

The Foreign Human Rights Abuses of the Modern Electronics Industry

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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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I. Introduction

In today's modern age, one can see portable electronic devices almost everywhere they go. Laptops out in coffee shops, smartphones out everywhere in public, and the list goes on. One's eyes do not deceive them, and, in fact, they are further validated by worldwide statistics. In 2023, it is estimated that a total of 1.16 billion smartphones were sold worldwide (a number that totals about 15% of the entire population), and this does not include laptops, tablets, electric cars, or other handheld devices. Even with the sheer amount of reach that the devices have now globally, this was not a standard even as short of a time as 15 years ago. In sum, there has been a rapid growth in the amount of devices in our world over the past 15 years because it is the latest technology, and there also has been an increase in accessibility to the product with the long tenure and prevalence of such devices over these 15 years (i.e. While still being rather expensive, there are older versions of each product that are cheaper and easier to buy).

With an understanding of the global scope of this technology, it is noteworthy and logical to say that there are many outside factors/actors that both affect and are affected by the technology. To name a few, there is the media in their coverage and role in promulgating the emergence of new technologies, consumers who choose to buy said technology for whatever reason, laborers/manufacturers that work to get the technology ready for sale, and public policy/government officials who are forced to make decisions surrounding the implications and uses of technology, so, in a way, policy is influenced by and influences technology.

Taking the manufacturing side of the actor list and giving it a deeper look, it is logical to claim that the rising demand and emergence of portable electronic devices influences the manufacturing process in some way. This is the basic concept of supply and demand, the more something is in demand the more you have to supply it to meet consumer needs. Another thing to note is that every single one of these devices uses a lithium ion battery for the devices to be

rechargeable. While further background of lithium ion batteries will be discussed later, it is important to note that they all use the element cobalt to produce. This element (and other materials) must be mined or extracted in some way and by some means, and herein lies the crux of my sociotechnical topic. It is known that mining conditions are less than favorable, but in and of itself that is not the problem. The problem at hand lies in the sad truth that laborers behind the manufacturing process for these devices are experiencing human rights and labor abuses with their working conditions and circumstances, essentially analogous to modern day sweatshops.

Therefore, with all of this context in mind, the sociotechnical topic that I am addressing with my STS research is the question of how the development of modern, smaller, and more powerful electronics has led to a rise in slave and child labor in foreign countries because I want to find out why the media and general public are silent on or indifferent to this tragedy. This is important because not only is it necessary to bring light to this topic, but I believe it is necessary to understand why those individuals or groups who are cognizant of the situation might choose to “push it to the side.” The technical dimension of this problem has to do with the advancement of modern electronics, particularly those that require precious metals to run efficiently. As mentioned earlier, with electronic devices becoming smaller and smaller (yet more powerful), the demand for such potent machines has risen significantly, as they are now common household devices with most families/homes having (many) more than one. This rise in demand has inevitably led to the rise in demand for precious metals which these machines use that are not widely available and require mining/hard labor to obtain and produce. The human and social dimensions of this problem involve the rights of the exploited workers/children and human labor rights in general. It also involves the cause and effect of the rise of an institution/system that uses this method of labor exploitation as its standard of operation. Furthermore, it involves the people

that are looking in from the outside on this issue, those who are unaffected and ignorant, and those who are unaffected and cognizant of the issue.

II. Background and Significance

Just as the electronic devices have a global scope, so too does labor abuses. Firstly, the present day background and situation surrounding the human rights abuses will be described from two notable countries that carry out this practice, the Democratic Republic of Congo and Malaysia. An article from the Guardian brings to light what is happening in the Democratic Republic of Congo, where men, women, and children undergo severely harsh conditions for no pay in cobalt mines (Kara, 2018). According to the article, it is found that China runs and supervises many of the cobalt mining sites in the DRC, which they then use to supply big tech companies that use their technology in the process. In sum, China uses exploited labor to harvest materials needed in modern electronics (particularly lithium-ion batteries) which they then sell to big name electronic companies that we know today. According to another article published by NPR News, the DRC produced about 74 percent of the world's cobalt in the year 2021, and "Some 20,000 people work at Shabara artisanal mine in the DRC, in shifts of 5,000 at a time," to put it into context (Gross, 2023). Now, one might ask themselves, "why the need to use cobalt?" and, to put it simply, the cobalt provides a greater "energy density" within the battery so that more energy can be stored up and carried per volume.

