

A Comparative Case Study of Diamond Mining in Guinea, Sierra Leone, & Zimbabwe

THREE COUNTRY COMPARATIVE ANALYSIS



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1.0 Key Terms and Abbreviations

Africa National Union (ZANU)

Economic Community of West African States Monitoring Group (ECOMOG)

Environmental Management Agency (EMA)

International Monetary Fund (IMF)

Non-Governmental Organization (NGO)

United States Dollars (USD)

TERMS SPECIFIC TO:

GENERAL MINING INDUSTRY

African Initiative on Mining, Environment, and Society (AIMES)

Artisanal Small-Scale Mining (ASM)

Extractive Industries Transparency Initiative (EITI)

Kimberley Process Certification Scheme (KPCS)

National Resource Governance Institute (NRGI)

Rare Earth Mineral (REM)

Resource Governance Index (RGI)

GUINEA

Entreprise Guinéenne d'Exploitation du Diamant (EGED)

Ministère des Mines et de la Géologie (MMG)

SIERRA LEONE

National Minerals Agency (NAM)

Republic of Sierra Leone Military Forces (RSLMF)

Revolutionary United Front (RUF)

ZIMBABWE

Zimbabwe African National Union (ZAPU)

2.0 Executive Summary

There has been an increase in both public awareness and public consciousness of the linkages between commodity chains and human rights. With people looking to be informed consumers who make ethical choices, it is important to develop nuanced understandings of the most popular consumer goods. Diamonds are one such good. They are a classic gemstone, prized for their beauty and rarity, and are increasingly scrutinized by consumers who are looking to purchase ethical stones. To best understand the ethics and impacts of a diamond, a consumer looks to understand where their diamond is being sourced, and what effects the extraction process has on the nation of origin.

This report develops an understanding of the impacts of diamond mining in three diamond producing African nations: Guinea, Sierra Leone, and Zimbabwe. This study was influenced by the Jewelry Development Impact Index (JDI), and originally intended to contribute index scores to the JDI using the extensive methodology developed by the University of Delaware. While the report pivoted from providing scores for the index, the work was designed in a similar spirit to promote the same understanding of how diamond mining impacts human security. It was through the guidance of previous JDI methodology and supporters that this work was completed. To promote a complete understanding of the impacts of diamond mining on Guinea, Sierra Leone, and Zimbabwe, this report worked along-side a condensed list of the United Nation's Indicators for Human Security to create a comprehensive analysis of the impacts of diamond mining. This condensed list included the following five topics areas, and the listed subsections of each.

First, each nation is presented with framing on how diamond mining impacts Human Rights, seen through the lenses of Workers' Rights, Indigenous/Minority Rights, Women's Rights, Children's Rights, and Freedom from Violence. Second, each nation is presented with framing on how Human Health is impacted by diamond mining through the lenses of Human Health Risk, Food Security, and Water Security. Third, each nation is presented with framing on how Governance is impacted by diamond mining through the lenses of Governance and Accountability, Transparency, Corruption, Industrial Regulation, and Non-State Actors/Criminal Organizations. Fourth, each nation is presented with framing on how diamond mining impacts Economics through the lenses of Industry Employment, Fiscal Responsibility, Beneficiation, Smuggling/Informal Economy, and Non-State Actor/Terrorist Funding. Finally, each nation is presented with framing on how the Environment is impacted through the lenses of Sustainability and Protections.

The findings of this report suggest that there are notable negative impacts on human security related to diamond mining in Guinea, Sierra Leone, and Zimbabwe. Human rights are often called in to question, and concerns were identified. These include prominent violations of labor laws and child labor laws, and forced labor in all three country's diamond sectors. Indigenous and minority rights were more protected and stable. Human security risks linked to human health identified include the prominence of close-quarters and the rapid spread of disease, compromised water security, and compromised food security. Diamond mining in all three nations is associated with weak governance practices, high levels of corruption, and little political capacity. Non-state actors hold influence over the diamond mining sectors across all three nations, and are a somewhat unknown variable. Human security is bolstered on the economic front, where high-

value industry contributes to stable livelihoods for people working in the diamond mining sector. Diamond mining often significantly contributes to GDP growth in nations that undertake mining. In terms of environmental impacts on human security, diamond mining proliferates deforestation and desertification, water pollution, and soil erosion and pollution in all three nations. While there are dedicated and promising attempts at codifying environmental protections to mitigate environmental harms, they are under-supported and thus ineffective.

