

HOW TO DEAL WITH WASTE:
A LOOK AT CREATIVE WAYS TO
REINVENT OUR NEIGHBORHOOD

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REINVENT OUR NEIGHBORHOOD

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I would like to dedicate this to all those who are interested in reducing human impact on this planet, and to those who share the motivation to live sustainably.

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ABSTRACT

Aside from the 3 Rs of sustainability (Reduce, Reuse, Recycle), there are many creative ways to repurpose that which is considered waste. This is an account of how waste can be diverted from the landfills by rethinking the way we make things. By taking a brief look at the history of where the stuff of contemporary life comes from, what is necessary to manufacture it, and where it all ends up, we realize that a lot of things are designed-for-the-dump. In this thesis, three prominent approaches to the problem of waste are examined: the 3 Rs of sustainability, the making of our stuff (and how to avoid it), as well as cradle-to-cradle design. All these approaches have limitations in how we conceptualize the problem, and especially in motivating and guiding responses. In spite of these limits, many people are taking concrete steps to change their habits and creatively respond to the problem of waste. Some of those people were interviewed for this project, and their observations provide an empowering response to the limits of the existing approaches. Even a small group of people can provide a vast contribution of creative ways to deal with waste, from simple crafting all the way to complex building design.

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CHAPTER I

INTRODUCTION

“Waste,” in its most basic sense, is any unwanted element (material and/or chemical) that may have already met its initial or intended purpose. Also known as garbage, trash, junk, rubbish, refuse, among many other names; there is no doubt that waste is considered to be a constant burden, the evil monster that needs to be sequestered away. It is a social concept, however, because even though there is “waste” in nature, these naturally discarded materials are *consumed* again by the ecosystem, and thus serving endless purposes. Many of humanity’s current approaches to “consuming” are linear, this means that most of what we produce is designed with the intention of being obsolete at some point and therefore discarded. In other words, after the materials necessary for any product are extracted, manufactured, distributed, and consumed, the next step is to “throw it away.” This method treats waste as something external rather than as a valuable resource that can be continually reintegrated in a closed-loop system.

Natural and unnatural wastes co-exist in landfills in life-threatening mixtures of organics (such as food and feces) and inorganics (plastics, metals, etc.) that are later to be buried or burned. The process of burying waste is limited in the amount of available space, it almost never decomposes and if it does it’s bound to add toxins to the soil. On the other

hand, setting materials such as petroleum-based plastics and polyester on fire (along with food and animal remains) poses the dangers of releasing toxins into the air. Thus, there is an obvious need to rethink the way we deal with waste. While the 3 Rs of sustainability (Reduce, Reuse, Recycle) are effective, they are not always implemented accordingly, and have become *passé* for people who apply them on a regular basis. Further, even if applied consistently, they fail to adequately address the risks and costs of recycling waste. A step in the right direction would be to put an end to the concept of “planned obsolescence” currently practiced in the manufacturing of our resources. Planned obsolescence, as the name implies, is the method of making things with limited durability so that when the product breaks down the consumer has little option but to purchase a new one from the seller. Also, due to the “unfixability” of the product (and because the maintenance and repair of items can be highly specialized and complex), most end up being discarded as waste or thrown “away” and replaced. But as we all know there is no “away” because “away” does not exist anymore. We live in a complex ecology of intertwined and mixed systems of co-existence, and once we realize this we recognize that there is no “away” to throw things to, but that everything is connected and that it surely comes back one way or another. This is where creativity becomes an important tool for the sake of seeing “things” not as their function, but their possibilities. In this study, we will examine some existing approaches to the problem of waste, and explore some of the creative ways that individuals are changing their habits and influencing their communities.

Purpose of this study

The primary goal of this project is to explore how people are repurposing household waste in ways that go beyond the 3Rs of sustainability. Household waste is considered part of a state's Municipal Solid Waste which includes the waste generated by residential establishments and small businesses. Focusing on household waste gives this research a more specific picture of the kind of waste in question and of the connections between what is consumed and what is discarded. This study is also intended to obtain a greater understanding of resource consumption and disposal in order to inspire others to reduce their impact on landfills. This research is important because if there is no continued discourse on the issue of unlimited consumption, then the future of generations to come is at stake. The Earth does have limits, and we are in crucial need to figure out what to do about our continued existence on this planet, even if it means a radical change of lifestyle. This study explores existing literature and the thoughts of a handful of young people in order to find efficient ways of repurposing what is considered "trash" in a manner that goes beyond the 3 Rs of sustainability. It also aims to shed some light on consumerism and its consequences as a way of avoiding the situation of having "things" to get rid of in the first place. Because of technology, wealth, population growth, and increasing consumption, the waste we now produce (especially in the developed world), has far greater impact than in earlier eras. Before the Industrial Revolution, products of human use were fairly easily re-absorbed into nature, and before the so-called Chemical Revolution of the 20th century, natural processes could recapture most human products and waste. Although that is no longer the case, reverting back to lifestyles from

centuries past is not necessary, perhaps not even possible. Rather, we must deal with what we have in order to envision a future of natural prosperity.

Main Research Questions

- A. How can common household waste be utilized in a local and applicable manner?
- B. What inspires people to repurpose and therefore close the loop between the disposing and consuming of products?
- C. What are the benefits of taking immediate action for the sake of future generations?

These questions are limited to the San Marcos and Central Texas Region. Climate accounts for the type of waste that is available for repurposing, therefore different parts of the world will have to deal with different types of waste. If examined closely, however, most household trash once served similar purposes even for different people: packaging, diapers, food scraps, paper, aluminum cans, wood, and a whole bunch of plastics. By compiling even just a few good ideas that are fun and easy to implement, this research becomes a simple tool for offering and sharing innovative ideas. In this way, the project is a descriptive process, surveying some responses to failures of existing systems. Thinking about the future in a way that guarantees the well-being of all species to come and for as long as possible requires thinking outside-of-the-box or at least outside of oneself. If the majority of people manifested their lifestyles according to this principle, we would never have to worry about tomorrow, not even today.

CHAPTER II

LITERATURE REVIEW

The following literature was carefully chosen in order to explore some of the history behind the making of our “stuff.” From a material’s extraction, manufacturing, distribution, consumption, and disposal, founder of The Story of Stuff Project, Annie Leonard, gives an account of what a product’s lifespan is comprised of. In her book, *The Story of Stuff: The Impact of Overconsumption On the Planet and How We Can Make It Better (2010)* she traces the life of a simple cotton T-shirt, the average book, a computer, aluminum cans, and even polyvinyl chloride (PVC) plastic, and describes the not so simple process of manufacturing these items. Some solutions she addresses for the issues of overconsumption include promising policies, reforms, and laws that can potentially improve humanity’s well-being as well as the health of the planet (Leonard, 2010, p.253). However, this book fails to provide alternative uses for the “stuff” that is already lying around; rather, the author provides other measures individual families can take to reduce their exposure to materials that could potentially be dangerous or toxic. This research strives to provide examples that may be adequate for some of the stuff Leonard mentions. While her aim is to rewrite the story of stuff altogether, she also stresses the fact that anyone can make a difference by getting involved in their community.

