

9.1. Economic Impact of Textile Recycling

Textile recycling is a fascinating story that few fully comprehend, and in fact in some parts of the world it is part of an underground economy. So in many cases it is not even accounted for in national economy figures. Trade laws prohibit the free flow of used textiles between some nations, crying infestation and negative impacts on fledgling industries as reasons for banning the trade. But no doubt, textile recycling has positive impact on many entities and contributes significantly to the social responsibility of contemporary culture including the goodwill associated with environmentalism, charity, and disaster relief, also playing a significant economic role in the global marketplace.

Because textiles are nearly 100% recyclable, nothing in the textile and apparel pipeline should be sent to the landfills. Rag traders have culled truckloads of used textiles and sorted them for a wide variety of markets. Grateful Dead t-shirts and Harley Davidson jackets are sent to the Japanese vintage markets. Quality used clothing is sorted in El Paso and sent to developing markets in Central and South America where inexpensive used clothing is needed. Acrylic sweaters are baled in Brooklyn and sent to Italy to be garneted¹ and spun into yarns for IKEA stadium blankets. Stained and torn t-shirts are cut into rags in Toronto and sold to furniture makers or machine shops. Old Indian saris are shredded and spun into hand-knitting yarns in Nepal. And mixed damaged clothes are ground into fiber and made into mats to line caskets in South Carolina. The textile recycling industry is a viable industry working diligently to keep waste out of the landfills.

¹ Garneting is the process of shredding textile fabric back to the fiber stage. It is done by running chopped textiles through a series of mechanization from rough to fine until the fiber is fine enough to spin into yarns.

This chapter focuses on the economic impact of textile recycling. We begin with an overview of the recycling process, including issues of overconsumption and the resulting recycling processes that occur in the United States and throughout the world. A micro-macro systems model that depicts the global textiles recycling processes and its economic impact is presented, particularly as it pertains to apparel waste (rather than manufacturing waste). Finally, alternative options for recycling and future trends are given. My research is based on over seven years of qualitative data collection on apparel and other fashion products consumed and marketed throughout the United States and the world. I have interviewed a myriad of players along the pipeline of the recycling system both in the United States and globally. Perhaps one of the most interesting things I have learned is that it is both a small and grand phenomenon. Many of the rag dealers are small, family owned businesses that work independently; yet they are tightly knit to a global network that move used clothing around the world through brokers and long-time associations that have taken generations to establish.

The textile and apparel recycling process—A brief overview

Fashion and western lifestyle in general are significant contributors to landfill waste. Not only are products consumed at a high level, but western goods are often over-packaged, contributing even more to the waste stream. As landfill scarcity continues to rise, the costs of dumping will also continue to increase. These escalating costs are of concern for businesses as they seek ways to reduce their overhead.

The problem of over-consumption.

Fashion itself compounds the problem of over-consumption. Elizabeth Wilson calls fashion “dress in which the key feature is rapid and continual changes of style.

Fashion...*is* change.”(Wilson, 2003). But regardless of how dynamic fashion is or how economically viable the fashion industry is, [American] fashion is creating an overabundance of used clothing. Fashion marketers entice us to buy something new every season, sometimes with offerings that are truly new and exciting, but all too often the merchandise is simply a mere twist of last year’s successful selling styles, offering the safe bet rather than taking a risk with the shareholders’ expectations. Meanwhile, consumers satisfy their whims often overburdening their closet space and probably their credit cards.

The result is a clothing accumulation that stems from planned obsolescence, the core of fashion. Thus the essence of fashion fuels the momentum for change, which creates demand for ongoing replacement of products with something that is new and fresh. In addition, fashion has reached its tentacles beyond apparel to the home furnishings industry. The result is fashionable goods contributing to consumption at a significantly higher level than need. Without the notion of fashion the textile, apparel, and home furnishings industries would realize even more vulnerability in an environment that is already extremely competitive. Apparel and home furnishings companies in the United States today have continual fashion “seasons” that constantly capture consumer interest as these companies stimulate sales and profits.