While Guinea, Sierra Leone, and Zimbabwe participate in the Kimberley Process, each also struggles to uphold the principles due to lacking infrastructure and political will. There have been steps taken toward positive change because of increased international regulation on the industry at large. Implementing idealistic programming and certifications is not a fruitless endeavor, and has the potential to positively impact human security over time, if properly enforced and supported. At present, this report finds that there is a net-negative impact on human security as it relates to diamond mining, but that there is immense potential for genuine improvements to be made in Guinea, Sierra Leone, and Zimbabwe.

3.0 Introduction

This report analyzes the impact of diamond mining on human security in Guinea, Sierra Leone, and Zimbabwe using the following United Nations human security indicators: political security (governance and human rights), economic security, environmental security, and health security. Focusing on a single resource across all three countries limits the scope of this comparative analysis to focus on a small section of the expansive extractives industry in Africa. In the following sections, each country is separately analyzed by human security indicator—leading to a final comparative analysis and conclusion set produced from academic research and interviews from experts who specialize in this field.

3.1 Limitations

Efforts to analyze the impact of the diamond industry in Guinea, Sierra Leone, and Zimbabwe were challenged by two factors: 1) lack of transparent data on the diamond industry in Africa; and 2) a very limited pool of experts available for interviews and consultation. The governments in each country have worked to improve their oversight of the industry, but as this study will address, there are gaps in official statistics and concerns of corruption that raise questions regarding the reliability of available data. Although limited interview success was achieved during the first half of research, there was insufficient original data available to create a product without the utilization of data extrapolation from information unrelated to diamond mining. This report uses information from other mining sectors to craft an educated analysis on the consequences of diamond extraction where original data was unavailable. This can be seen heavily employed in the Guinea and Zimbabwe analyses, as these countries in particular significantly lacked reliable data and expert pool.

3.2 The Kimberley Process

The Kimberley Process is referenced in all sections of this report and is defined by the international mining community as follows: a multilateral trade regime with the goal of preventing the flow of conflict diamonds. The Kimberley Process Certification Scheme implements safeguards on shipments of rough diamonds and certify them as “conflict free”. These safeguards include enplacing import, export, and regulatory controls, trading only with fellow members that meet standards, committing to transparent practices to exchange critical statistical data, and certifying conflict-free shipments with supporting certifications.¹ As of the publication of this report, all three countries analyzed have met the standards of the Kimberley Process.

3.3 Overview of Mining Processes

Diamond mining utilizes three methodologies for extraction from kimberlite pipes. The first is alluvial diamond mining that occurs in riverbeds and beaches. Miners divert water currents and build walls to access river and ocean beds and expose diamonds that have washed downstream from kimberlite pipes. The second is pipe mining which goes to the kimberlite pipe source. This method can be broken down further into open-pit and underground mining. Open pit mining utilizes workers to clear away the layers of sand rock located above the kimberlite rocks. Underground mining uses two parallel mines, one above and one below the kimberlite pipe. Explosions are set off in the top mine, blasting the kimberlite pipe, allowing the ore to fall and collect at the bottom mine. The final methodology is marine diamond mining which extracts diamonds from the ocean floor through horizontal and vertical mining.

4.0 Guinea

4.1 Cultural & Historical Background

Guinea is located in West Africa, near Sierra Leone, Liberia, and Mali. It has four geographic regions that include Guinée Maritime, Moyenne- Guinée, Haute-Guinée, and Guinée

Forestière. The country is rich in natural resources, including diamonds, bauxite, and gold.

Diamonds were originally found in Guinea in 1932, in the upper Makona Valley, which is located in the Macenta region. In Guinea, diamonds are extracted on a small scale compared to some of the nation's more plentiful mineral resources—such as bauxite. Guinea's artisanal diamond mining sector primarily operates informally, however most likely developed alongside commercial mining. Diamond mining for commercial use began three years after the discovery of diamond deposits in Guinea in 1935. In 1958, Guinea became independent from France leading the state to three years later, in 1961, take over all mining operations under the company Entreprise Guinéenne d'Exploitation du Diamant (EGED). EGED was shut down in 1973, and mining in the region was opened to the international community. There were an estimated 41,000 artisanal diggers in Guinea by 1959, many of whom were from Sierra Leone.² Because of the large number of diggers, production increased from 118,500 carats to over 1 million carats in just a two-year span from 1959 to 1961. By 1994, Guinea was ranked amongst the top ten countries in the world for diamond production, despite the ban of artisanal mining in 1985. This resulted in a spike of illegal mining. Artisanal mining was then re-legalized in 1992, with the caveat of specified authorized mining zones.³ This is considered the largest expansion of legal artisanal diamond mining in the country's history.