A slightly different call to action is rethinking a product's *design* altogether, right down to the root of material manufacturing. In *Cradle-to-Cradle: Remaking the Way We Make Things* (2002), architect William McDonough and chemist Michael Braungart propose a number of strategic design plans that could be applied to existing products, building techniques, chemical compositions, among other complex situations. This book is an inspiring example of how exciting it can be to look for alternative means of achieving similar outcomes by utilizing less virgin resources and eliminating waste. Like *The Story of Stuff*, Cradle-to-Cradle thinking does not fully address the stuff already on hand, but it does stress the notion of designing things in a way that avoids having to avoid them in the first place.

The Good, The Bad, The Ugly

Imagine what you would stumble upon today at a typical landfill: furniture, carpets and upholstery, televisions, clothing and accessories, computers, plastic and Styrofoam packaging, among other complex products, combined with paper, wood, food wastes and a whole lot of diapers. These required a great deal of effort to extract, make, and move around, yet their value is lost because of an industrial system that is designed on a linear, one-way, *cradle-to-grave* model where resources end up in some sort of “grave” such as a landfill or incinerator (McDonough & Braungart 2002, p.27). Any single item we chose to buy is attached to a larger web of complex interconnecting systems. This used to be more apparent back in days where “stuff” didn’t come around so easily, when it actually took a lot of human effort to move things from place to place (Leonard 2010, p.106). Nowadays, almost anyone, even with a click of a button, can purchase just about anything from anywhere in the world and only wait a few days for it (or not wait at all and buy it from a store). The repercussions of that can be seen in the average home, with extra space made just for “stuff” in *garages* that are forever *garbage-filled* (2010, p.108). Most “stuff” is designed-for-the-dump (especially electronics) due to planned-obsolescence, which is exactly where a lot of it ends up. In order to better this situation, “consumers” need to rethink a shift in their awareness beyond that of “consuming” what can’t be *actually* consumed after all (McDonough & Braungart 2002, p.98. Also, “<http://www.electronicstakeback.com/designed-for-the-dump/>”)

Rethink Recycle

The concept of recycling has an amazing ability to inspire, bore, and even anger people. It also has the ability to be an excellent gateway for getting people acquainted with product manufacturing cycles. The main benefit of recycling is obvious, it keeps materials within the consumption flow and thus reduces the need for raw material extraction (Leonard 2010, p.229). Some are proud of recycling while others could care less but despite the emotional stirs, recycling can lull us into believing we have done our part while nothing really has changed (2010, p.228). This begs the question about recycling motives and applications. First of all, if people are excited about recycling *more* as opposed to wasting *less*, this allows both consumers and producers to escape responsibility for their wasteful actions (2010, p.229-230). Additionally, recycling requires a great deal of money and energy to implement, not to mention the fact that recycling workers are too often exposed to the toxic process of chemical handling and separation (2010, p.230).

True recycling, on the other hand, achieves a circular closed-loop of materials becoming similar to the products they were before (a bottle into a bottle into a bottle). However, this is not always the case as a lot of materials get *downcycled* into some other lower-grade version of itself to become part of another product (such as a bottle into carpet backing for example) (2010, p.231-232). When materials are mixed with other types of materials this produces a hybrid of lower quality, serving itself useful only for cheap and easy items like park benches or speed bumps (McDonough & Braungart 2002, p.56). “Recycling” paper requires extensive bleaching and other chemical processes to

make it blank enough for reuse, the result is a mixture of chemicals, pulp, and some cases toxic inks that are not always adequate for handling and use (2002, p.58). Metals and aluminum such as the ones found in automobiles are “recycled” by being melted together, including the copper from the cables in the car as well as the plastic and paint coating; meanwhile the rare components such as manganese, chromium, paints, and even copper, which are highly valuable in their unmixed state, are lost forever (2002, p.56). Lost value and lost materials are not the only main concern, downcycling can actually increase contamination of the biosphere; for example, the paints and plastics melted to create recycled steel contain harmful chemicals, and the electric-arc furnaces that recycle secondary steel for building materials are now a large source of dioxin emissions (2002, p.57). The original mantra “Reduce, Reuse, Recycle” lists Recycle as the last option for a reason, it should be held as a last resort; when it comes to the consumption of material products, reduction or refusal is far more effective (Leonard 2010, p.232).

Waste Equals Food

As already mentioned, *Cradle-to-Cradle* calls for a rethinking of design, the very roots of where products come from. The authors suggest that products be made with their *disposal* in mind, such as where the product will end up and how can it be made more useful. For instance, discarded organic materials could be placed back into a *biological metabolism* of compost-based nutrients that when added to the soil will bring those nutrients back into our food supply (McDonough & Braungart 2002, p.105). Since a lot of our resources are wasted through packaging, these products could be made of biodegradable materials so that the natural world can consume them again (2002, p.107). The inorganic materials such as plastics and metals would become part of a *technical metabolism* that reuses them either by making pellets of the resource to be reshaped into other products, or by reusing the item again for the same purpose (a computer or television frame could be used as frame for other computers or televisions) (2002, p.109). Industrialism does not have to be a “takes, makes, and wastes” system; instead it can become a creator of goods and services that generate economic, social, and ecologic value. This can be done through a closed-loop approach to our resources, by having waste equal the food or fuel for something else (2002, p.92-93). McDonough and Braungart realize that there are certain materials that cannot be put back into a biological nor a technical metabolism, they call these *unmarketables*, which are comprised of nuclear and other toxic waste (the best way to deal with these is to “stop their production as soon as possible until we figure out what to do with what’s left”) (2002, p. 116).

Change or Hope?

Since system change is inevitable, the question is not *if* we will change, but *how*. If we become forward-thinking and progressive enough to change by design, it's going to require a lot of hard work and some hardships but there is bound to be more gain (Leonard 2010, p.250). If, on the other hand, we believe our lifestyles are not negotiable and refuse to budge on our resources as though we had a second or third planet on reserve, then there's going to be a lot more violence, suffering, and injustice than necessary (2010, p.250). As we are faced with serious, life-threatening resource scarcity as the planet continues to run out of clean water, productive farmland, and fossil fuels, the people with the least access (those with no water, food, or shelter) will eventually not tolerate the vast inequality in resource use (2010, p.250). When this happens, people will be forced to live a more frugal lifestyle whether they are accustomed to it or not. One of the ways people can prepare now is to lower the maintenance required to live the desired lifestyle, and this could be as simple as buying less "stuff."

CHAPTER III

METHODOLOGY

The researcher, or Private Investigator (PI), applied a qualitative research design to data gathered from face-to-face interviews, books/articles, and internet websites.

