced employment skills of the rag graders. Other employment possibilities that nonprofits could explore include incorporating tailoring, clothing repair, and upcycling (turning used textiles into new items) into their employment programs. The latter is a limited market, but an exploration of the current upcycling industry and its potential could be useful. Additionally, little information was available on the Goodwill, even though some interviewees reported its importance in the textile recycling system. Therefore, I recommend a market study of the Goodwill, focusing on its current organizational capacity to include tailoring, clothing repair, and upcycling in their employment program, and the organizational changes needed to implement such an initiative.

For local governments considering pursuing a textile recycling initiative for environmental or economic reasons, I propose a very basic partnership with rag graders, in which residents drop off their used textiles on-site and rag graders occasionally service the collection containers. Very few risks are involved, there are environmental benefits, and actors get a potential income source. However, I recommend that local governments discuss waste recycling and disposal alternatives if a rag grader is unable to perform. If a local government also seeks to fulfill employment goals, they may consider partnering with a nonprofit in a more integrated way.

Significant planning and consequent transaction costs should be

contemplated before a partnership is implemented. In order for a more integrated partnership to be effective, the initiative may require ongoing monitoring and problem solving.

## **Appendix A: Interview questions**

*My name is Markie McBayer, and I'm studying textile recycling and its challenges and benefits. I'm particularly interested in how people and organizations come together to make textile recycling work.*

1. How do you work with textile waste? Collection? Sorting? Sale?
2. Why did you decide you couldn't do this alone?
3. What did you value about your partner?
4. What was hard about working with them?
5. Why has your textile recycling operation continued? (For those whose partnerships are still in existence) OR
6. Why did you decide to discontinue your textile recycling operation? (For those whose partnerships are not still in existence)
7. What tangible benefits did you get from your partners (e.g. use of equipment, their leftover textiles)?
8. What intangible benefits did you get from your partners (e.g. the higher citizen participation rate that a charitable agency lends)?
9. Did the partners have any conflict? If so, what was the nature of the conflict?
10. What was the work of the partnership? Formal agreement? Official communication? Planning?

*Citizen participation*

1. How many citizens donated clothing?
2. Who was responsible for educating the citizens?
3. How did you educate the citizens?
4. Did you have problems with scavenging?
5. Do you have any reports that you would be willing to let me see?

*Job training*

1. How many jobs were created through this initiative?
2. What were their wages?

*Resources in terms of clothes, profit, and saved costs*

1. How many tons of clothes did you collect in a year?
2. How much did the initiative cost per year?
3. How much profit did the initiative create per year?

*Environmental benefits*

1. Where did the discarded textile waste go?
2. After partner X handled it, where did it go after that?

## Appendix B: List of Interviewees

<b>Interviewee</b>	<b>Case Study</b>
Steve Kullen	Calvert County
William Teter	Calvert County
Audrey Traff	Mid-Atlantic Clothing (Calvert County's rag grader)
Teresa Chapman	Chatham County
Peter Karasik	Montgomery County
Alisa Wade	San Jose
Robert Harvie	San Jose
Diana Vigilante	Somerset County
Mary T'Kach	St. Paul
Tim Brownell	St. Paul
Brenda Platt	Unaffiliated
Jana Hawley	Unaffiliated

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