On the Malaysian side of things, an article published by The Atlantic, presents an argument that the backbone of the electronics industry is built on an ugly foundation of forced labor that unfortunately is the driving force in the machine (Ramchandani, 2018). The primary argument is further supported by a statistic that it presents. The statistic comes from a study done by a group called "Verité" in which 400 Malaysian migrant workers were surveyed and it was

found that a whopping 32 percent of them were doing work against their will (Verité, 2014). The article particularly focuses on these human rights abuses in Malaysia, but it also argues secondly that when a country is regarded as having a “booming economy,” it can often be a facade for the concealed truth of human rights abuses that may be happening to run the “machine” that its economy might be built around. In sum, a country can be doing well economically and financially, but it doesn’t say anything about their internal practices/methods. These migrant workers come from all over into Malaysia and work in these electronics factories. According to the New York Times, the countries include Bangladesh, India, Myanmar, Nepal, Vietnam, and others (Greenhouse, 2014).

As one can see, this question has global implications, and is a pertinent social issue of our time in the modern world.

III. Methodology

As a reminder, my STS question is how the development of modern, smaller, and more powerful electronics has led to a rise in slave and child labor in foreign countries because I want to find out why the media and general public are silent on or indifferent to this tragedy. With regards to methodology, this is a relatively stacked question with a lot of factors that require consideration. Firstly, literature will be consulted to provide context to the introduction, background, and discussion and results sections. As the introduction and background sections are already written, now comes the portion where the question must be answered in the discussion and results section. I will use the relational view theory as an analytical framework to synergistically integrate social and technical aspects of the STS topic. This theory also provides a framework for analyzing technology in the context of how it is made.

This framework can help me understand the problem to a greater degree because it ties the technological dimensions with its social context. This synergistic method helps holistically present the problem always with both contexts in mind, to give the full picture of the STS topic throughout the entire paper.

. Furthermore, as there are a lot of actors within the question, the evidence will be analyzed using an approach that considers human actors and parties as both subjects and objects that considers both their perspective as subjects but also the rights due to each as objects with dignity. Considering the source of the evidence, it will come from online resources (particularly mainstream media outlets and also smaller study-based outlets) and scholarly articles (those that address this issue head on) and will be interpreted in an objective manner (i.e. I will keep an eye out for all facts, not just those that support my proposed hypothesis of the situation). In sum, I will consider all of the facts, not just picking and choosing what sounds the best for my research/ not only that which would slam the electronics industry. Finally, regarding my attempt to try and “prove a negative” and claim that people are ignorant of this topic, I will attempt to gather the frequency in which this topic is talked about. The goal is to put into context the history of the situation juxtaposed with the amount of news articles published throughout that period of history.

IV. Literature Review and Discussion/Results

To address the research question above with the new lens of my own literature review, I will first lay out all of the context surrounding the situation of forced labor particularly in the cobalt mines of the Democratic Republic of Congo. I will then name the actors in these circumstances, address their role within the story, and apply the relational view theory to each.

What is the reason and the driving force behind this dire need and mass production of cobalt? The answer, as mentioned before, is essentially that all electrical devices with

rechargeable batteries contain cobalt in their product, in what are called lithium-ion batteries. I will not dive deep into the chemical and physical theory, but cobalt is used within the battery because of its more than favorable energy density and thermal properties (Roos, howstuffworks). With the batteries' energy efficient qualities, it is no wonder why large companies that produce products with rechargeable batteries use them, with very notable examples of Apple and Tesla at the helm.

