

## Recycled

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*Recycled fashion uses waste materials – such as soda bottles or manufacturer offcuts – to manufacture new textiles and products. This is a step-beyond secondhand fashion and goes a long way towards combatting the textile waste rampant in the fashion industry.*

### NO RECYCLING MEANS WASTED RESOURCES

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Our planet while rich in resources, does not promise us an infinite abundance. Every time we consume products – all of which have been made from the planet's natural resources – we subtract a little from the earth's bank of materials. One of the most flagrant wastes of resources occurs when we consumers fail to recycle our wastes and forget the importance of consuming goods made from recycled materials. When reusable resources end up in a landfill, they aren't cycled back into a system of repurposed functionality. That means there are fewer resources to go around for us all. For example aluminum is highly reusable and can be melted down to become a whole new array of products, like our Hearts logo tags. Our tags had a previous life but thanks to resourceful consumers who took the extra step to recycle a reusable resource, the aluminum has a new life as a fashionable adornment.

### WASTE PROBLEMS: THE TRASH YOU CREATE IN OTHER PARTS OF YOUR LIFE

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The average American throws away 4.43 pounds of waste per day, and only 1.51 pounds of it is recycled.<sup>1</sup> That's nearly double the amount of waste produced per person in the US in 1960. Each pound of waste represents a collection of resources – metals, glass, crude oil (in the form of plastics and other synthetics), wood, organic matter, and so on. When these resources are sent to the landfill rather than recycled, their value is trapped in the ground for decades.

Consumers waste potential resources that could be used in the recycled products industry when they fail to recycle their household trash. Here are some facts about the composition of the trash can for the average American:

- Paper and paperboard: 29%
- Yard trimmings and food scraps: 27%
- Plastics: 12%
- Metals: 9%
- Rubber, leather, and textiles: 8%
- Wood: 6%
- Glass: 5%
- Other wastes: 3%

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Most of these materials could be recycled into new products, many of which are used in the recycling industry. But because they are seen as waste rather than as resources, they are discarded. All told, Americans toss more than 250 million tons of trash every year.<sup>ii</sup> That's a huge quantity of wasted resources and unfortunately, we're not getting much better at handling our waste. Though the number of municipal solid waste (MSW) sites has decreased in the US, the total capacity has increased. While recycling at first may take thought, with a little time you will see that often your recycle bin fills quicker than your landfill bound bin. This is proof to show that our little daily habits can become a whole heap of productivity for change.

### COMMUNITY COSTS OF MUNICIPAL SOLID WASTE LANDFILL AND INCINERATION FACILITIES

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Throwing goods into the landfill or burning them in an incinerator is also very expensive in terms of financial and social return on investment.<sup>iii</sup> As you'll see from these statistics, recycling provides far better rates of return on every level:

- **Incineration is an expensive energy generation method:** Some argue that incinerators are a renewable source of energy, but the energy from incinerators is the most expensive form of energy generation, even when compared to coal, gas, nuclear, biomass, geothermal, wind, and solar.
- **Incineration is an expensive waste handling method:** Even with revenue projections of up to 45% of the costs per ton of operating an incinerator, incinerators cost \$102 to \$168 per ton of waste, which makes it much more expensive than recycling.<sup>iv</sup>
- **Landfills are expensive waste handling systems:** By comparison, landfills are cheaper than incinerators, but they still cost a good deal. In the US, the average cost for landfilling waste is between \$42 and \$96 per ton of material.<sup>v</sup> Recycling costs per ton gets lower the higher the diversion rate, with costs as low as \$89 per ton. That's before the revenue generated through the recycling industry, so the costs are even better.<sup>vi</sup> On a per capita basis, it costs close to \$75 per person per year for burying resources,<sup>vii</sup> whereas recycling costs between \$33 and \$59 per household (which is better than per person) per year.<sup>viii</sup>
- **Incineration wastes more energy than recycling saves:** The process of recycling a ton of material generates much more energy savings than burning that waste for energy in a waste to energy plant.

In addition to the hard costs associated with landfilling and incinerating waste, society also has to pay social costs, especially those living near landfills and incinerators.<sup>ix x</sup>

- **Reduced property values:** Homes that are located within 3 miles of a landfill generally have lower property values. Put another way, those houses that are located adjacent to a landfill will see a much slower appreciation rate compared to homes in other neighborhoods.