Waste continues to accumulate as consumers continue to buy further compounding the problem of what to do with discarded waste of apparel and home textile products. Apparel in today’s marketplace are different from those of several decades ago, not only in design but also in fiber content. When the 20th century introduced synthetic fibers textile recycling became more complex for two distinct reasons: (1) fiber strength

increased making it more difficult to shred or “open” the fibers, and (2) fiber blends made it more difficult to purify the sorting process. While for some textile recycling value added processes concern for the fiber blend does not matter, for others, the fiber content is very important and sorting by blend is a tedious process that requires well-trained specialists.

Textile recycling statistics

The textile and apparel recycling effort is concerned with recycling, recycle-ability, and source reduction of both pre-consumer and post-consumer waste. According to the Environmental Protection Agency, the per capita daily disposal rate of solid waste in the United States is approximately 4.3 pounds, up from 2.7 pounds in 1960 (Environmental Protection Agency, 2003). Although textiles seldom earn a category of their own in solid waste management data, the Fiber Economics Bureau (2004) reported that the per capita consumption of fiber in the United States is 83.9 pounds with over 40 pounds per capita being discarded per year. A recent report shows that China has surpassed the United States, making China the number one consumer of fiber in the world. As the Chinese market continues to prosper, it will continued to have the fastest growing fiber consumption market for the next ten years (<http://Bharattextile.com>).

It is well established that recycling is economically beneficial, yet much of the discarded clothing and textile waste in the United States fails to reach the recycling pipeline. The United States textile recycling industry annually salvages approximately 10 pounds per capita or 2.5 billion pounds of post-consumer waste from the waste stream. According to Bernie Brill, Executive Director of SMART (Secondary Materials and Recycled Textiles), these pounds represent only about 30 percent of the total post-

consumer annual textile waste (personal communication with Brill, June 2006). As an example, although there are several well established uses for denim waste, the denim industry still deposits more than 70 million pounds of scrap denim in US landfills annually (McCurry, 1996, p. 84). In 2003, the Environmental Protection Agency (2003), noted that 4 million tons of textiles were going to the landfills each year. While this may not seem like a large amount, it is when one considers that nearly 100% of the post-consumer waste is recyclable. Cognizant of this, the textile industry's current efforts, enthused by the American Textile Manufacturer's E³—Encouraging Environmental Excellence program, focus on trying to increase recoverable textile waste that would otherwise end up in the landfills. The EPA's 2006 analysis of municipal solid waste indicated that textile waste has a program potential of generating 1.6 million tons per year of additional textiles that are otherwise unclaimed (<http://www.epa.gov/epaoswer/non-hw/reduce/source5.txt>).

The textile recycling industry

In general, few people understand the industry, its myriad players, of the wide variety of products made from reclaimed textile fiber. As one of the oldest and most established recycling industries in the world, the textile recycling industry reclaims used textile and apparel products and puts them to new and interesting uses. This “hidden” industry (Divita, 1996) consists of approximately 3000 businesses that are able to divert over 1,250,000 tons of post-consumer textile waste annually. Furthermore, the textile recycling industry is able to process 93% of the waste without producing harmful by-products or new hazardous waste. The Council for Textile Recycling (1999) reports that nearly all after-use textile products can be reclaimed for a variety of markets that are

already established (personal communication, Ed Stubin, owner of TransAmerica, July, 17, 2001). The textile recycling industry partners with engineers, researchers, and industry leaders to search for new viable value-added products made from used textile fiber (personal communication with K. Stewart, October 22, 2006).

Textile recycling can be classified as either pre-consumer or post-consumer waste. Pre-consumer waste consists of by-product materials from the textile, fiber, and cotton industries that are re-manufactured for the automotive, aeronautic, home building, furniture, mattress, coarse yarn, home furnishings, paper, apparel and other industries.

Post-consumer waste is defined as any type of garment or household article made from manufactured textiles that the owner no longer needs and decides to discard. These articles are discarded either because they are worn out, damaged, outgrown, or have gone out of fashion. These textile products are sometimes given to charities and passed on to friends and family, but additionally are disposed of into the trash and end up in the municipal landfills. Goodwill Industries is able to sell approximately 50% percent of the items it receives in their retail stores, with the remainder sold to used textile dealers and brokers. Figure 9-1 provides a schematic of options for post-consumer textiles.