With an estimated 70% of the world cobalt production staged in the DRC (Home, 2023), and with an estimated 50 percent of the entire known world's supply of cobalt under their land, it is no wonder that the demand for a massive production of cobalt is traditionally met by the country. Out of this 70 percent, about 15-30 percent, according to the Siddharth Kara, "is sourced from 'artisanal mines' where thousands of freelance miners work in 'subhuman' and 'degrading' conditions for only a few dollars a day" (Norton, 2023). According to the Council of Foreign Relations (CFR), "ASM cannot simply be shut down, however. It is a lifeline for millions of Congolese who live in extreme poverty. Cutting ASM out of the cobalt supply chain is neither feasible, due to the interwoven nature of the cobalt supply chain, nor desirable from a development perspective"(CFR, 2020). On top of all of this, the problem takes on a new dimension, and a rather large one, especially within the development of recent years. The problem I speak of is the new focus on environmental sustainability, particularly the fresh and rather widespread (but not absolute as of 2024) commitment to cutting carbon emissions released into the Earth's atmosphere. A main factor and conversational point in this present day development is the discussion on vehicles particularly. The traditional car model utilizes gasoline to provide energy to the car and its movement, but the structure of the internal workings of those vehicles allow carbon emissions to flow out of the exhaust tailpipe while the car is running.

Since cars are such a crucial part of transportation, especially in the day to day commute of millions of Americans (let alone members of other countries around the world), one can see that these emissions are adding up. Solutions of communal transportation only go so far, but recent years have shown that there is a better, new, and apparent solution to this problem: electric vehicles (EVs). These cars have no need of an exhaust pipe, rather, they run entirely off of electrical power. With this recent development, electric cars are the cornerstone when it comes to the sustainability conversation. Many proponents of sustainable energy solutions encourage the uses and availability of these vehicles, as they offer this 0 carbon emission energy promise. As one might have guessed, apart from the pricing of such cars, there is a setback that taints the reputation of them for the time being; and that is exactly how it ties in to this socio-technical topic. As one might have guessed, the cars' "fuel" is electric power in the form of a rechargeable battery, and that rechargeable battery is none other than a lithium-ion battery.

With the rise in sales and prominence of electric vehicles, and even with, according to the Council of Foreign Relations, European governments "encouraging the sales with generous environmental bonuses," there is an even bigger demand for these lithium-ion batteries and, as a result, the cobalt necessary to manufacture them. The Council of Foreign Relations also projects that the demand for cobalt for use in batteries will grow "fourfold in 2030 as a result of this electric vehicle boom." This demand, as one can conclude, does not help, but rather hurts the situation in the DRC and also the issue of sustainability, as the demand for cobalt rises with fresh sustainability goals, but the means by which they are met are tainted until the situation in the DRC is resolved. One might even argue, as Michael Posner from Forbes does (Posner, 2023), that things will only get worse in the DRC as the demand for cobalt increases, and the human

rights situation must be reformed before the world can meet its new and rising demand for the element in EVs.

With the context provided above, one can see the grave nature of the problem at hand in the DRC, along with the multitude of actors and stakeholders that could possibly have direct impact or who are directly involved with or affected by the current circumstances.

To shift the focus now on the actors, I will first make a note of and list all parties who are in some way, directly or indirectly, involved in the current situation in the DRC. The list includes firstly the exploited laborers in the artisan mines, that of which includes children, the big tech companies that utilize cobalt to create rechargeable batteries, government officials and policy makers countries around the world, and lastly consumers of products that utilize the lithium-ion batteries. The exploited laborers find themselves at the central role of the story, and even with all of the other actors' looming circumstances, ideas, or roles in the situation, they deserve to be the center of attention not to be lost in the forest of complexity. The fact of the matter remains, put gravely and bluntly by Siddharth Kara, "Hundreds of thousands of poor Congolese people, including tens of thousands of children, are digging cobalt out of ground in extremely hazardous conditions for barely a dollar or two per day. They suffer shattered bones, toxic contamination, and are buried alive in tunnel collapses" (Gross, 2023). Their relation to the technological aspect of the STS topic is one of massive importance and of a crucial nature, as without this massive cobalt production there would be virtually no demands met in the EV or smartphone industry. The sad truth is, of course, that these demands are being met by means of bloody hands. With regards to overall control in the situation, they virtually have none. They are stuck in a more than toxic circumstance, as mentioned by the Council of Foreign Relations, "Artisanal and small-scale mining cannot simply be shut down, however. It is a lifeline for millions of Congolese who live