Qualitative research analysis is a narrative approach to particular human experiences and is not intended to generate numerical results or facts such as that of quantitative research. There are three different (yet overlapping) categories for undertaking qualitative data analysis: sociolinguistic methods such as discourse and conversational analysis, grounded theory methodology of inductive logical process, and methods of content and thematic analysis that describe and interpret participants' views (Toloie-Eshlaghy 2011). This study focuses on examination of the chosen literature review and face-to-face interviews and is not meant to acquire extensive data nor attempt group level studies to support any of the findings. For the participants at hand, major themes will be presented along with supporting quotes from the subjects themselves or from other derived references. Some advantages to qualitative research include a deeper understanding of people's attitudes, behaviors, and insights on the topic, as well as the flexible and cost-effective advantages of the data-collection process (Toloie-Eshlaghy 2011). However, qualitative research is vulnerable to subjectivity, which means that the results cannot be generalized to a larger population nor can the findings infer any social inferences.

For this study, participants who are passionate about reducing their waste impact were gathered for the purposes of taking into account what their thoughts and opinions are, which is helpful for acquiring data on consumer awareness levels.

Subject Sampling

Participants were chosen through the process of snowball sampling in which the PI began by giving an announcement at Texas State University's Sustainability Seminars, found the first subject and went from there. Some were acquired through mass e-mails associated with the Environmental Conservation Organization (ECO) and the People Envisioning Regenerative Models Integrating Every System (PERMIES) club, associated with permaculture design. Others were suggested by people who had already been interviewed. I contacted most participants through e-mail and openly gave them my contact information, allowing them to choose a place and time for the interview. The type of ideas I was looking for are those that can be applied in current construction/development projects (roads, houses, buildings, public areas, parks, etc.) as well as in private/personal choices (product design, multiple-use theory, artistic expression, convenience, etc.). Therefore, I intentionally searched for individuals who come from varying degree types and departments at Texas State University.

Interviews

Interviews lasted anywhere from 30 minutes (simple) to almost an hour and a half (usually more interactive). No personal questions other than name and e-mail were asked of the participants, other demographical inquiries include the subjects' major/minor (if applicable) and interests/hobbies. A total of five questions were presented along with a few optional follow-ups, the findings/results section of this paper will reveal the themes and patterns found within each individual question

CHAPTER IV

FINDINGS

Demographic profile of the sample

No subjects appeared to be under the age of 18 or above the age of 35, classifying them into my “peer cohort” in generational terms. Most are current or previous students at Texas State University, including graduates and student graduates; out of the 12 subjects only 2 dropped out before graduation. Departmental fields of study included an interesting mixture of the following majors and minors: Geography (resource & environmental studies, urban regional planning, and water studies), Environmental Science, Psychology, Construction Technology, Art (painting), Biology, Women’s Studies, Chemistry, Agriculture Education, Philosophy, Business Administration and History. A lot of subjects were also employees of the city and/or the University including a City of San Marcos energy/water conservation specialist, City of San Marcos Hazardous Waste Facility worker, Geographic Information Systems (GIS) analyst for the Texas State Network Operations, Bike Cave crew member, Bobcat Blend associate, KTSW radio show host, Stream Team program specialist, Green Guy Recycling staff, and a City of Austin watershed protection worker who also applies GIS analysis.

Qualitative Data

This section breaks down the individual questions presented in all interviews. Results are either paraphrased in paragraph form or bulleted when necessary. Some of the interview responses prompted further research, which is included here, providing additional information and context, and on occasion, a website or photograph for reference. All of the phrases in quotation marks come straight from the subjects themselves and are not identified in any way except through their context. In the following section the, PI relates the findings to the main research questions and provides further discussion as well as some shortcomings of the project.

Q1. Based on your experiences, what is your opinion on the amount and types of waste that we produce?

As expected, almost all the participants answered “way too much” (a lot of it being petroleum products such as plastic packaging). They stressed the fact that waste production is unsustainable at current trends and that something needs to be done about it. “All trash has potential for reuse, especially the organic metals and minerals that are found in a lot of production materials.” While Texas Disposal Systems has a good approach (curb-side recycling), it is very finite in the kinds of materials they accept (<http://www.texasdisposal.com/index.php/services-residential-single-stream-recycling>). What happens to the food, light bulbs, Styrofoam, batteries, and oils that are put in the trash on a daily basis? This was a nightmare topic that expressed confusion as to why we are still producing so much of this dangerous waste (other hazardous materials include cleaning products, paints, electronic or e-waste and industrial waste). Recycling, especially for toxic waste, is not the answer, but neither is the downcycling of not-so-recyclable products. Another problem is the piling up of trash due to littering, which has become a huge concern due to its impact on the world’s oceans as well as outer space (http://www.kab.org/site/PageServer?pagename=focus_litter_prevention).

Someone pointed out the fact that we waste way too much food; research from the U.S. Department of Agriculture’s Economic Research Service (ERS) estimates that of the 3,800 calories per person per day provided by the aggregate food supply in 2000, nearly

1,100 calories were lost to spoilage, plate waste, cooking, and other losses

(<http://www.usda.gov/factbook/chapter2.pdf>, p.14).

*Q1 Follow-up: What would you say that some important ways to respond to this issue?
(from an individual or global perspective)*

- Education and community are the key central aspects. Communicating these issues to the general public is important, “maybe if the ecological footprint for the average American were to be pointed out more, maybe then people will react due to pure shock and embarrassment.”
- Good role models such as California’s zero waste program (<http://www.zerowaste.org/>) where almost everything gets reused or recycled, “at least it’s better than the dumpster, but on a personal scale [trash] should be avoided.”
- Better Landfill control. Perhaps implement tax incentives or load control.
- Recognize availability of materials, leaving bags of leaves on the side of the road, for example, is a disservice to composting potential, along with all the food scraps that get thrown away every day (Appendix A, slide 12).
- Increase the amount of recyclable facilities and making it simple for people to distinguish what is compostable from what is recyclable versus what is trash.
- Public rainwater catchment systems.
- Realize that we don’t need the help of synthetic (non-living) materials, nature provides enough.
- Spreading knowledge/awareness about what kinds of waste are hazardous to ecological and human health and to encourage active participation on these issues.

Also to encourage the use of the city's Hazardous Waste Facility (Appendix A, slide 13).

- “Pick it up when you see it, especially outside.” The notion of picking up someone else's trash may discourage some people but this is probably the best way to make sure that trash does not end up being part of a delicate system at some point. For example, picking up plastic bottles and placing them in the recycle bins around campus can not only inspire others to do the same but can also decrease the chances of those bottles contaminating the river. On that note, creating river trash policies and continuing clean-ups in the area are also helpful for maintaining river quality and wildlife.
- “Do or die,” overall consciousness must shift toward realizing the potential of natural cycles.

Q2. When you are shopping do you think about the products that you buy? Such as where they come from, who made it possible, where they will end up, etc... If so, how do you make your final decision? Explain if necessary.

