

Analyzing E-Waste Exports to the Chinese City of Guiyu with a Utilitarian Ethics

Approach

STS Research Paper
Presented to the Faculty of the
School of Engineering and Applied Science
University of Virginia

By

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March 1, 2020

On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

In 2002 the Chinese city of Guiyu became known to the public as the most notorious electronic waste dumping site in the world. Around 100,000 men women and children were employed to break down discarded computer parts that mainly came from the United States. All water in the city had become undrinkable due to heavy metal pollution, and the air had become toxic with ash from the burning of wires to recover copper (Puckett & Smith, 2002). Jim Puckett, one of the reporters on the situation said that they had found “a cyber-age nightmare” (Shabi, 2002).

The city of Guiyu is commonly used as an example to show the consequences of consumerism, technology, and how e-waste can be dangerous to those ill-equipped with means to recycle. The city is also a case study on international and environmental law, and how governments have overlooked communities with a lack of infrastructure. There exists however, little discussion on the whether exporting e-waste to Guiyu is an ethical act in and of itself. This is likely due to a large body of the research surrounding the city being policy driven, advocating for a course of action on how to fix the e-waste problem. If we fail to look at the ethical aspect of the exporting e-waste to Guiyu, then policymakers will not know when exporting from affluent nations to impoverished ones is acceptable, and electronics producers will fail to have a moral understanding and sense of responsibility regarding their products.

In this paper I will argue that e-waste exports to the city of Guiyu were unethical in the past when the city was unequipped to deal with the problem. Using a utilitarian ethics framework, I will keep track of the positive and negative outcomes from e-waste exports in Guiyu, and argue that the environmental and health costs suffered by Guiyu outweigh the economic benefits gained by the exporters or workers.

Background

The City of Guiyu started as a small rice farming village that was also a center for river transportation. In the 1950s when highways were introduced to the region, many of the residents decided to make their living through primitive recycling collecting scrap metal and pig bones (Frey, 2012) as waterways became less popular (Zhang, 2009). With the Information Age and the rise of consumer electronics in the late 1980s e-waste has become the primary economic driver for Guiyu. The conditions in Guiyu as a result of e-waste exports were first brought to the public eye by the Basel Action Network (BAN) documentary and report titled *Exporting Harm*, released in 2002.

Literature Review

The pollution as a result of e-waste exports to the City of Guiyu are well documented, as are the adverse health effects of e-waste on the people who live there. E-waste containing heavy metals such as lead, cadmium, mercury, and arsenic, have leaked and spread throughout the soil and water of Guiyu and its surrounding farmland and agriculture (Shabi, 2002), and the air has been polluted by underdeveloped ways of disposing of e-waste, such as burning or acid baths (Watson, 2013). The health effects as a result of this pollution are can be debilitating for the citizens living there. The heavy metals have been directly linked to a number of health issues in the children of Guiyu, impacting every major system in the body including the respiratory system, the cardiovascular system, the nervous system, the urinary and reproductive systems. Heavy metals in Guiyu have also been linked to lower birth weights, and even DNA and chromosomal damage (Zeng, Xu, Boezen, & Huo, 2016). There are a number of resources describing the adverse effects of e-waste on the citizens of Guiyu and the environment, however these papers are purely scientific in nature.

Creating effective policy and legal actions to fight back against the e-waste crisis in Guiyu has been only somewhat effectual. The Chinese government has joined the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, however a majority of the e-waste is imported from the United States, a country that did not join the convention, making the Basel Convention ineffectual (Zhang, 2009). Unable to stop the flow of e-waste into Guiyu entirely, the Chinese government has worked to fight against illegal importing of e-waste, and instead has focused on using domestic e-waste to fuel Guiyu's economy. Large e-waste recycling plants with more rigorous standards for pollution have been built in Guiyu in order to formalize the recycling process and make e-waste disposal safer for the workers. With the creation of these plants, the Chinese government has tried to phase out smaller businesses dealing with e-waste or integrate them in order to meet e-waste treatment requirements, however they have not been entirely effective as many small businesses simply changed locations or went underground (Zhang, 2009). While research on policy strategy and effectiveness are key in planning a future course of action, they do not pass judgement on the morality of exporting e-waste to Guiyu.