in extreme poverty” (CFR, 2020). One can see that yet another layer of injustice is unveiled in the workers’ role in the industry. There is virtually no internal way out of the vicious cycle that they face, and they need the support of influential names around the world. With that in mind, I shift the focus now to the second listed actor, the big tech companies, particularly Apple and Tesla. Their role in this story is simple, the companies sell products that contain lithium-ion batteries, and such products are in high demand. Some have cited a report from Amnesty International as the pressure that sparked a verbal commitment to change from said companies. Whether or not the intention behind their commitments were genuine or merely damage control, there have nevertheless been some changes in the way some conduct their business (albeit still somewhat tainted). According to National Geographic, “Automaker BMW has been sourcing cobalt from Morocco and Australia for its electric vehicles since 2020” and “Apple and Tesla have pledged to reduce their cobalt use or source it from more responsible producers” (Norton, 2023). However, “While Tesla has reduced its average cobalt use by more than 60 percent and is now using cobalt-free batteries in its new car models, the EV automaker has also inked a long-term deal with the world’s largest mining company Glencore, for 6,000 tons of DRC-sourced cobalt a year.” According to The Verge, Glencore is “a mining giant with at least 70 allegations of human rights abuses against it” (Calma, 2023). On a more positive note, Apple has committed to using 100 percent recycled cobalt in its designed batteries by 2025, according to The Verge (Calma, 2023). The holistic solution would be to authentically reform the situation in the DRC because of the many adults living in extreme poverty that rely on the work, but the commitment to recycling cobalt is a positive solution so long as the situation remains unreformed. It is no doubt that these big tech companies have some of the most power when it comes to their influence over this situation. They are the ones who are directly responsible for

where their supply of cobalt comes from, so they must be held accountable in this conversation. The next powerful actors in this conversation are the government officials and policy makers. They face, especially in present times, the dilemma (as mentioned previously) of pushing for sustainable practices in the automobile industry, particularly the availability and production of electric vehicles, but at the same time on the other side of the world the cobalt labor crisis persists. The US government in particular has been in a similar position before. With regards to sustainability, solar panels and energy are important in promoting clean energy, and, according to E&E News, “the United States cracked down on imports linked to the Chinese government’s repression of Uyghur Muslims” (Holzman and Iaconangelo, 2022). Through this action (which applied to the solar energy industry), the United States has rightly set a precedent of valuing human rights and stopping/reforming labor abuses before the ends of meeting sustainable energy goals. National governments’ role in the reformation of the cobalt ordeal is one of significant importance and power, and, according to Reuters, even Microsoft has stated that “It will need a coalition of government, industrial producers prepared to offer sites for artisanal workers, battery makers and the big brands at the end of the cobalt supply chain” (Home, 2023).

Lastly, the focus will turn to the actors that are directly addressed by my problem statement: the general public consumers and the media. The above paragraphs in this section address the first part of my problem statement (How the development of modern, smaller, and more powerful electronics has led to a rise in slave and child labor in foreign countries). The above paragraphs subsequently address the most important and influential actors in the situation, but it also gives light to why (unfortunately) there has not been a swift end to this tragedy. The general public consumers and media have their own role and relation to the situation, but it is not nearly as influential as the larger actors as described above. The media’s relation to the cobalt

debacle is that they are charged with bringing to light the situation in an honest manner, while the general public consumers' role is that they are the target audience for such devices that use cobalt.

Now, as a reminder, the second part of the problem statement is “because I want to find out why the media and general public are silent on or indifferent to this tragedy.” Upon researching this aspect, it can be seen that a multitude of large media outlets actually picked up this topic after, mentioned before as the spark that ignited companies to release statements, the initial report from Amnesty International came out. The report came out in January of 2016, and the majority of articles and news reports that I have used as citations date back to January 2016 or later, further adding to the evidence that this report was a crucial spark that ignited the coverage, both within the media and corporate world, of the situation in the DRC. The question that remains unanswered is: Did media outlets know of the tragedy before this report, and more importantly, did big tech companies know before the pressure from the Amnesty International report was put upon them? One cannot prove this negative, so I will operate under the assumption that the media did not know until the report was released, further painting them in a more positive light in opposition to my previous assumptions in my problem statement. The fact remains that it might have taken one outlet (that can be taken as media with their report) to fuel this fire.