Responses varied from “not all that often” to “absolutely!” yet the general consensus was “overwhelming.” Health and affordability are the biggest factor in the decision-making process of product purchase, and when it comes down to choosing between the two, the cheapest option usually wins over the “ideal” one. However, it highly depends on the product, if it’s about food/health, a lot of the subjects were compelled to pay a higher price for good quality, whereas for nonfood products like clothing and appliances are usually acquired through the cheaper thrift or resale shops. In the end, most of the subjects’ would make their final decision based on whatever was local, which is good, considering the high cost of food distribution. “Sometimes you just explode and buy even what you know is bad for you.” Since there are so many different types of products and alternatives, one is often plagued with the situation of having to choose the “lesser of evils rather than the ideal.” Another option is to get “whatever makes you feel good,” cagefree eggs as opposed to honey from China for instance. Yet another approach is to ask oneself “Do I actually need it? Do I need it *now*? Could I borrow it from someone else? Could I just make it myself? If so, what materials do I need?”

Q3. Have you come across any specific method/technique that could be applied to better sustain our current development?

- Best Management Practices: these are “state-of-the-art” mitigation measures applied to oil and natural gas drilling/production to help ensure that energy development is conducted in an environmentally responsible manner. Best Management Practices protect wildlife, air quality, and landscapes as we work to develop vitally needed domestic energy sources” (http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices.html).
- Paper and paperboard products are the simplest things to repurpose, a lot of crafting and collage projects can utilize the abundant resource. You can make anything, from kids’ toys, jewelry, booklet/notepads, and even paper/mail holders (Appendix A, slide 4).
- Implement policies that force companies to recycle (grand scale), both private and non-private.
- *Refuse* toxic foam-based packaging; *replace* it with cardboard or biodegradable fungus-based “foam” called MycoBond (<http://inspirationgreen.com/mycobond.html>) or Synbra Technology’s BioFoam (<http://www.greenbiz.com/news/2010/01/15/biodegradable-styrofoam-alternative-earns-cradle-cradle-certification>) (Appendix A, slide 6).
- Alternative transportation such as railroads, trolleys, and buses as well as accommodations for bikes and pedestrians will greatly reduce the amount

of cars on the road and the amount of those vehicles that make it to a landfill.

- Use barbershop/hair salon hair scraps for better water absorption from trees. Food scraps and yard trimmings are also abundant and also serve as excellent compost materials.
- Wood is already known to be a highly useful resource, “there are so many uses just for wood pallets alone!” (Appendix A, slide 7).
- Total Max Daily Load Program: the calculation of the maximum amount of pollutants that a body of water can receive and still meet quality standards
<http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/overviewoftmdl.cfm>.
- Plastic bottles have many uses beyond their intended purpose, they make excellent horizontal plant sprouting jars (glass is good for vertical sprouting and rain filtration), the left over bottle bottoms can be hung to provide a privacy curtain, a milk jug can be cut up and adjusted to create a box for lunch or storage, any oval and somewhat flat plastic bottle can be transformed into a cellphone-charging station, and so on. (Appendix A, slide 5)
- Encourage households to xeriscape their yards so as to avoid the need of water from irrigation in order to water their lawns
<http://xeriscape.sustainable.com/>.

- Public or community-based greenhouses. Or better yet, repurpose unwanted windows to make a mini greenhouse. (Appendix A, slide 8)
- The reusable bag approach is popular among shoppers, which are typically made of repurposed cloth or other bags. Instead of dedicating these solely for grocery shopping, this concept can expand to any kind of shopping (such as retail). Reusable bags can be made of many different items such as plastic (from bottles or CapriSun juice bags for example), textile (adjusted tanktops or quilted from scraps), rubber (bicycle inner tubes), etc. (Appendix A, slide 10).
- Recycled denim insulation made from unwanted jeans and other waste scraps from cotton based textile industries. Bonded Logic's UltraTouch (<http://www.bondedlogic.com/>) is an example of a virtually zero waste process in its manufacturing of denim insulation and other products. Using minimal amounts of energy, UltraTouch is treated with a boron based solution for fire retardency, mold/mildew growth, and pest inhibitor (<http://www.buildinggreentv.com/keywords/blue-jean-insulation>, post from 06/13/2007) (Appendix A, slide 10).
- "Dumpster food is perfectly fine most of the time." If you've even dumpster-dived then you know that it is no wonder why so much of our food supply is wasted. Restaurants and other companies are forced to throw away any "unsellable" item simply because it has met the sell date; usually food remains perfectly edible for almost a week or two even after the expiration date. This food, in turn, could be donated to people in need

or sold at a fraction of the original price so as to keep it in the nutrient cycle. Or at the very least, since in some cases there might be public health reasons to keep some of it from direct human consumption, it could be used for compost or biomass fuel.

- [Composting toilets](http://www.sunfrost.com/composting_toilets.html) and wastewater reclamation are important in assuring the quality of safe drinking water and nutrient recycling (http://www.sunfrost.com/composting_toilets.html) (Appendix A, slide 12).
- Waste water could be transformed into drinking water; a lot of projects are already underway.
- Clothes drying racks can be made from just about anything that follows the general structure of sturdy rows to hang things from. For example, old fences, discarded bicycle tubes, and any unwanted string-like materials are adequate for the job. The more people air-dry their linen items the more popular it gets, especially because it saves both water and energy.
- Encouraging more clotheswap events where people bring what they don't want and trade it from other people, no one needs to purchase anything.
- Reduce impact of the taboo (and legal policies) of not being allowed to bury the deceased in ridiculous coffins and graves, and rather leave the options open as to how people want to be "disposed of."
- Unwanted bicycles can be made into bicycle racks or other tough surfaces like fences or mailbox holders (Appendix A, slide 9).

Q3 Follow-up: What influence can it have on future generations? How long do you presume it may take to see some positive change?

Depending on answers to the above questions, responses were of either positive or negative nature. One subject said that if we don't figure out what to do with our junk fast enough, there could be a reduction of societal pride and sense of achievement. Hopefully we can learn to clean up after ourselves and let go of our dependency on chemicals and other synthetic substances that are potentially hazardous. Being more conscious of individual choices opens up the possibilities of being able to see beyond the comfort zone, and perhaps even being to think in a more forward-thinking and collective manner. While we can't say the situation will get better fast enough (progressive ideas require some form of salesmanship), "change is slow but it's changing faster" thanks to the information age that allows for the exchange and transfer of ideas in unprecedented levels. "Visible progress within two generations is possible, but seven generations is more realistic." We're already witnessing a small shift from industrialist farming to that of sustainable agriculture, permaculture, and community gardening. Many people who are a generation or two above ours have their lives "set-up" in the sense that they don't feel they need to be more ecologically-minded, and even if our kids don't do anything about it either, their kids surely will. It is just a matter of time before the entire system collapses before we can truly begin to pick up the pieces and refresh.

Q4: Given the opportunity to re-design your own home (regardless of time/money), what is the first thing you would do? Why is that aspect so important to you?