Some scholars have tried to map out the flow of e-waste, tracking it through global networks. Lepawsky and Mather specifically looked at the flow of e-waste from Canada to Bangladesh as a case study to argue that current thinking about e-waste is too limited. They examined the current frameworks used to examine exchange of e-waste from one location to another and decided that rather than use a linear exchange system, it would make more sense to use an actor network theory approach due to the complexity of the global economy. They also explored the idea that there is no real end point for e-waste as it travels throughout networks, as

it continues to have value and circulate back into the economy even at places that are usually considered final destinations.

Ultimately, while scholars have analyzed the effects of e-waste in Guiyu, the policy and legality of the situation, and how e-waste travels through an actor network approach, scholars have not yet adequately considered whether e-waste exports to the city of Guiyu should have been permitted or not using an ethical approach. This paper will use a utilitarian ethics framework to develop a normative judgement on e-waste exports to the city of Guiyu.

Conceptual Framework

A utilitarian ethics framework can be useful in analyzing the e-waste crisis in Guiyu, because of how it examines the consequences of actions. Utilitarianism is a moral framework that judges how moral an action is based on the amount of human pleasure, happiness, or welfare it provides. It was founded by Jeremy Bentham who connected his idea of utilitarianism to hedonism, which is the idea that pleasure is the most vital thing to strive for. Bentham argued for an idea called the utility principle, which says that the only moral criteria for choosing an action should be that the action creates the greatest happiness for the greatest number of people. In order to help make a decision over which course of action to take, a moral balance sheet can be drawn up in order to weigh the costs and benefits of an action's outcome (van de Poel & Royakkers, 2011).

Utilitarianism is more nuanced than simply creating a list of pros and cons however, as pain and pleasure can be prioritized differently across individuals. John Stuart Mill added to utilitarianism taking this into account, saying that some pleasures are more valuable than others (van de Poel & Royakkers, 2011). In his book *Understanding Utilitarianism*, Tim Mulgan

expands on this idea by introducing the idea of lexicality. Lexical importance means that certain aspects of pleasure trump others, and are always to be prioritized as more important when weighing possible outcomes of actions. For example, environmentalists might argue that protecting the environment is lexically more important than profits. That is to say, no amount of money would be worth cutting down a rainforest.

Another key concept that John Stuart Mill introduced to the utilitarian framework is the freedom principle. The freedom principle states that everybody is free to pursue their own pleasure, so long as what they are doing does not harm others, or interfere with their pleasures (van de Poel & Royakkers, 2011). This idea is somewhat incompatible with modern utilitarianism however as most moral problems involve weighing some kind of risk against another. Modern utilitarianism also attempts to patch some of the moral flaws of classical utilitarianism. Because classical utilitarianism is prone to exploitation and unjust distribution of risks and benefits, Henry Sidgwick believed that situations with the most equitable distributions of happiness should be pursued in order to have distributive justice (van de Poel & Royakkers, 2011).

In this paper, my analysis will use utilitarianism to determine whether exporting e-waste to the city of Guiyu was moral. I will weigh the costs and benefits that e-waste exporting to the city of Guiyu had for the people involved, and use the idea of lexicality will help categorize different facets of the Guiyu conversation, including human health, the environment, and economic benefit. Although the freedom principle is not necessarily applicable in the context of a nuanced moral argument, I will draw upon it to examine how some parties in the e-waste situation are aware of the severity of the harm that is being caused. Finally, I will use the concept

of distributive justice to help address some of the biggest criticisms of utilitarianism when applied to the e-waste and the city of Guiyu.

Analysis

In this analysis, I will start by looking at the beneficial aspects of e-waste exports to the city of Guiyu. While my overall claim may be that e-waste as a whole was detrimental to Guiyu, it would be negligent from the perspective of a moral balance sheet to not also examine how exporting e-waste was in some ways profitable for the citizens and exporters.