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- **Land opportunity costs:** When land is used for landfills instead of for other purposes, there are land opportunity costs. For instance, no taxes are collected by the local government on land used for landfills or incinerators, and because properties adjacent to the landfill have a lower property value, the taxes paid on those properties is also lower. So, landfills have indirect costs for local governments.
- **Air pollution - landfills:** The collection and transfer of waste to a landfill will generate two types of air pollution. First, there is exhaust from vehicles that deliver the waste. These are usually diesel vehicles which produce significantly more air pollution than gasoline vehicles. Second, there is the fugitive dust and odor that emanates from the landfill which can contribute to health problems for local residents.
- **Air pollution - incinerators:** The air pollution coming from incinerators is highly toxic and carcinogenic and is actually dirtier than burning coal.
- **Noise and traffic:** The movement of vehicles to and from a landfill or incinerator can create noise pollution and excess traffic. This can disturb the tranquility of the neighborhood which can impact human health, productivity, and so forth.
- **Hazardous waste:** Though most modern landfills have linings to prevent the leakage of leachate into ground water and soil, many landfills are leaking. In fact, a large number of Superfund sites are former landfills because of this problem. This creates an added financial burden for local communities who have to pay for any clean-up from such a site.

Our human community must also bear the burden landfills place on climate change. In fact, landfills are the third largest anthropogenic source of methane gas emission. Methane is a greenhouse gas that is 23 times more potent than carbon dioxide in terms of its ability to trap heat in our atmosphere. Landfills, when sealed and covered over, do not have oxygen in them. As a result, as organic matter decomposes in these landfills, it produces methane gas.<sup>xi</sup> Though it is difficult to quantify how much the impact of climate change will cost our society, some estimate that simply accounting for hurricane damage, real estate losses, energy costs, and water costs related to climate change will consume 1.8 of the GDP in the US, or \$1.9 trillion every year.<sup>xii</sup>

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### INDUSTRY IMPACT ON WASTE AND RESOURCE CONSUMPTION

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Our fast consumption society is built on the movement of consumer goods through the system as quickly as possible. Products are built with poor quality, requiring more frequent replacement. For most consumers, that means purchasing cheap goods that break or wear out quickly, and then chucking the used items in the landfill.

The fashion industry in particular contributes a lot to the waste problem around the world from start to finish. At the start of the value chain is cutting waste – scraps of fabrics known as offcuts or surplus that are usually thrown into the landfill. In typical garment manufacturing, managers count on wasting between 8% and 15% of all fabric they consume.<sup>xiii</sup>

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Consumer habits also contribute to the global textile waste problem. In 2010, 8% of the entire US municipal solid waste stream was made up of textiles, leather, and rubber, much of which came from consumers discarding old clothes.<sup>xiv</sup> The US Environmental Protection Agency (EPA) estimates that only 15% of all textiles are recycled annually.<sup>xv</sup> This is a tragedy since the Secondary Materials and Recycled Textiles Association (SMART) estimates that 95% of all textiles can be recycled or reused.<sup>xvi</sup>

Not only does disposable fashion contribute to landfill space use, organic textiles also contribute to climate change. Most people think that throwing away organic materials such as food scraps, yard trimmings, wood, and natural textiles like cotton, is perfectly eco-safe, believing that these materials will break down quickly once they're in the landfill. As already explained, landfills are constructed to minimize water and air infiltration, which creates a highly anaerobic environment. When organic materials are discarded under these kinds of conditions, their decomposition (which is much slower without air and water) generates methane, a greenhouse gas that's more potent than carbon dioxide in terms of trapping heat in our atmosphere. This means that far from being innocuous, your organic waste will actually contribute to climate change if sent to the landfill.

Synthetic textiles, on the other hand, don't break down when sent to the landfill – at least they don't break down very quickly. Instead, they represent wasted resources that are not returned to the natural resource cycle for hundreds of years. And when they do finally break down, they can leach chemicals that poison soil and water supplies.