- “Tear it down and start over, build a new one myself and do everything.”
There’s no need to be off grid, and while having money is important there is the pride factor from the challenge of the hard work, the long-term sustainability and durability are rewarding.
- Energy efficiency is highly important—proper insulation, wind turbines, solar panels, windows that contribute to adequate lighting, etc. These practices are both ecologically as well as economically viable.
- Have land in order to garden and/or keep livestock and avoid the city altogether.
- Rainwater catchment system.
- Passive solar building design: windows, walls, and floors are made to suit the collection, storage, and distribution of solar energy by rejecting the solar heat in the summer and embracing it in the winter. Since this takes advantage of the local climate, no mechanical or electrical devices are necessary, simple strategies include adequate window placement/glazing and the insulation of thermal mass
[\(http://passivesolar.sustainablesources.com/\)](http://passivesolar.sustainablesources.com/).
- “Think Earthship[!]” These are radical homes that can be built in any part of the world and in any climate while still providing electricity, potable water, contained sewage treatment and sustainable food production.
While not every subject mentioned the Earthships, a lot of the renovative

ideas were very similar, especially the aspect of having a home that generates its own energy. Earthships utilize materials that would have otherwise ended up in a landfill such as old rubber tires, plastic tubes, glass bottles, aluminum cans, discarded wood and so on, which makes them a perfect example of working with what is available. For instance, in Taos, New Mexico where the project first took off, the house also used sand to pack it tightly into the rubber tires and/or around the glass bottles, contributing to the proper insulation needed to keep the house cool in the desert region. The solar panel and greenhouse are located in the south side of any Earthship for maximum utilization of energy; the vegetation is nurtured by the sewage water that was once used for showering and flushing toilets before it makes its way to the soil (<http://earthship.com/>) (see Appendix A, slide 14).

While most of the subjects seemed surprised by this question, some were able to formulate concrete answers about how they imagine their ideal homes. The researcher had to clarify that neither money nor time were of issue in the manifestation of their responses, which are obviously important factors, but the goal was to make it as far-reaching into the imagination as possible. One subject in particular went as far as to say that they would get a giant bubble to put around their house, which is not only unrealistic but also counter-productive because isolating oneself from society can lead to negative tension. No participants mentioned making parts of their house from waste except by the few implied through the Earthships; nor did anyone provide a description of the ideal

neighborhood their home would be located in. Whether through the nature of the question or by the perception of the subjects, all responses were altruistic in the sense that the subjects focused only on their personal living space.

Q5: What is it that motivates you to 'deal with this waste'?

- Sense of moral issue and responsibility when it comes to “utilizing what is already available, it simply makes more sense to do so than to keep extracting virgin minerals from the Earth.”
- “Just to see people getting inspired along the way is inspiration in itself.”
- “Crafting is fun! Even if it’s only a small contribution to greater hardships. Everything comes from the Earth anyway, so these things should not be taken for granted.” The concept of collages and other crafts in general is indeed an entertaining way of repurposing almost any item.
- Overall sense of justice derived from the love of all living systems, and an appreciation of wildernesses and other outdoor gems.
- Art supplies don’t need to be purchased from stores all the time, there are endless “supplies” widely available, you can use just about anything.
- Repurposing saves money!
- The creativity aspect of asking oneself “what can I do with that?”
- “It’s the way things should be done” (common sense).
- “Typical Texans won’t do something unless they see the consequences, so one can be the example without becoming a preacher.”
- “Altruistic, maybe?” Selfish love of healthy plants and people, and being surrounded by nature.

Q5 Follow-up: What advice would you give to inspire others to feel the same?

- The Native Americans had a good grasp of it (thinking at least three generations ahead of time).
- “Ride a bike!”
- Utilize community for the sharing of “stuff” instead of buying things of a one-time or minimal use.
- “Go outside, go camping, sunlight is good for you.”
- “See the planet as an extension of yourself.”
- “Quit talking, start doing, and don’t be afraid to work too hard.”
- “It’s easier to improve than it seems.”
- It’s hard for “environmentalists” to change the world when the focus is only on the preservation of green spaces and wildlife, therefore conscious actions should also concentrate on social and economic health.
- “Do you really need it?” [referring to consumer products]
- “Compost your shit!”
- There are many people who are stubborn, and some you just can’t get to.
- “One person can make a difference, and everyone should try” –John F. Kennedy.

The sharing of knowledge and wisdom are essential if we hope to involve everyone in creating a more sustainable future. This may prove more difficult than it seems as we all know that change comes from within. People rarely do what they

“ought” to do, especially when they’re not committed to the standards experts set for other people. The best thing any of us can do at the moment is to enjoy the outdoors and bring as many people into it as possible.

CHAPTER V

DISCUSSION

Main Research Questions

- A. How can common household waste be utilized in a local and applicable manner?
- B. What inspires people to repurpose and therefore close the loop between the disposing and consuming of products?
- C. What are the benefits of taking immediate action for the sake of future generations?

The responses from interview question three, *Q3: what are some specific methods/techniques that you have come across that could be applied to better sustain our current development?* and question four, *Q4: Given the opportunity to redesign your own home, what is the first thing you would do? Why is this aspect important to you?* are the biggest contributors to some of the ways that waste can be diverted from landfills (see also Appendix A for visual representations). The researcher, or PI, came to learn that the scope of this study is far greater than any project can truly achieve in a few months' time. Overall impressions are satisfactory in terms of the nature of the research despite the overwhelming conditions of doing research about waste. The PI also came to realize that

there are infinite ideas that are applicable to many different materials, and that no single research is capable of compiling all of them to one source. Alas, this goes to show how versatile waste can be, and when treated as a resource, it can reap huge rewards for economic, social, and ecologic benefits.

As stated in the beginning of this chapter, when it comes to the constantly accumulating stuff sitting around in garages and landfills, neither *Cradle-to-Cradle*, the 3 Rs of sustainability, nor *The Story of Stuff* adequately address the issue of what to do with our current garbage. Rather both books, together with the 3 Rs, provide excellent ideas on how to act in a more progressive and forward-thinking manner. Some of their ideas, especially Annie Leonard's, may be too politically-involved for a lot of people, which is in itself a different issue and will not be discussed here. Surely, maintaining a voice in powerful places where opportunity for change exists is indeed helpful, and so can the radical protests from the people who wish to manifest them. Yet it is important to know that other alternatives exist that are effective, namely, the refusal to create waste or repurposing existing waste as a resource. When refusal is a difficult option, taking time to rethink its necessity is a valid suggestion, and if a decision must be met, choosing the lesser evil is a subjective process, but often times there is always a simpler alternative. Most people don't realize the value of what they throw away, aluminum cans and plastic bottles for example, they are not only abundant, but can be utilized in many different ways. From kid's toys, fashion accessories, to sturdy reinforcement, or simply for the sake of décor, the common items that usually make it to the trash bin can easily be given a second life. According to the participants, repurposing is fun, cheap, and useful at the

same time, and the act of re-gifting these items could also provoke admirable and strong relationships with others.

Some of the suggestions gained from the interviews are consistent with the larger framework that was considered at the beginning of this project. For example, water and energy saving features are tremendously important contributors to an increased awareness of waste. The Earthship homes that are solar-powered and self-sufficient are a great experiment for anyone interested in learning about home building as it relates to Cradle-to-Cradle design. Adding UltraTouch's denim insulation makes it sound even better. In relation to the 3 Rs, reusing and recycling are still good alternatives that divert trash from the landfills. Avoiding brand new storage containers is a first step into realizing that the containers some food or other products come in are just as useful to serve the same purpose. Story of Stuff relates us to the stuff in our everyday encounters (televisions, t-shirts, plastic toys, etc), and mainly takes on the refusal approach. After boycotting specific products, adequate political action can be implemented; a few of the subjects mentioned landfill control incentives, best management practices, and total max daily load programs to keep pollutants from water sources.