Since the media aspect is addressed, now the focus will turn to general public consumers and the question of their indifference. Once again, upon further research, I found that there is evidence supporting the claim that customers would be more likely to buy something if they knew it were ethically sourced/produced. According to an article from Forbes, there was a study done by OpenText in 2021 that claims that “71 percent of respondents said that businesses have a

responsibility to ensure their suppliers abide by an ethical code of conduct” and “From a pool of over 25,000 global participants, the respondents indicated that they prioritize buying products that are ethically sourced, would pay about 17.5 percent more for these products, and believe companies should be more transparent in their sourcing processes” (Banker, 2021). This study, while not done with specific reference to the cobalt crisis, highlights that there is strong evidence that consumers do care about ethical supply chain practices, directly opposing my initial assumptions. Whether it be from a newfound public cry to live and buy sustainably or for any other reason, the fact remains that the recent trend for consumers is to care about the supply chain they buy from.

Therefore, to answer my second part of the research question, I have to point out that my findings with media coverage and consumer care directly contrast my initial assumptions that went into the framing of the research question. Firstly, attributed the rise in demand of cobalt-used devices such as EVs, phones, and laptops to the silence and possible indifference of these two parties, but I failed to recognize that in many of these cases, people could find themselves having to buy laptops or phones that they realistically need (and not merely want) from an industry like this where the question and controversy surrounding cobalt is the standard, and there is little to no alternative. In the case of EVs, I neglected to consider that the rise in manufacturing processes and availability of such cars directly impact the sales (i.e. more cars available, more sales with regards to Tesla), and that the rise in sales in and of itself does not point to the neglect of consumers. Once again, I will give consumers the benefit of the doubt and say they are put in a predicament where it is unfortunately the standard. Inversely, if I were analyzing clothing items, there possibly would be more data with consumers resorting to

alternatives when a fashion company is found using sweatshops. In the lithium-ion battery industry, however, an alternative is unfortunately seldom the case.

Upon further reflection, I believe that I framed my question with the lens of consumers and media having the power, but my own research, especially in the contextualization of the problem, highlights that, as mentioned above, the situation that consumers are in is a directly result of the powers that precede them in influence. Consequently, upon further consideration of the situational context, my attribution to power was likely an incorrect assumption. Nevertheless, the above paragraphs provide light to those actors who possess the greater influence.

Therefore, the first part of the research question is answered in the contextualization of the situation, and the rationale behind its still existing nature, especially in the discussion of supply and demand and sustainability goals. In the answering of the second part, however, I have found conflicting evidence to my initial assumptions of indifference and ignorance.

V. Conclusion

Are there probably people of the general public out there that choose to push this tragedy to the side? Most likely, but are they significantly represented by the evidence? No. Perhaps I should have asked the question why there hasn't been a swift end to the problem on the part of the larger actors. I can spend much time reflecting upon the framing of my problem statement initially to wrap up the paper, but that would be time ill spent. To conclude, I will reiterate a statement made in the previous section. "The exploited laborers find themselves at the central role of the story, and even with all of the other actors' looming circumstances, ideas, or roles in the situation, they deserve to be the center of attention not to be lost in the forest of complexity." After this entire analysis of the contextualization of the problem, the fact still remains that there are miners and minors in the DRC being taken advantage of and suffering due to this labor

injustice imposed upon them by the electronics industry. Therefore, the media and public must continue to provide the pressure that was started in 2016 to those actors in this ongoing story that have reasonable influence. Similarly, with the issue of sustainability and clean energy looming over our heads, the cobalt industry must be reformed in the DRC. If not, the emissions may be carbon free, but not completely blood-free.

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