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### TURNING TRASH INTO TREASURE THROUGH RESOURCE RECYCLING

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There are so many more effective ways for humans to recover and reuse resources than to bury them in landfills or burn them in incinerators. Recycling is one of the best ways to ensure materials like glass, metal, paper, wood, textiles, and organic matter are re-introduced into the resource cycle of the planet. Not only that, but recycling is far more cost effective and benefits local economies far more than landfilling or incineration. Check out these broad-reaching benefits on recycling:

- **Energy saved:** Recycling and composting activities in the US prevented the release of 186 million metric tons of carbon dioxide into the atmosphere, which is like taking 36 million cars off the road every year.<sup>xvii</sup> By way of example, recycling glass uses 30% of the energy used to make virgin glass, and recycling plastic uses only 1/10 of the energy required to make plastic from scratch. Aluminum recycling is the big energy winner as it requires less than 5% of the energy needed to make virgin aluminum products.<sup>xviii</sup>
- **Resources saved:** Recycling in 2010 by Americans kept 85.1 million tons of material from being thrown away.<sup>xix</sup> That means all of those resources will go on to live in new products, thereby vastly reducing the need to harvest more natural resources from the planet.
- **Land saved:** Recycling efforts in the US helped reduce the creation of 64 new landfills in 1996 alone. The recycling rate today is quite a bit higher, which means even more land savings. Given that these facilities are expensive to create and maintain, this also represents a significant savings for municipal and state governments.<sup>xx</sup>

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- **Manufacturing waste reduced:** Most recycling processes that use recycled materials produce far less solid waste throughout the value chain than creating goods from virgin resources. Recycling steel, for instance, requires 40% less water and results in 97% less mining waste.<sup>xxi</sup>
- **Trees and water saved:** Recycling one ton of paper saves 17 trees and 7,000 gallons of water. The recycling of 42 million tons of paper in the US every year therefore saves 714 million trees and 294 billion gallons of water.<sup>xxii</sup> Imagine if we recycled all paper how many forests we could save!
- **Money saved:** Recycling activities in the US generate significant income for municipal and state governments, as well as revenue from enterprises that work in the space. The EPA estimates that recycling businesses generate \$236 billion in revenues every year. Landfills and incinerators can't make that claim.<sup>xxiii</sup> If all Americans recycled their textiles at a rate of 100%, it would save the economy \$375 million in tipping fees at landfills.<sup>xxiv</sup>

The financial savings, job boost, and environmental benefits are significant for recycling. You can see this especially in the eco fashion industry.

## BENEFITS OF CHOOSING RECYCLING GOODS: SUPPORT LOCAL JOBS AND THE LOCAL ECONOMY

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Recycling also helps with local job creation and local economies, too. Purchasing recycled helps support American jobs and stimulates the recycling industry to grow so that more of your waste is recycled every year.

The recycling industry creates more jobs than the landfiling industry by treating waste as a valuable material, and adding jobs throughout the value chain in a cyclical pattern that is repeated over and over again in a closed loop.

- **Total jobs in recycling:** The US Environmental Protection Agency estimates that the recycling and recycled product manufacturing sectors employ 1.1 million people with an annual payroll of \$37 billion, which is far more than both landfiling and incineration.<sup>xxv</sup> Today, nearly 2.7% of the workforce in the Northeast region of the US is employed in recycling-related manufacturing jobs (over 100,000 people). The recycling industry has grown 500% in the last five years, and buying recycled fashion helps increase the percentage of people employed in the industry every year.<sup>xxvi</sup>
- **Recycling jobs compared to incineration, landfills:** The statistics vary depending on which study you consult, but in general, compared to the landfiling industry, recycling creates anywhere between five times<sup>xxvii</sup> and 36 times more jobs.<sup>xxviii</sup> For certain types of recycled plastics manufacturing, the figure is even higher – 60 times more jobs than a landfill on a per-ton basis.<sup>xxix</sup> Recycling also creates 10 times more jobs than incinerating waste.<sup>xxx</sup> Additionally, the jobs provided in these industries pay better than the jobs provided through landfiling and incineration.