The Sharing of Wisdom

What inspires certain individuals to act in ways that close the loop between the disposal and consumption of products varies for every kind of person. The most profound notion encountered was “common sense” and/or the impression that repurposing comes as a second nature. It is no wonder people feel that way, this generation’s grandparents are perfectly aware of the “waste not, want not” culture that existed prior to the thermostat. An overall sense of justice is experienced once we begin to act in accordance for a love and respect of all things, this could even be achieved through selfishness or altruism, because if one takes care of their life source, it is surely going to give back. One of the subjects mentioned that the “typical [person] won’t do something unless they see the consequences,” and there is some truth to that, because sometimes situations need to manifest themselves on a personal level in order for individuals to relate to the problem and thus feel the responsibility of doing something about it. However, it does not have to be the case that a tragedy occurs before we are forced to act, because change only happens as soon as a people decide to behave in a different light. While creativity can indeed be challenging, thinking about the connectivity of all systems of life could bring into perspective a point of view that allows effective solutions to come into place.

The benefits of taking immediate action for the sake of future generations can be seen in the desire to have an educational system that stresses the importance of involving everyone in the journey of building sustainable neighborhoods. The three most common current ways of spreading wisdom, from the broadest to the highest, are public education,

higher education, and specialization. Unfortunately if our behaviors don't change our machines cannot save us, which means that the most effective changes are the changes we make, not the changes that manufacturers make. While our ancestors behaved in sustainable ways simply because it was the way to survive, we could combine that with the Native American's way of planning within three generations down the line, then the current generations to come will not have to pick up the pieces of our failed attempt. It is hard to predict when or how long into the future a catalyst will appear that motivates everyone to change their wasteful ways; as noted earlier, people will either act now while they still can or be forced to act by default, which is possibly within a century's time.

Limitations and Implications for Future Research

This project is not intended to provide emotional stirs or responses that lead to civil disobedience, instead it is meant to serve as a tool for inspiring individuals and families to make decisions that reach farther than their aspirations in order to create an atmosphere of increased life satisfaction. Humans are more than capable to take it upon themselves to invest the energy necessary to act and take advantage of each other's trash. Unfortunately, none of the participants interviewed for this study were electronically-savvy enough or involved in the repurposing of e-waste, therefore no creative solutions were attained that extend beyond recycling. Because electronics are often designed-for-the-dump (as mentioned in the literature review chapter), there are few alternatives on what to do with the ever-increasing pile of electronics that are discarded every year. Because electronic waste is a serious concern, and due to the fact that most of it is shipped off to developing countries, this is a matter that extends beyond this research and is open for anyone that wants to embark on the challenge.

This study also fell short of providing adequate solutions for yet another toxic material, namely, polystyrene foam (commonly referred to as Styrofoam). Almost no one seems to know what to do with this highly toxic substance filler used for packaging (among other things) that continually spreads all around our parks, rivers, sewages, streets, homes and landfills, virtually taking centuries to decompose. It was mentioned in the findings that this material could be replaced by the mushroom-based or cane sugar cellulose alternatives (see Appendix A, slide 6) but only packaging was addressed to be resolved. But what about all the fast-food and restaurant cups/containers that are

discarded almost as quickly as the purpose they are meant to serve? If they are meant to be discarded so easily, then it makes sense to make them out of materials that decompose quickly. As this is not the case, more and more piles of polystyrene foam poison our systems, and we have barely just begun to devise alternatives for it. The researcher will strive to find inspirational solutions to the issue, and anyone with creative ideas is encouraged to share them.

If someday waste is no longer looked down upon as the evil monster that needs sequestering, it will be seen in every nook and cranny of homes, buildings, vehicles, streets and neighborhoods as yet another piece of the atmosphere, perhaps even unnoticeable most of the time. While establishments do not need to look like the Cathedral of Junk in Austin, Texas, it is an example of a creative way to repurpose waste, and almost everything is easily recognizable even after its been given a second life (see Appendix A, slide 14). For those that think the aesthetics of trash are not as alluring, there are numerous ways in which these can be concealed in a more formal manner either through cover-ups or paints. The only inspiration necessary is that of nature's way of dealing with waste, the most profound and effective system for growth and consumption. By closing the loop between waste and resource, we find that many benefits are attributed in utilizing materials again and again. Waste will not be a threat as long as we learn to rethink the way we make and discard things and take advantage of what is available.

In the summer of 2013 the researcher hopes to participate in the Earthship Biotope Academy located in Taos, New Mexico. The program offers extensive training in Earthship design principles and philosophy; it is a field work experience and independent study. Aside from building a self-sufficient home are the aspirations of

maintaining an organic garden based on permaculture design. Through this newfound knowledge and further research, the PI will continue to acquire and share inspirational ideas on how to deal with waste.

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Toloie-Eshlaghy, A., Chitsaz, S., Karimian, L., & Charkhchi, R. (2011). A Classification of Qualitative Research Methods. *Research Journal of International Studies*, 20106-123.