Exporting e-waste is beneficial to corporations in developed countries, as they are paying a small amount for an expensive problem to be taken off their hands. This idea is known as cost externalization, and is used to describe situations when a business maximizes their profits by having somebody else pay the indirect and negative costs associated with an action (Puckett, 2016). From a perspective that smaller in scope, it is difficult to condemn the companies that export their e-waste. They are saving money for their organization through exports to countries with less environmental regulation. In a bubble, exporting e-waste is the best option for businesses with essentially no downside, and as the United States refuses to sign a ban on toxic exports, exporters are unlikely to stop any time soon (Shabi, 2002). I want to look at the totality of the situation, and the reality is that workers pay with their health later down the line as does the environment, which will be addressed later.

The argument can also be made that importing e-waste is beneficial to the citizens of Guiyu, because they would otherwise not have those resources. The e-waste recycling industry in Guiyu employed over 150,000 men women and children as of 2012, many of which are migrant workers (Frey, 2012). Some of these workers even expressed gratitude for the jobs that they had

found, preferring e-waste recycling to a factory line due to the flexibility in working hours and the fact that their children could be kept close while sorting through piles of scrap (Watson, 2013). As the Chinese government has begun to implement environmental regulations and cracked down on foreign waste imports, the workers in Guiyu have found their incomes going down. One man interviewed by CNN even asked, “Why are they stopping the garbage from reaching us? Of course it’s hurting our business (Watson, 2013).” While it is difficult to argue against the residents living there who think of themselves as fortunate because of the jobs that they have, it is important to remember that e-waste recycling is not the only job in the region. Guiyu has always been known as a fertile land for rice farming, and rice is still exported from the city today even though the farmers refuse to eat their own product due to justified concerns with toxicity (Watson, 2013).

Another benefit of importing e-waste to Guiyu is that recycling reduces pollution associated with mining raw materials, and overall reduces energy use and carbon dioxide emissions (Frey, 2012). As an example, much of the plastic recycled in Guiyu is sold to Foxconn, the company that manufactures products for Apple and Dell (Watson, 2013). It is important to realize however that just because recycling in the city of Guiyu has some beneficial environmental effects, a utilitarian approach seeks the action that maximizes the positive outcomes for the many. The e-waste in Guiyu could have been exported to a location better equipped with recycling methods that do not endanger the workers or the environment, reaping the benefits of recycling without the harmful effects.

With the economic and environmental benefits of exporting e-waste to Guiyu observed, I can now proceed to show why the environmental and health hazards far outweigh them. The first reason is that e-waste is toxic and causes irreparable damage to the environment. Attempts have

been made to clean up the pollution in Guiyu that have only been somewhat successful. The local government started a pilot program to treat polluted land in the area, but it ultimately was discontinued due to the high costs (Pingshui, 2017). Puckett said the e-waste crisis as a permanent error, and described the toxic components used in electronic products as “immortal”. If we are to approach a permanent problem from a utilitarian perspective, no amount of temporary economic gain would be enough to justify the cost from creating a problem that cannot be solved.

It can also be argued that to some people, the environment is lexically more important than economic gain. Chen Xinrong is a businessman in the city of Guiyu, who became successful in the early days of e-waste importing. He runs a small business salvaging aluminum, but with the more stringent import laws he found his business on the decline, from processing eighty tons of scrap a month to only ten (Pingshui, 2017). Even with the loss of income he is grateful for the change, saying that, “The environment is very important. What is the use of all the money if you have to live in a horrible environment (Pingshui, 2017).” Health is also lexically important to the citizens of Guiyu when compared to economic gain. Yang Linxuan grew up in Guiyu and “always felt like coughing” when growing up (Pingshui, 2017). When all the e-waste processing was consolidated to one part of the city, Yang saw the costs of his business go up significantly. He expressed however, that even with less income, he was glad that processing took place further from his home as it was “free of the stench of metal extraction (Pingshui, 2017).” These sentiments expressed by the citizens living in Guiyu show how they prioritize the environment and health over economic gain. When approaching e-waste from a utilitarian perspective it is important to understand what the citizens of Guiyu find lexically important to them. This is another reason to argue that the health and environment costs make exporting e-waste to Guiyu morally wrong.