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- **Recycling benefits local economies:** Recycling also creates more economic value within a community than landfills through the closed loop resource cycle. In California, the Integrated Waste Management Board estimates that when they meet their 50% recycling goal, they will be adding \$2 billion to their economy and over 45,000 new jobs.<sup>xxxii</sup>
- **Tax reductions through recycling:** Landfills are also costly ventures for taxpayers that offer no value. Textile, plastic, wood, glass, metal, and organic wastes contribute to a community's annual tipping fees. Take glass recycling in California, for instance – dumping glass into landfills costs the state \$60 million (and creates only 120 jobs), whereas recycling glass saves manufacturers \$9 million raw materials costs, and eliminates the \$60 million for disposal, too.<sup>xxxiii</sup> By recycling as much waste as possible, consumers help to reduce the tax burden within the community, which frees up funds that can be used to create more jobs in other sectors.

There are many types of jobs that provide employment for thousands of people every year in recycling – haulers, processors, brokers, materials sorters, truck drivers, manufacturers, distributors, retailers and so on. Recycling related jobs range from those requiring little technical knowledge to those that are highly technical so that there is room throughout the recycling industry for people with a variety of skills.

Of course, by diverting resources from the landfill to the manufacturing industry, recycling also helps to save landfill space. Landfill space is costly to create and takes over wild spaces as well, but recycling extends the life of a landfill by saving space for other wastes that cannot be recycled.

All of these benefits of recycling can be seen in the recycled fashion industry, too.

### HOW TEXTILES AND CLOTHING ARE RECYCLED

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We've already considered how much waste there is in the fast fashion industry. This is more relevant today than ever before as consumers purchase cheap, poor quality fashion that they wear for only a short period of time before throwing it away again. The ethical fashion industry is working to solve this problem by turning waste materials into eco textiles such as recycled fabrics.

These textiles are created by taking waste resources – such as old textiles, plastic bottles, secondhand leather, and glass – and turning them into something new. This saves natural resources, lowers energy consumption, reduces pollution, saves landfill space, and has a very positive impact on local economies.

Recycled textiles have substantial benefits for the environment by diverting waste from landfills, preventing the extraction of new resources, saving energy and water, and producing less waste and pollution. But don't confuse recycled with upcycled fashion. Here are the differences:

- **Mechanical textile recycling:** This is a complex process that involves shredding discarded textiles or waste materials like plastic bottles, spinning the fibers into new threads, and using those threads to make new recycled fabrics. The finished fabrics are then used to

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create brand new clothing and fashion that looks nothing like the original fashion from which it was made.

- **Upcycling fashion:** Think of this as a conversion process. It involves taking an existing piece of fashion and revamping it into something new with no need for chemical breakdown. For instance, you turn your left over watermelon seeds into beads for a necklace, turn your old t-shirt into a necklace, or turn a pair of jeans into a handbag. The finished product often has no striking resemblance to the original. Alternatively, upcycling involves taking waste from the fashion industry – things like textile remnants, bits of leftover leather, and other components – and piecing them together to create a brand new piece of fashion.

In other words, *real* recycling in the fashion world happens in one of two ways: Either you physically recycle old textiles to make new fibers, or you take other materials and turn them into fibers for the fashion industry. Both have many benefits – including energy savings, pollution reduction, resource conservation, and landfill space savings – and both offer the consumer sustainable fashion options on the other end of the value chain. Here are some explanations that will help you understand the various forms of textile recycling.

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### RECYCLING USED TEXTILES INTO NEW FABRICS

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Making new fibers from old fibers is a somewhat new practice in the garment manufacturing industry. The process for recycling fibers like cotton, wool, and some synthetics usually looks something like this:

1. Old clothing from consumers, and offcuts or surplus fabrics from the textile industry, are collected.
2. All buttons, zippers, and other accessories are removed.
3. Textiles are sorted by fabric type and color. By keeping colors together, new fibers can be created without the use of dyes, and recycling like fibers together helps to produce higher quality yarns.
4. The fabrics are shredded, producing something called “shoddy.”
5. Some shredded textiles are used as is to make products like insulation, cushions for vehicles, furniture padding, and other products that require filling.
6. The remaining shoddy is cleaned, mixed, and spun so that it can be weaved into new yarns and threads.
7. The threads are used to create new fabrics, and then new garments.

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### RECYCLING POLYESTER FABRICS INVOLVES A FEW DIFFERENT STEPS.

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1. Old clothing from consumers, and offcuts or surplus fabrics from the textile industry, are collected.
2. All zippers, buttons, and accessories are removed.
3. The fabrics are shredded into small pieces.
4. The shredded fabric is granulated to form small pellets.
5. The pellets are polymerized and turned into polyester chips.
6. The chips are melted down and spun into new fibers.
7. The threads are used to create new fabrics, and then new garments.