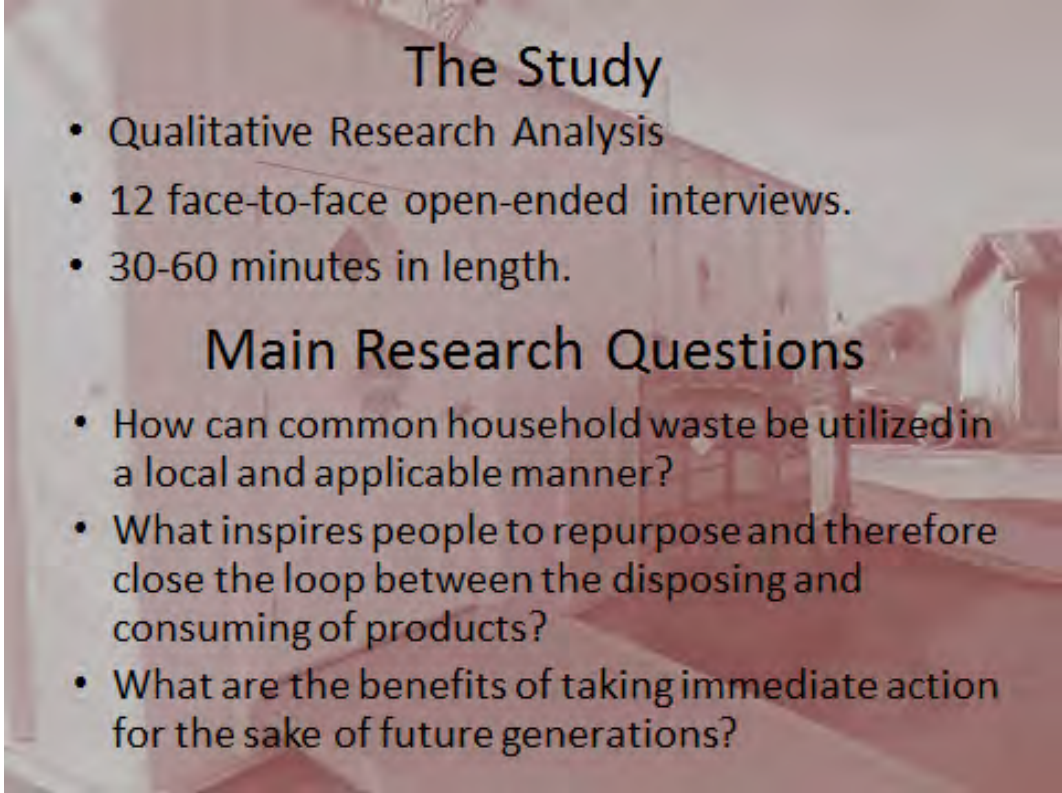
APPENDIX A

PRESENTATION POWERPOINT SLIDES AND VISUAL REFERENCES

Slide 1



Background photo source: “<http://www.euinfrastructure.com/article/uk-landfills/>”

Slide 2

The Study

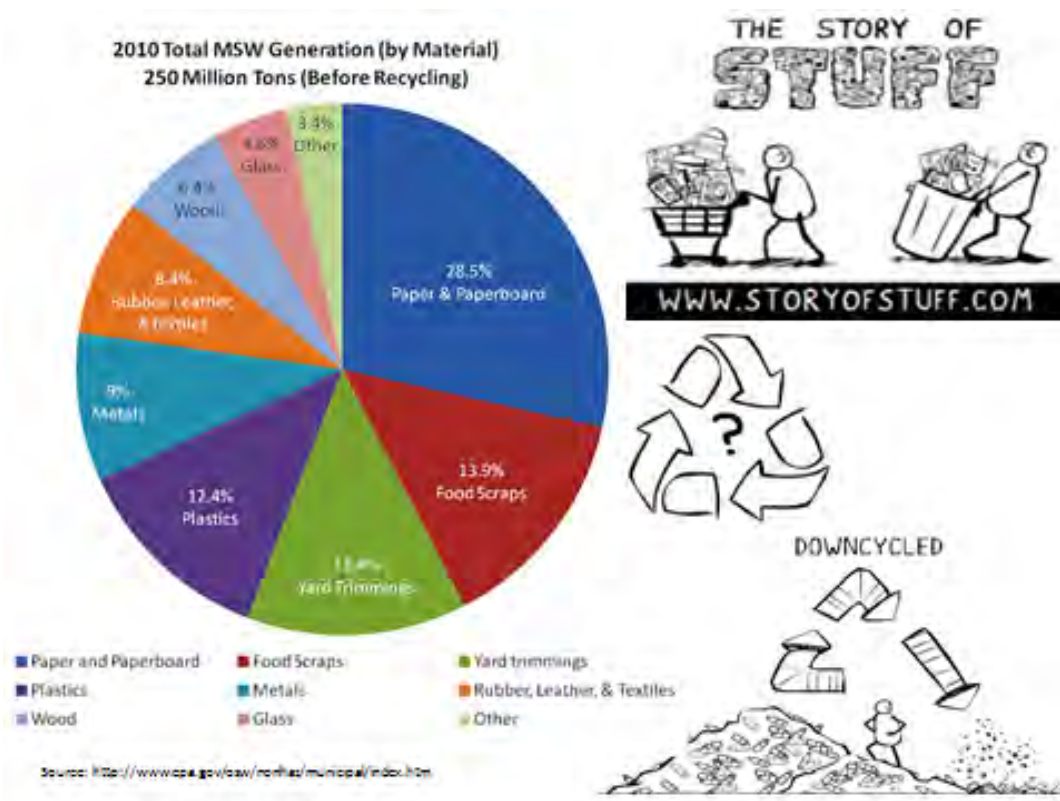
- Qualitative Research Analysis
- 12 face-to-face open-ended interviews.
- 30-60 minutes in length.

Main Research Questions

- How can common household waste be utilized in a local and applicable manner?
- What inspires people to repurpose and therefore close the loop between the disposing and consuming of products?
- What are the benefits of taking immediate action for the sake of future generations?

Background photo: Taken by Andreina M. Alexatos

Slide 3



Pie chart source: <http://www.epa.gov/osw/nonhaz/municipal/index.htm>

Drawings source: <http://www.storyofstuff.org/downloads/images-from-the-movies/>

Slide 4



Top left: Taken by Andreina M. Alexatos

Top middle:

<http://www.shelterness.com/5-cool-kids-toys-you-can-make-of-cardboard-boxes/pictures/11235/>

Top right: <http://www.craftster.org/forum/index.php?topic=361441.0>

Bottom left: <http://pinterest.com/pin/177047829071113398/>

Middle: <http://www.origami-kids.com/airplane-photo/ring-1/3665859547.htm>

Bottom mid : <http://www.flickr.com/photos/myhandboundbooks/2686532949/>

Bottom right:

<http://www.indieprettyprojects.com/2011/04/repurposed-new-uses-for-old-things.html>

Slide 5



Top left: <http://www.duitang.com/people/mblog/11693092/detail/>

Top middle: <http://www.instructables.com/id/How-to-Reuse-the-Bottom-of-a-Plastic-Bottle/>

Top right: <http://imgur.com/gallery/8rtJo>, <http://pinterest.com/pin/177047829071163785/>

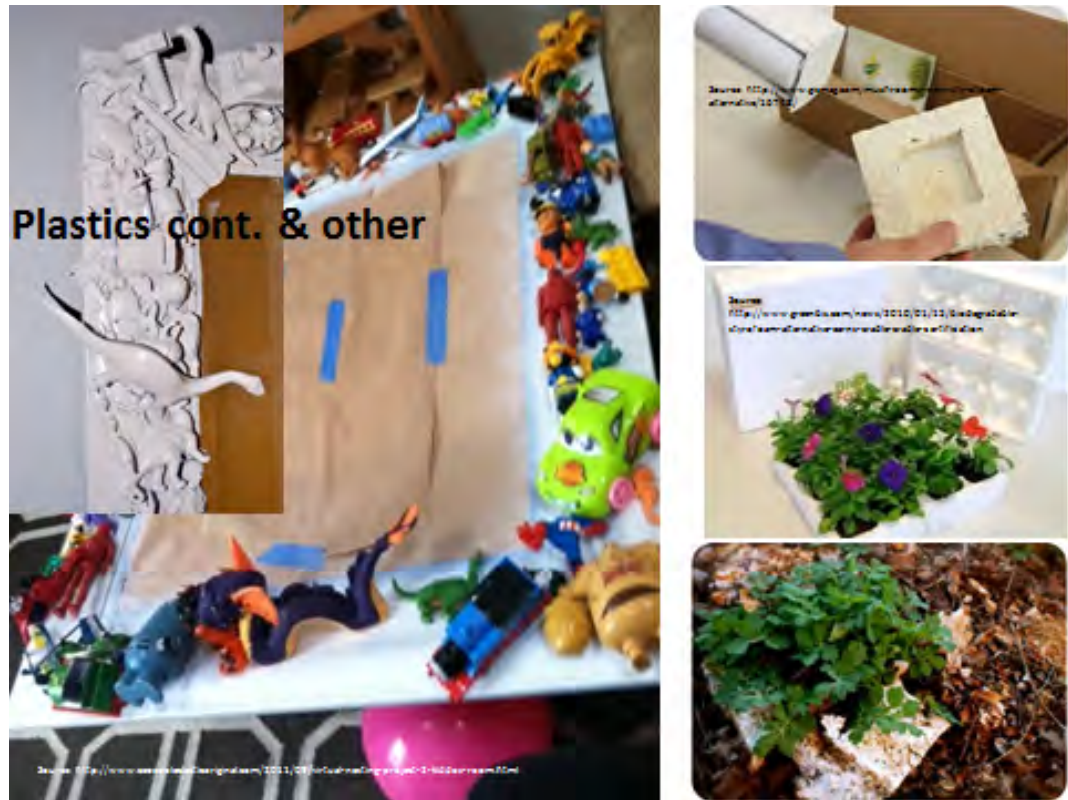
Bottom left: <http://lifehacker.com/5841459/make-a-lunch-box-from-a-milk-jug>