The Ministère des Mines et de la Géologie (MMG) is the government organization created to regulate the mines in Guinea. Laws for artisanal diamond mining include the restriction of size of artisanal parcels, limits on the number of employees at a site, and the requirement of a license issued by the MMG. ⁴ According to the ministry of mines, Guinea currently has 30 to 40 million carats of proven diamond reserves, and a potential 500 million carats of unexplored reserves. Guinea is also an active member of the Kimberley Process. ⁵

4.2 Human Rights

Some of the most prevalent challenges to human rights in Guinea are economic inequality and protests caused by the slow pace of economic development. Diamond mining presents specific risks to human rights. The informality of the sector causes these rights to not be as regulated as they may be if it were a more organized and formal industry. According to the United Nations, one of the groups most subjected to human rights abuses is children in the business sector. However, Guinea also faces human right challenges with other groups, such as women and minorities.

Worker's Rights

MMG legalized artisanal diamond mining in specific zones in 2009 and set the number of employees per site to 50. ⁶ The mining law was amended in both 2011 and 2013, which changed

the government's stake in mining throughout the country, as well as changed exploration area and taxation, amongst other changes.⁷ While MMG is the government organization that was created to oversee the mining industry, ASM diamond extractions is an extremely informal industry in Guinea. Mining

code does require a permit.

However, miners would have

to pay for the permit

themselves which would

entail additional travel and

expenses. Generally, most

workers do not have the

means to work legally. This

created a popular and illicit

diamond mining industry for

miners.⁸ The supply chain

most commonly operates as follows: collectors that have financial backing pre-finance the

miners or diggers to start a project, and then pay them a daily rate. These workers are then

obligated to sell the mined diamonds to the collector that hired them. After the diamonds are

given to the collector, the legal flow of diamonds begins, which only involves certified actors.⁹

Because the miners themselves are not involved in the formal process, including government

evaluation, the Kimberley Process, and exports, the government is less concerned with whether

the diggers are licensed. The lack of documentation and job formality causes miners to have

little-to-no legitimate rights.



Workers in Guinea dig in an open mine.

"In Pictures: Dangerous Digging in Guinea." Al Jazeera. Accessed April 16, 2020.
<https://www.aljazeera.com/indepth/inpictures/2013/12/pictures-dangerous-digging-guinea-2013123122922150997.html>.

The 2018, the Guinea Human Rights Report produced by the US State Department referenced workers' rights for a variety of workers within the country. The report outlines freedom of association, the right to respective bargaining, prohibition of forced or compulsory labor, discrimination, and acceptable conditions for work. While the report only briefly mentions diamond mine workers specifically, it does address challenges in enforcing labor codes. Specifically, it states that inspectors are not trained properly, there are not enough inspectors, and the penalties are insufficient to act as a deterrent to violations.¹⁰ Additionally, the work procedures and rules are rarely monitored or enforced, especially because the informal sector makes up about 60% to 70% of workers.¹¹ It is also important to note that workers often do not report violations for fear of employer retaliation.

Indigenous/Minority Rights

A main minority group amongst diamond miners in Guinea are immigrants from Sierra Leone. Many Sierra Leoneans left their country during the civil war and migrated to nearby states. Diamond mining is a popular profession in Sierra Leone, and the mines are similar in Guinea. Thus, continuing to work as a miner is a natural transition. Despite the high number of Sierra Leoneans in Guinea, this population does not have the same rights as native citizens. In fact, they have no land rights or national rights. These immigrants are majority Christian, which is different from the Muslim majority in Guinea. This causes discrimination in hiring, hate crimes, and lower wages. The previously mentioned Human Rights Report referred to immigrants from Sierra Leone as "stateless people," because they do not meet the criteria for citizenship in Guinea.¹² Some Sierra Leoneans refugees fled to the capital of Guinea claiming that they were being persecuted by members of the Sierra Leone People's Party, though this was

not in direct reference to diamond mining.¹³ The law in Guinea does not permit the discrimination of any minority group—however, because of the lack of enforcement of labor laws and the informal nature of the diamond mining industry, minorities are often not protected. It has been reported that members of the three major ethnic groups in Guinea, the Fulani, Malinké, and Soussou, have been discriminatory towards ethnic minorities in private-sector hiring.¹⁴