Either of these options results in resource and energy savings, landfill space savings, job creation, and lower manufacturing toxicity and waste. Yet these aren't the only ways to create recycled textiles.

### RECYCLING WASTE PRODUCTS LIKE SODA BOTTLES AND LEATHER INTO NEW FABRICS

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The Process for recycling polyester fibers from non-textile materials (plastic bottles for instance) is very similar to that used in the polyester fabric recycling process. That is, old plastic soda bottles are crushed, melted down, and spun into polyester fibers that are used to create new clothes.

You can see direct environmental benefits from all types of textile recycling:

- The average American drinks more than 4 bottles of water every week.<sup>xxxiii</sup> When properly recycled, many of the plastic bottles are turned into polyester. It takes five bottles to make one extra-large T-shirt.<sup>xxxiv</sup>
- Recycling a single plastic bottle can save enough energy to keep a 60-watt light bulb illuminated for six hours.<sup>xxxv</sup>

New processes are also being used to create recycled or regenerated leather products. Regenerated or recycled leather is created by compressing scraps of leather together with other materials like latex, natural fat, and tanning agents to create a material that is 80% leather. This helps to use scrap leather and reduces the need to kill more animals for the creation of new leather material.

### OTHER RECYCLED MATERIALS USED FOR RECYCLED FASHION

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We've shown you how waste textiles and some waste materials like plastic bottles can be turned into new textiles. Yet there are even more ways we can recycle materials for use in eco fashion. The following are some of the recycled and postconsumer materials that you'll commonly find within the recycled fashion industry (in no particular order):



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1. Glass
2. Paper and newspaper
3. Precious metals like gold and silver
4. Other metals such as aluminum, brass, and bronze

### BENEFITS OF RECYCLED FASHION

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#### *Pollution Prevention through Textile Recycling*

We already know that creating textiles from recycled materials helps to save landfill space and create jobs, but recycling textiles has other benefits as well. Recycled textiles, for instance, are much less chemical-intensive to make than those requiring virgin materials.

The most obvious benefit of textile recycling is that the process often skips the dyeing step because recycled textiles often do not require dyeing. Old recycled clothing and/or offcuts from the garment industry are usually sorted and processed by color, allowing manufacturers to skip the dyeing step. This eliminates the pollution that is common in the textile dyeing process, including the spilling of effluent into natural waterways, which pollutes them with heavy metals and other highly dangerous substances. Take wool sweaters. If every UK resident were to choose a recycled or reused sweater over a new one, chemical dyestuffs pollution would be reduced by 480 tons.<sup>xxxvi</sup>

By recycling things like plastics, you also help reduce the plastic waste that ends up in the environment. When plastics are sent to landfills, they are carried over water or blown into bodies of water, and can contribute to the great Pacific Ocean Plastic Island that kills thousands of birds, fish, and other animals every year. Plastics like water bottles, are broken down into tiny pieces that are consumed by wildlife which causes a whole range of often fatal health problems for these creatures. The UN Environment Programme estimates that for every square kilometer of ocean worldwide, there are 13,000 pieces of plastic floating in it.<sup>xxxvii</sup> Sending your plastics to a recycling facility, therefore, helps to minimize this kind of toxic pollution.

### SAVING ENERGY AND LIMITING GREENHOUSE GAS EMISSIONS THROUGH TEXTILE RECYCLING

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Most importantly, recycling our organic waste (like many textiles) is important for preventing waste-related climate emissions like methane. If Americans were to increase their recycling rate from 30% (which is where it was at in 2000) to 35% and cut the amount of waste sent to landfills to 1990 levels, the country would reduce greenhouse gas emissions by 28 million metric tons of carbon equivalent. That's equivalent to the energy consumed by 4.9 million households.<sup>xxxviii</sup> The eco fashion industry supports recycling by collecting and reusing old textiles and wood.