Bottom Mid:

[http://www.makeit-loveit.com/2011/12/holder-for-charging-cell-phone-made-from-lotion-bottle.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+MakeItAndLoveIt+\(Make+It+and+Love+It\)](http://www.makeit-loveit.com/2011/12/holder-for-charging-cell-phone-made-from-lotion-bottle.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+MakeItAndLoveIt+(Make+It+and+Love+It))

Bottom right: <http://www.weblogtheworld.com/countries/northern-america/recycle-bottles-and-grow-your-plants-in-a-bottle/>

Slide 6



Left:

<http://www.cecoolelecticoriginal.com/2011/09/virtual-nesting-project-2-kiddos-room.html>

Top and Bottom right: <http://www.gizmag.com/mushrooms-new-styrofoam-alternative/16748/>

Middle right:

<http://www.greenbiz.com/news/2010/01/15/biodegradable-styrofoam-alternative-earns-cradle-cradle-certification>

Slide 8



Top left and Bottom right: <http://greenupgrader.com/13264/crafty-reuse-ideas-for-old-windows/>

Top right: <http://www.salvagedgrace.com/2011/06/16/repurposing-windows/>

Bottom left and middle:

<http://itsy-bits-and-pieces.blogspot.com/2011/04/more-from-bachmans-spring-2011-ideas.html>

Middle and Middle right: Taken by Andreina M. Alexatos

Slide 9



Top left: Taken by Andreina M. Alexatos

Top middle: <http://tinnedpineapple.com/archives/8271/repurposing-things-bicycles.html>

Top and Bottom right:

<http://whattotrash.blogspot.com/2012/01/repurposing-things-bicycles.html>

Middle left: <http://www.apartmenttherapy.com/etsy-find-repurposed-wall-hook-94228>

Bottom left and Middle:

<http://www.poetichome.com/2008/08/21/vintage-street-signs-re-purposed-into-stylish-decor/>

Slide 10



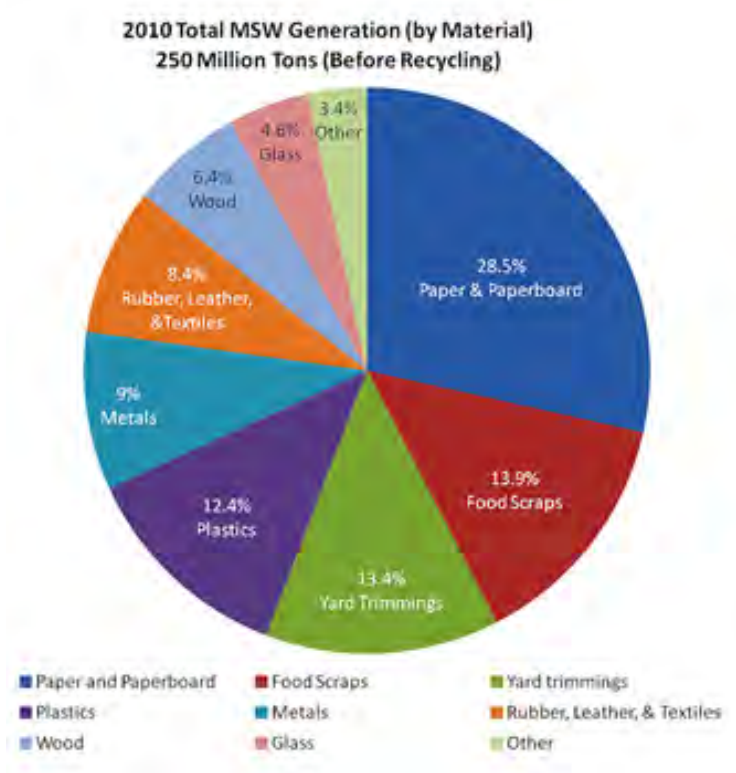
Left: <http://wallacegardens.tumblr.com/post/9991672070/peru-invasion-verde-installed-2010-this>

Top middle: <http://www.jeanniejeannie.com/2011/01/24/fortune-cookie-coin-purses/>

Right: <http://www.bondedlogic.com/news>

Bottom mid: Taken by Andreina M. Alexatos

Slide 11



Pie chart source: <http://www.epa.gov/osw/nonhaz/municipal/index.htm>

Slide 12



Top left: http://www.omick.net/composting_toilets/composting_toilets.htm

Top middle and right: http://www.sunfrost.com/composting_toilets.html

Bottom left, middle, right: Taken by Andreina M. Alexatos

Slide 13



City of San Marcos Hazardous Waste Facility

All photos taken by Andreina M. Alexatos

Slide 15



Top left and right:

<http://www.treehugger.com/sustainable-product-design/21-year-old-cathedral-of-junk-dismantled-after-neighbours-complain.html>

Bottom left and right:

<http://conceptrends.com/2008/07/01/earthships-the-eco-house-of-the-future/>

APPENDIX B

PROOF OF IRB EXEMPTION

Message: Exemption Request EXP2012W8846 – Approval

AVPR IRB [ospirb@txstate.edu]

Sent: Monday, January 23rd, 2012 at 3:57 p.m.

To: Alexatos, Andreina M. [aa1459@txstate.edu]

DO NOT REPLY TO THIS MESSAGE. This email message is generated by
the IRB online application program.

Based on the information in IRB Exemption Request EXP2012W8846
which you submitted on 01/19/12 15:08:22, your project is exempt
from full or expedited review by the Texas State Institutional
Review Board.

If you have questions, please submit an IRB Inquiry form:

http://www.txstate.edu/research/irb/irb_inquiry.html

Comments:

No comments.

Institutional Review Board

Office of Research Compliance

Texas State University-San Marcos

(ph)512/245-2314/(fax)512/245-3847/ospirb@txstate.edu/JCK 489

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