Women’s Rights

Guinea has a history of human rights issues surrounding women. The Human Rights Report details how women and girls are frequently exposed to rape and violence.¹⁵ Additionally, women do not have equal rights or land tenure, and are not treated equally throughout the country. This is an issue across employment sectors, including diamond mining. The mines are male dominated. While women are present at the mining sites, they typically perform traditional roles like cooking, tending to children, and selling food and other goods. Sometimes they also perform the washing, sorting, and transport of diamonds. In fact, one study produced by the US Government on extractions in several West African countries, including Guinea, found that women participated in the physical extraction of ore only 13% of the time, while men participated 95% of the time.¹⁶

Children’s Rights

Child labor is prevalent in Guinea, including forced child labor. Child labor in the formal sector is illegal and punishable by law. It can result in jail time and confiscation of profits.¹⁷ However, as previously stated, the diamond industry is extremely informal. Children are often involved at

the mines as forced laborers or workers alongside their family members. The minimum age for work is 16, but there are exceptions allowed for apprenticeships and light work. Workers under the age of 18 cannot work on Sundays, at night, or for more than 10 consecutive hours. While the Ministry of Labor oversees child labor, the penal code for forced child labor does not meet international standards and does not act as a deterrent. Additionally, no child labor cases were brought to justice because inspections by the Ministry of Labor were not adequate.¹⁸ While child workers are not permitted to work longer than 10-hour days, in many cases, they work in both the diamond and gold mines for as long as 15 hours with little compensation or food. Child mine workers work to extract the minerals, as well as transport and clean them. They frequently work in unsafe conditions, without protective gear, electricity, or access to clean water. According to the US Department of Labor, Guinea has made little progress in eliminating the worst forms of child labor, which includes diamond mining.¹⁹

Freedom from Violence

There are no recent reports on violence in mines in Guinea. Additionally, there is no mention of laws that promote freedom from violence, with the exception of gender-based violence or discrimination-based violence. An in-country expert, when asked about violence in the diamond mines in Guinea, said that they did not think this was an issue. The only instances of violence they could recount were situations where two villages with a common mining site had issues over who had mining rights. However, these problems are usually not solved with violence but with one village chief paying off the other for the rights.²⁰

4.3 Human Health

Diamond mining presents traditional risks to mining workers, though these vary depending on the methodology of mining. Guinea primarily utilizes open-pit, pipe mining, and alluvial mining, which all present a mixture of risks. The Mining Code of 2011 states that all applicable Labor law provisions must be complied by the owner of the mining permit.²¹ There is currently little evidence to support the efficacy of the government's enforcement of these laws which are meant to protect diamond mine workers. Diamond mining is dominated by artisanal miners, further complicating the ability of the government to exercise comprehensive enforcement of labor and health provisions.²²



Guineans sift through gravel for diamonds in a mining pit.

"In Pictures: Dangerous Digging in Guinea." Al Jazeera. Accessed April 16, 2020. <https://www.aljazeera.com/indepth/inpictures/2013/12/pictures-dangerous-digging-guinea-2013123122922150997.html>.

Malaria and diarrheal diseases are among the top five causes of premature death in Guinea.²³

Artisanal and alluvial mining increases the amount of stagnant water and likelihood of workers to become infected with these diseases.

Food Security

Over half the Guinean population works in the agricultural sector. In the event of a drop in food prices and agricultural income, artisanal mining of diamonds can become more attractive to laborers. The potential pollution and environmental impact of alluvial mining can create

localized impacts on agriculture. However, with diamond mining limited to the southeast regions of Guinea, there is little evidence that diamond mining directly impacts food security country-wide.

Water Security

Basic drinking water availability has increased in urban areas over the last decade, but has decreased in rural areas.²⁴ The true number of artisanal miners and alluvial mining locations is unknown at this time. An increase in this mining methodology could create health hazards to local communities due to water runoff and pollution. Currently, there is little evidence that diamond mining directly impacts water security.