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Recycled fashion also helps mitigate climate change by reducing the amount of energy required for manufacturing products from things like metal, plastic, and glass. Here are some figures that illustrate how much energy is saved when recycled goods are substituted for virgin materials:

- Turn your plastic bottles in to be recycled into polyester clothing and you'll save energy. The energy used to make PET plastic is reduced by 84% and greenhouse gas emissions are cut by 71% for every pound of recycled PET flake used.<sup>xxxix</sup>
- When manufacturers increase the percentage of recycled low-density polyethylene (LDPE) plastic from the average of 4% to 15% in a 50 ton load, they reduce energy consumption equivalent to 1,300 gallons of gasoline or removing 3 vehicles from the road for a year.<sup>xi</sup>
- Choosing to manufacture aluminum products from 60% recycled material rather than 50% (the average) in a 500 ton order is like saving the energy of 100 households over a year.<sup>xli</sup>
- Recycling glass rather than creating it anew reduces energy consumption by 31%. Even better is reusing glass such as that in eco-friendly jewelry – this reduces energy consumption by 328%.<sup>xlii</sup>

These are just a few of the ways recycled fashion helps to reduce the climate burden on our planet.

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### CONSERVING NATURAL RESOURCES THROUGH RECYCLED FASHION

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Whenever we support eco fashion designers that make use of recycled materials rather than virgin materials, we help prevent the harvest of new natural resources from the planet. This is fairly straightforward. Think about it:

- By buying garments made from recycled polyester created from used textiles or plastic bottles, you reduce how much crude oil your clothing requires (polyester is a byproduct of crude oil).
- Choosing clothing made from recycled cotton or wool minimizes the need for additional cotton and sheep farms.
- Recycled wooden or paper jewelry protects forests by preventing deforestation.
- Eco-leather fashion made from secondhand leather helps save the life of an animal.

At Hearts, one of our primary objectives is to minimize our consumption of raw natural resources and help stimulate the growth of the recycling industry by making use of as much waste materials in our eco fashion as we can. These are just a few of the ways that we have set out to accomplish our goal. In today's consumer driven markets Hearts hopes that with continued support in demand for recycled goods, more doors will open in the fashion industry and access to recycled resources will become the norm and not just a desire.

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### GREEN LIVING TIPS FOR INCREASING YOUR RECYCLED PRODUCTS AS AN ECO SHOPPER

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- **Tell your politicians your support curbside recycling:** If your community doesn't already have curbside recycling, encourage your politicians to adopt one. They save your community money, landfill space, and create local jobs, not to mention the eco benefits.
- **Recycle all wastes, especially plastic:** If you don't recycle your waste, it can't be turned into new products! Be sure to recycle all of your mixed plastic waste, which will save 340 pounds of carbon equivalent emissions every year for your household.<sup>xliii</sup> This can be turned into new polyester fabrics. An even better choice is to avoid consuming plastics in the first place whenever possible! One easy fix, bring your own reusable silver wear to work.
- **Support Pay-As-You-Go waste reduction programs:** Many communities have already adopted these schemes. They work by charging consumers for the removal of waste based on the weight or number of bags set out each week. Communities with these programs help drive the recycling industry and typically produce between 14% and 27% less waste than communities without.<sup>xliiv</sup> This way, you'll help provide more materials for use in the recycled fashion industry (supply is usually lower than demand).
- **Compost and recycle your organics:** Recycle all organic materials, including wood and textiles (cotton, wool, polyester – everything!). Many of these materials can be reused in the fashion industry, which is great, and keeping them from landfills helps to reduce the production of landfill methane (CH<sub>4</sub>), an extremely potent greenhouse gas.
- **Find a textile recycling center in your area:** If you can't put your textile waste in the regular recycling bin, find a textile recycling program in your neighborhood. If there isn't one, start a clothing and textile recycling program in your community. The GrowNYC Clothing and Textile Recycling program has recycled over 1.4 million pounds of clothing and textiles since 2007.<sup>xliv</sup>
- **Donate your used items to a local fashion artisan:** Find a local jeweler or fashion designer who uses metals like aluminum, brass, or bronze as well as reclaimed wood, glass, newspaper, and tires and donate any of these materials for their use.
- **Give away your used leather goods:** Help preserve the life of an animal! Regenerated leather helps avoid the pollution and animal cruelty related to the conventional leather production and tanning industries. It also keeps resources out of the landfill, which helps prevent climate change and reduces landfill requirements. You may also be able to donate used leather items to luggage and shoe repair shops that use leather to for their patch and fix services.

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