[insert 9-1 here]

The Textile Recycling Pipeline

Getting Rid of It

Many essential players take part in the textile recycling pipeline including consumers, policy makers, solid-waste managers, not-for-profit agencies, and for-profit textile dealers (Hawley, 2000). Consumers could make a decision to part with their items by trying to sell it through a variety of channels including garage sales, consignment

shops or online auctions. Items that do not sell could then be sent through the municipal recycling system, donated to a charitable organization, or thrown away. When consumers finally decide to donate them to a charitable organization, they have made the decision that someone in the world “needs” their clothing. For many Americans, this step makes them “feel good” about the donation they are making. For others, giving their things away is a difficult thing to do. One informant said that she would clean out her closets, carry her things in the trunk of her car for several months before she finally was able to drop the things off at Goodwill. The emotional tie that we have to *things* makes it difficult to discard, even at the end of their useful life (McCracken, 1991).

Another informant said that six months after her father died she had sorted his things, put them in trash bags, taken them to Goodwill, and because Goodwill had so much excess inventory, she watched them put her father’s things into a dumpster without even looking in the bags. After sitting in her car crying for awhile, she crawled into the dumpster, retrieved her father’s things, put them back in her car and drove away.

Think about things in your own closet. Are there things that you haven’t worn for more than three years? Try to analyze why. Are they a size you hope to wear again after you go on that diet? Is it something you simply paid too much for so how could you possibly give it away? Was it a gift from someone dear to you? But if it hasn’t been worn for at least three years, isn’t it time to give it to charity? As evidence here, even after consumers make decisions about their things—they may or may not be able to part with them.

Municipal and Charitable Recycling Programs

Most municipalities do not offer convenient (or any) textile recycling options. Curbside pickup of textiles is problematic because when textiles get wet, problems of mold and mildew set in. Some cities have established textile recycling programs where textiles are collected at water-tight collection sites. One city in Texas reported that when textile recycling was added to the municipal recycling mix, textiles subsidized the costs of the other recycling materials.

Charitable organizations are the primary option for most consumers when they decide to donate (or recycle) their clothing. Evidence reveals, however, that consumers will not donate clothing to charities if they feel the clothing is unwearable (e.g. out of fashion, stained, pilled, etc.). However, most charities cull the things they determine to be saleable at their resale shops and then bale the remainder and sell the bales to rag dealers who will, in turn, further process the used clothing for further value added markets (to be discussed below). It is important here for consumers to understand that all clothing and textile items are recyclable and should be sent into the recycling pipeline. If no municipal recycling option exists for textiles, then charitable organizations are the next best option. Charities are able to reap benefits for the clothing that is saleable in the retail stores and sell the rest of it to textile graders who in turn obtain their inventory to conduct their for-profit business. In other words, charities and textile graders are inter-related partners in the textile recycling pipeline.

Textile Graders

Each year, textile graders (also called rag-dealers or rag-graders) acquire about 2.5 billion pounds of excess inventory from charitable organizations and municipal contracts. Clothes come in by the truckload and are off-loaded onto conveyor belts where

they are sorted for a wide variety of markets ranging from vintage collectibles, exports to developing countries, wipers, and fiber for stuffing. Recycling International (2004) reported that only 40% of the clothes received by textile graders were saleable as clothing. Most textile graders (sometimes called rag-sorters or rag dealers) are small, family-owned businesses that have been in operation for several generations (Allenbach, 1993; Shapiro & Sons, 1961). However, start-up entrepreneurs also have started new rag-dealer businesses because they perceive it as a low-cost, easily accessible form of entrepreneurship. What many of the startups fail to realize, however, is that this business is highly dependent on global contacts that take years of cultivating clients in overseas markets to sell their sorted goods. As one informant told me, “I have spent as much as a year at a time away from my family while I developed and nurtured markets across Africa, Asia and Latin America. Now that these business contacts have been established, I can pass the contacts on to my son who will be taking over the business soon.” An informant from a different company said, “Establishing contacts in Africa is particularly difficult. But once those contacts are made, the bond between us has been very strong and full of respect.” And an international broker from Europe said:

Buying and selling in Africa is an underground business. The used-textile brokers in Africa are substantially wealthier than many of the citizens who are the consumers of the used clothing. They must hide their wealth in order to maintain credibility among the citizens. One of our buyers has a beautiful burlled wood and gilded office that is [hidden away]. When we go to Africa to do business we have to be secretly escorted...to conduct our business.