4.4 Governance

Governance has steadily improved since the first freely elected president took office in December, 2010. This has greatly heightened the government's accountability. This bolstered accountability can be seen in practice, but more so in theory to be utilized in future applications. According to the National Resource Governance Institute (NRGI), Guinea has a rating of 56 out of 100 on the 2019 Resource Governance Index (RGI) pushing the country to the middle tier "performance band." This is an improvement from the 2018 RGI, which had the nation ranked at 44 out of 100²⁵. This numerical demonstration of improvement is also accompanied by an increased rate of accountability, including:

more regular disclosure of disaggregated data on public finances and the budget, including actual and projected mining revenues by the Ministry of Budget and the Ministry of Economy and Finances; and the regular publication of audited annual

reports with increasing levels of detail by the state-owned enterprise SOGUIPAMI²⁶, and its inclusion in the scope of Guinea’s Extractive Industries Transparency Initiative (EITI) reports.²⁷

Non-State Actors & Criminal Organizations

There is not a notable amount of information available on non-state actors and criminal organizations in Guinea. Crime in Guinea primarily consists of local gangs and corrupt officials, the latter of whom are part of a network of corrupt actors throughout nearly the entire West African region²⁸.

Transparency & Accountability

Guinea has made strides in mining operation transparency since 2013. Specifically, an effort has been made to publicize every mining contract between the originating entity and the Guinean government. Though this effort has been successful, the Ministry of Mining has made little effort to keep its public facing website up-to-date with the latest information²⁹.

Though these contracts are accessible in-country, the mining companies under these contracts are not held accountable and there is little-to-no follow up from the government³⁰. The Guinean



Guineans President Alpha Conde looks over mining development plans.

“Police Detain Central Figure in Mining’s Largest Corruption Scandal.” mining.com, August 15, 2017. <http://www.mining.com/police-detain-central-figure-minings-largest-corruption-scandal/>.

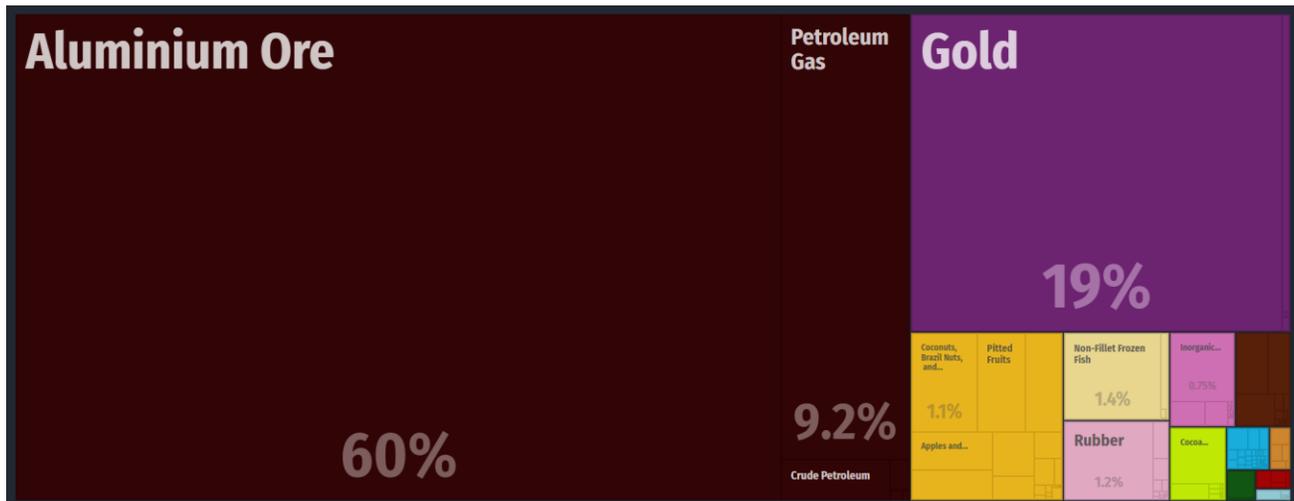
government is currently working on a mechanism to hold these industries accountable, however there is currently nothing in place and companies are allowed to operate as they please³¹.