Rather than just looking at what a few individuals find lexically important, another way to use a utilitarian approach is to see what policies have been implemented as a result of the e-waste situation in Guiyu. The central Chinese government banned e-waste imports in 2002 shortly after the report and documentary by the Basel Action Network (Frey, 2012). This shows that the government weighed the costs and benefits of e-waste, and decided that e-waste importing did not support the best interests of the citizens of Guiyu. The Basel Ban Amendment created by the U.N also recognizes the negative costs associated with exporting toxic materials. Some major countries refuse to honor it, as they do not have to experience the costs associated with e-waste exports. The U.S, Canada, Australia, New Zealand, Israel, Japan, and South Korea would prefer to reap the economic benefit of exporting toxic waste to impoverished communities with a lack of regulation (Puckett, 2016). Extended producer responsibility (EPR) is another type of policy that holds producers responsible for recycling the products that they put into circulation (Puckett 2016). I believe that EPR shows that governments recognize that producing electronics has a negative impact on the environment whether exported or not, and are trying to curb it. EPR recognizes that while creating and selling products brings pleasure to many people, if the products are not collected at the end of their lifecycle then the created e-waste will eventually hinder the pleasure of others. EPR follows the freedom principle of utilitarian ethics and provides a moral solution to the problem that eliminates the negative environmental and health effects of e-waste, by eliminating e-waste altogether and not simply banning it from being exported.

Although I have argued that health and environmental factors are lexically more important than economic benefit, I should also attempt to find a monetary cost for those who do not agree with my assessment of lexical importance. Unfortunately, it is difficult to put monetary

value on hazards that may occur as a result of e-waste in Guiyu. Scott Frey puts it best when he said that “adverse health, safety, environmental, and socio-economic consequences are not traded on the market place”. And yet, sometimes a life is judged by monetary value. Former Chief Economist of the World Bank Lawrence Summers expressed that it does make sense to displace environmental harms to poor areas, because “measurements of the costs of health impairing pollution depend on the forgone earnings from increased morbidity and mortality (Frey, 2012).” Workers in Guiyu made as little as \$1.50 a day in 2002 (Puckett, 2002), and therefore ended up subject to some of the most dangerous jobs. In essence, their lives are valued as being worth less. This is one utilitarian approach to the question of whether e-waste exports to Guiyu are right or wrong if we are to believe that human lives can be valued with money. I argue with distributive justice however, that human dignity is essential when using a utilitarian approach. All humans deserve baseline of happiness, safety, and respect, and placing a monetary value on human life can be seen as a flawed utilitarian argument that can lead to justifying human rights violations such as slavery (Mulgan, 2014).

Another argument might be that while the working conditions may be bad, people are not frequently dying from them. The workers do however suffer from chronic conditions (Zhang, 2009), and their children suffer from developmental problems that could affect their entire life (Zeng, 2016). From a utilitarian perspective these health issues are causing a significant amount of prolonged suffering, an outcome which should be avoided to make the most morally correct decision.

Conclusion

In this paper, I claimed that e-waste exports to the city of Guiyu were unethical. I drew upon a utilitarian ethics framework in order to help consider the positive and negative outcomes

from e-waste exports to Guiyu, and used the idea of lexicality to show that the environmental and health of the citizens are categorically more important than the economic benefits. I also examined existing policy to provide evidence that e-waste is harmful, and applied distributive justice to support the idea that all humans should have a baseline of happiness and respect.

It is important to examine exporting e-waste to Guiyu as an ethical issue, because policy makers have a difficult task in creating moral policies that are beneficial to the greatest number of people. Engineers also have a role to play in understanding how come up with ethical designs that bring pleasure to the greatest number of people, even after the products they create they are broken, old, or obsolete. I hope that this paper provides a roadmap to understanding e-waste in Guiyu, and demonstrates when exporting waste is not ethically acceptable.

Word Count: 3327

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