Textile recycling companies are often located in large metropolitan areas because it is imperative to keep transportation costs to a minimum and the majority of inventory will come from the urban areas. Nousiainen & Talvenmaa-Kuusela (1994) reported that transportation and sorting costs were the decisive criteria for profitability for a textile sorting company. Depending on the current economic climate (primarily associated with materials availability, commodity pricing, fuel costs, and current value-added markets), for-profit rag-sorting companies can realize both success and hardship. Although the primary goal of these small businesses is to realize profits, most of the business owners are also committed to environmentalism and take pride in their contribution to waste reduction.

Once sorted, the goods are compressed into large bales (usually 600 – 1000 pounds), wrapped, and warehoused until an order (often from a broker) is received. Several things are considered when sorting for this category: climate of the market, relationships between the exporters and importers, and trade laws for used apparel.

Grading Used Clothes—Recognizing Economic Opportunities

Textile graders sort for many categories, sometimes as many as 400. Rough sorts (pulling heavy coats, blankets, plastics, toys, shoes) from the conveyor belts occurs first by new employees or employees that do not have the skills to recognize the finer categories. As the clothes move along the conveyor, the higher skilled employees will sort for the more specific categories (e.g., certain brand names, acrylic v. cashmere sweaters, collectible jeans, antique garments).

Vintage and Collectibles

Textile graders sort for many categories; sometimes as many as 400. The most lucrative of the categories is the vintage collectibles. Many vintage or collectible items have global appeal as evidenced by the fact that vintage goods move from country to country. What might be considered ready for throw away in one country might be considered hip or cool in another. For example, Americana items are highly prized in Japanese markets as evidenced when I was collecting data at one of the US sites and five Japanese buyers were rummaging through piles of used clothes to select what they wanted to buy. The owner of the business said that there are many days out of the month when Japanese buyers are in-house making their selections. Japan is the largest importer of used American collectibles and has proved to be very interested in Americana items such as authentic Harley Davidson clothing, Grateful Dead t-shirts, or Coach handbags. After the September 11, 2001 terrorist tragedy, the second-hand signature red/white/blue Tommy Hilfiger goods realized increased interest in some global markets. But perhaps the one item that has had consistent global interest is Levi's jeans, particularly certain older styles. One rag-sorter found a pair of collectible Levi's and sold them on the Paris auction block for \$18,000. Another rag-sorter sold a collectible find for \$11,000 to Levi's corporation. One informant claimed that he has found enough collectible blue jeans to "pay for my three's kids' college education." However, it requires a special eye and the ability to forecast trends in order to find the high-value items in the huge piles of used textiles that rag-sorters must sort.

The collectible category accounts for approximately 1-2% of the total volume of goods that enter the textile recycling stream, yet this category also accounts for the largest profit center for most textile recycling companies. One informant told me that,

“When you find the [really good things], they are still diamonds in the rough, but once they are cleaned, pressed, and packaged, they are worth a lot in the marketplace.” As Usatch warned, however, many people can find and sell vintage collectibles, but “the companies that are able to sell the not-so-good qualities to secondary markets [at a profit]” (Recycling International, February 20, 2006, p. 95) that makes textile graders successful.

The word *vintage* is really a misnomer; *collectible* might be more accurate. Items that qualify for collectible status include couture clothing and accessories, Americana items such as Harley Davidson and Levis, uniforms such as those worn by Girl Scouts and Boy Scouts of America, certain branded items such as Izod, vintage items that are identified as trends, luxury fibers (e.g. cashmere and camel hair), and antique items. Customers for collectibles range from well-known designers, eccentric college students, or wealthy celebrities. Retail boutiques featuring vintage clothing can be found in trendy SoHo or Beverly Hills, and the Internet offers a plethora of vintage options.

Vintage shop owners or Internet sellers are often members of the National Association of Resale and Thrift Shops (NART). This Chicago-based association was established in 1984 and has over 1,000 members. It serves thrift, resale, and consignment shops and promotes public education about the vintage shop industry. TR Aid (Textiles Recycling for Aid and Development) is a charity organization that finances itself through the sale of quality second hand clothing.