Corruption

Corruption in Guinea is widely under-reported and affects every level of government from local police forces to the executive branch. This adds a layer of difficulty when attempting to verify all aspects of governance, as Guinea's self-reporting is completely unreliable³². In 2019, Guinea's corruption perception score was 29/100—with 0 being most corrupt, and 100 being a perfectly non-corrupt governing system³³. In 2018, that score was 28/100, and in 2017 the score was 27/100³⁴. With the election of Guinea's first democratically elected president, Alpha Condé, in 2010, systematic corruption has begun to slowly decline. Despite this decrease, Guinea is still widely corrupt in a way that effects the everyday lives of Guinean citizens and businesses—as bribes and personal connections are a necessity when navigating the business and law enforcement landscape³⁵.

4.5 Economics

Exports from mining is one of Guinea's main economic stimulants. The economic growth of the country depends on foreign direct investment in the mining industry. Additionally, the in 2016 and 2017 the growth rate of the mining industry was at 50 percent, a stark comparison to 5.4 percent growth rate of the non-mining sector.³⁶ However, the industry still faces issues with smuggling, lack of reliable reporting, and job creation.



This tables visualizes Guinea’s top exports in 2017, with Aluminum Ore at the top as 60% of all exports.

“Products Exported by Guinea (2017).” The Observatory of Economic Complexity. Accessed April 19, 2020. https://oec.world/en/visualize/tree_map/hs92/export/gin/all/show/2017/.

Fiscal Sustainability

Guinea employs strategies to intentionally keep taxes low. In fact, the taxes are estimated to be about three percent of the export value. These strategies give incentive to traders to sell diamonds on the legal market.³⁷ The previous tax system seemed to be too expensive, which encouraged fraud and tax evasion. Conversely, neighboring countries such as Liberia and Cote d’Ivoire set their taxes high to undermine trade in Guinea. Poor administration of the country's public finances has led to internal blockages. Companies operating in the mining sector benefited the most from the poor systemic management of taxes and duties. The impact of exemptions on the government's fiscal revenues constrains Guinea’s revenue collection performance. In terms of lost revenue, 20% of total revenue is lost affecting 3% of GDP.³⁸

Smuggling/Informal Economy

Many diamonds mined in and exported from Guinea fail to appear in official statistics because despite being legally mined and regulated by the government, a considerable amount of the regional production is kept secret.³⁹ Even though some miners are illicit, they do not avoid paying some form of a tax. The money paid is directly not to the government, but to local leaders or the military.⁴⁰

Following the end of the civil war in 2002, the Minister of Mineral Resources has taken great strides to reform the mining sector and tamp down on smuggling by partnering with development agencies and human rights Non-Governmental Organizations (NGOs).⁴¹ After bauxite and gold, diamonds are Guinea's third largest source of foreign exchange. . However, the figures from local production of artisanal mining are unreliable because the diamond import and export figures produced by the government are inconsistent with the recent production statistics produced by trading partners.⁴²



A young woman carries eggs to her home in rural Guinea.

Diamond miners in Guinea turned to other methods in order to continue to operate under

illegal grounds. Miners struck a deal with local village chiefs to pay a kola nut, which was a fee that was used as leverage for the miners to dig on land they were prohibited from digging on. In addition to payment to the local village chiefs, miners also paid 10% of their trade production to

“Guinea.” Guinea | Management Sciences for Health. Accessed April 16, 2020. <https://www.msh.org/our-work/country/guinea>.

the local military commander who would in exchange, send soldiers to act provide security at the mines.⁴³

Industry employment

Rural communities in Guinea usually rely on agriculture and unstable employment around West Africa for their sources of income. The diamond production sector in Guinea ranks third in Guinea's exports, however for these rural communities that depend on wavering sources of income, this sector plays a large and powerful role in providing other modes of not traditionally sought after income.⁴⁴ It has been suggested that following economic chaos in 1973, mining was the driver of economic growth in Guinea from 1973 to 1981. However, according to the World Bank there were hardships in mining production caused by the international commodities crisis of 1980, as well as, issues in operations. Nonetheless, from 1973 to 1981, there was an average growth rate of 3.2 percent.⁴⁵

Because Guinea is a resource-rich nation, the availability and use of mineral resources has been a feature in Guinea since its independence in 1958. Mining has made significant contributions to the country's GDP. In fact, it had made an estimated contribution of 25% of the GDP, as well as, 95% of the exports and 79% of the tax revenue by 1984.⁴⁶ Mineral activities created the most revenue in 1986, at 81.6%. Similarly, mining accounted for the majority of the country's exports in 1989, at 90%.⁴⁷

Mining enclaves in Guinea also gave the government around a 49% share of the investment, therefore providing the state with substantial foreign exchange reserves Unfortunately, these reserves did failed to create many jobs and did not create opportunity to acquire wealth on a larger

scale.⁴⁸ The average income in 2001 was US\$410, which is almost a 27% decrease from the US\$560 average income of 1997.⁴⁹

4.6 Environment

Sustainability

Diamond mining in Guinea is widely reported, but difficult to track, making many of the environmental challenges surrounding the country merely hear-say. However, a few environmental challenges are consistently alluded to related to diamond mining and extractives. The major environmental challenges facing Guinea are deforestation and desertification, water pollution, and soil erosion and contamination.

Each of these has multiple driving forces, in part influenced by small-scale diamond mining across the nation. Deforestation and desertification of land across Guinea reflect similar patterns as other developing nations looking to grow their extractive industries⁵⁰. Land is cleared to create mines, move equipment, process extracted materials, and settle mine workers. Clearing large amounts of forest to access mineral veins is common. After these areas are cleared of vegetation, it is challenging to encourage new growth.

Desertification creeps across these cleared areas after a mining operation has ended when there



Miners sort through diamonds at an artisanal mine in Kenenday, Guinea.

Artisanal Miners in Guinea. Accessed April 16, 2020.
<https://www.usgs.gov/media/images/artisanal-miners-guinea>.

are no dedicated replanting efforts put in place ⁵¹. Water pollution in rivers near mining sites across Guinea can be linked to the runoff of both sediment and chemical pollution near diamond mining and other extractive sites ⁵². Soil erosion is linked to desertification. As former forest lands become desert, the soil becomes brittle and frail and unable to maintain its structure. This means that soil erodes away in areas of high deforestation, leading to desertification. Similarly, soil contamination is linked to mine run off. Mine run off will concentrate in rainwater, or water used in the extraction and cleaning process. As this water flows through the path of least resistance, it will pass over significance areas of land, being absorbed into soil, contaminating it ⁵³.

Protections

Environmental protections in Guinea are limited, with the mining sector being particularly unregulated. While Guinea does participate in the Kimberley Process, the nation's ability to maintain the standards put forward by the process is questionable. As Guinea underwent structural adjustment starting in the 1980s, environmental regulations across the nation decreased. This was done to take advantage of rich aluminum resources, which were seen as a way for Guinea to bolster their economic standing. The removal of environmental protections that went on at this time have never been resolved. In the 1995 Mining Code, Guinea enforced that all subsurface materials were property of the government, but also allowed private allotment holders to own the minerals on their land ⁵⁴. The government showed little interest in instilling federal protections, and even less interest in regulating the international interests who were investing in allotments.

Guinea does have an Environmental Protection Code, which includes mining regulations. The government does not attempt to uphold the regulations put forward in the code and has little resources to follow-up on the few environmental complaints filed per year. All responsibility for maintain environmental protections of land falls to companies operating mines. The 1995 Mining Codes did not include any requirements for environmental impact assessments, monitoring and evaluation, or site evaluations, meaning that most mine sites in Guinea are void of environmental data ⁵⁵.

5.0 Sierra Leone

5.1 Cultural & Historical Background

In the early 1990s war in Liberia began to bleed into Sierra Leone, bringing about the beginning of a civil war. As Sierra Leoneans met Liberian forces at their border, they were met with opposition from the Revolutionary United Front (RUF)—a domestic movement that colluded with Liberian rebels. RUF eventually went on to violently obtain the lucrative diamond mines in the state, engaging in the infamous blood diamond trade still active across parts of Africa. The civil war finally concluded in 2002, and the RUF rebels transitioned into a legal political party. Sierra Leone developed democratic institutions, and the economy grew until the Ebola outbreak in 2014. Ebola was not contained in Sierra Leone until 2016, leaving behind a devastated economy that haunts the country even today⁵⁶.



Sierra Leone is primarily Muslim, with a smaller but prominent population of Christians. Although these two groups are typically in conflict when in close contact, Sierra Leone appears to be an exception when it comes to interreligious conflict. Muslims and Christians live harmoniously, with conflicts and violence originating from poverty and corruption as opposed to ideology⁵⁷.