Wipers

Another important sorting category for graders is wipers. The wiper market comes from clothing that has seen the end of its useful life as clothing and may be turned into

wiping or polishing rags for industrial use. White T-shirts, sweatshirts, and polos are a primary source for this category because the cotton fiber makes good polishing cloths and absorbent rags. Bags of rags can be found at retail stores such as AutoZone or in Wal-Mart's automotive department. But in some cases, some synthetic fiber (particularly olefin because of its excellent wicking and oleophilic properties) is used where oily spills need to be cleaned up. One informant said that he sells reclaimed olefin from the sorting process to the oil refining industry to be used as stuffing for "snakes" in combinations with hydrophobic fibers in ocean oil spill cleanups. Another informant said that he sells rags to washing machine manufacturers for use-testing of machines.

Wipers maintain a fairly stable market over time, yet processing wipers may not be cost effective. It requires labor to cut the neckband and sleeves from shirts, and also often requires laundering. Both of these add costs to the processing and may not make this category cost effective, even though the market demand remains stable.

Conversion to New Products 29%

This category is an important area for growth. Companies are partnering with engineers, researchers, and industry leaders to determine value-added products where used textiles and apparel can be used. When fiber is cut, shredded, carded, or otherwise machined back to the fiber stage it is referred to as shoddy. Shoddy can be re-engineered into value-added products including stuffing, automotive components, carpet under lays, casket lining, building materials such as insulation and roofing felt, and low-end blankets. The majority of this category consists of unusable garments—garments that are stained, torn, or otherwise unmarketable. One informant, however, was sorting for 100% cotton sweaters because he was selling shredded cotton fiber to mix with sand for use in a

“Punch-n-Kick” bags made by one of the world’s largest sporting manufacture companies. Another informant reports that reclaimed fibers are being used in the production of U.S. Currency.

A vast number of products are made from reprocessed fiber because much of this fiber is re-spun into new yarns or manufactured into woven, knitted, or non-woven fabrications including garment linings, household items, furniture upholstery, insulation materials, automobile sound absorption materials, automobile carpeting, and toys (personal communication, Querci, July 22, 2000). New yarn producers like those in Prato, Italy who reduce cashmere sweaters to fiber, spin new yarns and produce cashmere blankets for the luxury market. The blanket manufacturers in Prato also make acrylic stadium blankets for IKEA from acrylic sweaters that are reclaimed from all over the world. See photo sequence insert Figure 9-2.

[Insert Figure 9-2 here]

Converting fiber into value-added products is a process that represents an economic and environmental saving of valuable fiber that would otherwise be lost to the landfill. Ironically, the most unusable and damaged of post-consumer textiles often has the highest level of specifications forced upon it by the end-use industries (e.g., building, auto, aeronautics, sporting equipment, construction materials, and defense). The other category for conversion to new products is the actual re-design of used clothing. Current fashion trends are reflected by a team of young designers who use and customize second hand clothes for a chain of specialty vintage clothing stores in the UK. Its offerings include “cheap chic and occasional designer surprises” (Ojumo, 2002; Packer, 2002). As

another example, a young designer in Dallas, Texas creates new from the old and sells wholesale to various trendy stores such as Urban Outfitters. This concept is common among boutiques with a youth-oriented target market.

Household textiles

In general, household textiles do not play a significant role in the used textile market, however in Europe, bed feathers continue to capture a significant price in the used textile markets. Feather beds have been commonly used in many European homes for years, and they continue to command a good price on the used market for export to developing markets.

Landfill and Incineration for Energy

This category has two components. For some reclaimed fiber, no viable value-added market has been established, so the used goods must be sent to the landfill. Rag-sorters work hard to avoid this for both environmental and economic reasons because the average cost to dump in the landfill in the United States is \$70 per ton for textile sorting companies (personal communication, B. Brill, 2006).

In the United States, early testing for the process of incinerating reclaimed fiber for energy production reveals that emission tests of incinerated used fibers are above satisfactory but the process of feeding the boiler systems in many North American power plants is not feasible (personal communication, Weide, March 20, 2004). The incineration of used textiles as an alternative fuel source is more commonly done in Europe than in the United States. More research is needed for used textiles to become a viable choice, both economically and environmentally, as an alternative fuel source. As

fashion retailers continue to stimulate retail sales and consumers continue to overload closets, however, burning used clothing might become a very viable economic option.

Export of Used Clothing

On many street corners throughout the developing world, racks of Western clothing are being sold (e.g. the author has seen such racks in Taiwan, Thailand, India, Greece, and Mexico). The second hand exports markets (roughly 48%) comprise the largest volume of used clothing (personal communication with E. Stubin, May, 2001) with most of the goods shipped to developing countries or used for disaster relief. Most used clothing from the United States goes to Africa or South and Central America, but markets also exist in parts of Asia such as India and Pakistan. Most European exports go to either Eastern Europe or Northern Africa. One informant reported that “used apparel serves as the largest export from the United States based on volume” (personal communication with informant, May 10, 2004). The United States exports \$61.7 million in sales to Africa. One of its primary export sites is Uganda where a Ugandan woman can purchase a designer t-shirt for US \$1.20 (Packer, 2002). However, in January of 2005, the East African countries of Tanzania, Uganda, and Kenya imposed upwards of 300% import tax increases on used clothing in attempts to shut down the used clothing imports citing protectionist measures for their fledgling textile industries. It can be argued, however, that imports of new clothing dumped from China imposes more threat on the local textile industries than does second-hand clothing from Europe and the United States (personal communication, J. Usatch, February 10, 2005). These increased taxes gave rise of protests from millions of small businesses who survive by selling used clothing. The

protests eventually forced authorities to pay attention, and in early 2006 the tax increases were reversed.

Western clothing is a highly valued commodity and perhaps serves as the only source of affordable clothing in many developing countries where levels of income are so low that food and clean water is the primary concern. Some have argued (personal communication with informant, April 10, 2004), that the export of clothing to these nations has threatened the traditional dress for many indigenous cultures and at the same time may threaten the fledgling textile and apparel industries of those countries. While this is certainly an issue that should be taken into consideration, wearable, climate appropriate, and affordable clothing is a valuable commodity for most of the population in less-privileged areas of the world. Not all used clothing is exported to poorer countries. One informant shared that he has a new market in the United Arab Emirates, one of the richest countries in the world. Used clothes in the United Arab Emirates are not intended for the local population but, instead, for the immigrant labor from Bangladesh, Pakistan, and Indonesia because labor jobs do not allow the worker enough discretionary income to purchase the designer labels that are offered in the local shops.

In recent years, rag graders have noted that Africans desire higher quality and more fashion-forward styles. As J. Usatch noted, “Today, selling to Africa is almost like running a boutique” (Recycling International, May 2, 2006). In the past, bales sold to African countries were not graded according to particular style or brand, but today’s shipments must be carefully sorted to meet the ever-increasing savvy African consumer demands. This adds value to the bale, can demand a higher price, but also requires higher processing costs.

[Insert Boxed insert 9-1 here]

Boxed Insert 9-1 Wearing Mitumba in Tanzania

Used clothes arrive in Africa on ships in 600-1000 pound bales and are then opened and sold to brokers and small retailers throughout Africa. In 2003, Tanzania imported more than \$94 million dollars of US clothing worn by all social classes: rich, educated, poor, children, clergy, politicians, old and young. They call it mitumba, a Swahili word that means bale or bundle. When people put on mitumba, you can't tell the rich from the poor.

Because of trade laws, much of mitumba is smuggled through the black markets from Burundi, Zambia, and the Democratic Republic of Congo. When it arrives in Tanzania, it looks like a plastic bundle the size of a refrigerator. Djibril Duany, the local dealer, cuts open the plastic wrap he bought for about US\$90 and digs through it to see what great pieces it contains. In it he finds a Cher Farewell Tour t-shirt, a Chicago Bulls jersey, several men's suits, and two track suits. And his prize: a Samuel Eto'o jersey. He's excited!

According to Duany (personal communication, 2006), most mitumba is imported by charitable organizations and intended for the poor, aged, and ill. However business people can acquire a license to sell mitumba if they pay all pertinent taxes to the government.

Mitumba is often divided based on quality and type. A high demand is placed on shirts, trousers, suits, t-shirts, jackets, and athletic wear. Used suits are of particular

value, especially when compared to new suits at substantial prices in boutiques. Prices vary depending on the target market. For rich markets, mitumba can be relatively high.

As mitumba has become commonplace, notions of Western fashion have also become more understood. At one time Tanzanians were draped in colorful colors and patterns of local industry, but today's Tanzanian manufacturers cannot produce clothing at a cost lower than second hand clothing; therefore mitumba serves an important role to fill the gap. Mitumba is also an important price point for the country's poor. Small entrepreneurs earn a living from selling used clothing in the marketplace. Finally, used clothing provides income in the form of taxes to the Tanzanian government.

However, there is a negative side to mitumba. Some argue that used clothing imports have slowed the growth of the fledgling textile manufacturing industry. Used clothing options are very cheap compared to the handmade cotton goods produced by artisans and the cotton farmers in the area. Others have argued that used clothing contain health risks that could spread skin diseases. And finally, some exporters are shipping clothing that is beyond wearable condition; therefore making Tanzania a dumping ground.

Used clothing has been shipped to Africa for years; standards may need to be established where quality goods are shipped so that nothing is left for the dumping ground.

Personal communication with Djibril Duany, July 2006

Even though Africa remains the strongest export area for US exports of used clothing, it is not a consistent market and is impacted by the calendar and other market

forces. For example, November is one of the best months of the year for exports to Africa because many people return to their villages with gifts of clothing for their relatives.

Used clothing markets can also be impacted by natural disasters such as Hurricanes Katrina and Rita or the 2004 Indian Ocean Tsunami. In the case of the US hurricanes, Americans often donated their clothing to the hurricane relief projects rather than through their normal channels of donation, thus changing the supply to rag graders. When the flow of supply changes as dramatically as it did in the case of Hurricane Katrina, it impacts both rag graders and charitable organizations such as Goodwill and Salvation Army. The truth is, relief agencies often dread the influx of used clothing that inevitably follows a disaster because it requires valuable and scarce resources such as time, money, and personnel to sort, clean, and distribute it. Often there is so much donated that it requires locating warehouse space to be able to manage the huge volume of clothing that is donated. In addition, volunteers or relief workers are diverted from other, more critical, recovery activities. It would be better for Americans to continue to donate through their normal charitable channels so that the charitable organizations and rag graders, the experts can grade and sort the clothing and ship the appropriate donations to the disaster area as needed.

Future Trends and Directions

We cannot conclude the discussion of the economic impact of textile recycling without also discussing the global nature of the phenomenon. As consumers in developing countries begin to gain access to discretionary goods and disposable income the plethora of used textiles in the marketplace will grow as well. Currently, much of today's market for used clothing is located in the poorest parts of the world. As these

countries develop, the desire for used clothing in these poor nations will diminish, and be replaced with desire for new goods. At present, these developing countries provide markets where industrialized nations can transform their excessive consumption into useful export.

As landfill space continues to become scarce and costs continue to escalate so will concerns for environmentalism. Consumers must be provided with easy and informed choices for discarding their used clothing. Policymakers must provide a political environment that allows for the free flow of goods and the easy disposal for recyclable materials.

In the United States, consumers must continue to shift their attitude toward environmentalism and embrace recycled goods in the marketplace as it has been done by Europeans for several decades. Citizens must lobby their municipalities to add textiles to their recycling options. When we consider the complexity of the textile recycling system and the importance of cooperation between the players, we then understand both the environmental and economic importance of textile recycling. To recycle successfully, everyone must embrace the system not just make an occasional charitable donation. Meanwhile arbiters must continue to develop new value-added markets and market the after-use possibilities so that the system functions at full capacity and with commitment from all.

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Table 9-1 List of products that are considered 'vintage' collectibles

Anything official Harley Davidson clothing

1950s bowling shirts

1950s printed aprons

Military issue leather bomber jackets

Original Aran knit from Ireland, 100% wool

Grateful Dead t-shirts, pre 1995 (death of Garcia)

Vintage denim (Levis, Lee, Wrangler)

Vintage collegiate apparel

Vintage movie apparel

Hawaiian shirts

Smoking jackets, pajamas, robes

Vintage ties

Vintage lingerie (slips, sleepwear)

Vintage accessories (belt buckles, scarves, sunglasses)

Bell bottoms

Swimwear