5.2 Human Rights

Sierra Leone has struggled with attempts to restore democracy since the end of the civil war in 2002. According to the UN, the most significant human rights abuses include killings by police, gender-based violence, and child labor. Some of these abuses translate to the diamond mining industry, particularly child labor.

Worker's Rights

The Human Rights Commission of Sierra Leone Act of 2004 was created to “establish a commission for the protection and promotion of human rights in Sierra Leone, and to provide for other related matters.”⁵⁸ This document defines human rights and explains how the commission will be set up. It also discusses administrative provisions. However, it does not mention specific human rights laws and certainly does not mention the rights of workers. The 2019 Human Rights Report for Sierra Leone produced by the US Department of State does outline workers rights. It reports instances of forced labor and trafficking of men, women, and children in artisanal mining. The report also outlines acceptable conditions for work of which there have been many violations in



A Miner in Sierra Leone holds a diamond found while sorting through gravel.

Foundation, IHH Humanitarian Relief. “Sierra Leone, February 2012.” Flickr. Yahoo!, March 21, 2012.
<https://www.flickr.com/photos/ihhinsaniyardimvakfi/6856201238/in/photostream/>.

the artisanal diamond mining sector. These violations include infractions of acceptable wages and overtime.⁵⁹

Indigenous/Minority Rights

There are 18 ethnic groups of African descent in Sierra Leone with the largest two being the Mende in the south and the Themne in the north. There are significant minorities from Lebanon, Pakistan and India. While there was no ethnic segregation apparent in urban areas, there was ethnic discrimination noted in government and contract assignments.⁶⁰ However, there have been no reports of discrimination or abuses specific to ASM.

Women's Rights

Sierra Leone historically lacks accountability for gender-based violence against women and girls. Women are especially prone to falling victim to forced labor and trafficking in the mining sector because of their lack of independence from men both socially and economically.⁶¹ The artisanal mining industry at large, and specifically the diamond mining industry, have had several negative effects on women. The women who are forced to work in mines have all of their societal ties cut and have to live away from their families, churches, and traditions.⁶² They are also subject to sexual exploitation, which leads to sexually transmitted infections and other health issues.⁶³

Children's Rights

Child labor is common in diamond mines in Sierra Leone. It is important to note that there is an

ongoing debate in the international development community on whether child miners, also called “half shovels,” should be included in the small-scale diamond mining community. While the broader Western World might consider the employment of these “half shovels” cruel, child miners play an important role in alleviating household poverty. It is also common for these children to use their mining pay to afford schooling⁶⁴. Despite these possible benefits, corporations in Sierra Leone have abused child laborers. Sierra Leone has made minimal effort to rid itself of the worst forms of child exploitation, diamond mining included. While there is a law that sets the minimum working age at 13, the law is not explicit enough to protect children from long hours.⁶⁵ The law does not criminalize or prohibit exploitative child labor, including mining and commercial sexual exploitation. Both types of child labor often lead to human trafficking. Of the 72% of children who are employed in Sierra Leone, mining is amongst some of the most popular jobs. However, due to lack of funding and a limited number of inspectors, child labor laws are rarely enforced.⁶⁶

Freedom from Violence

Violence and mining are closely linked in Sierra Leone. There have been several occasions where violence has arisen in the mines.⁶⁷ For example, two people died in 2014 when violence ensued when the workers went on strike to protest their pay and work conditions. While workers have the right to strike because of poor treatment, these strikes have incited violent conflict with little-to-no protections placed for the citizens. During the civil war, the exploitation and trade of diamonds was linked to the escalation of armed violence. However, since the civil war and the implementation of the Kimberley Process, the link between diamonds and violence has dissolved.⁶⁸

5.3 Human Health

Formal diamond mining in Sierra Leone is primarily conducted through pipe mining, specifically, open-pit mining. This presents injury risks to workers from heavy machinery, falling rocks, and explosives. ASM and illegal miners utilize alluvial mining techniques, limiting the risk of accidents from mining operations. ASM workers utilize little-to-no safety equipment but are exposed to health concerns such as malaria and waterborne diseases.

Protection for the rights and health of all miners was structured in the 2009 Mines and Minerals Acts but is not consistently enforced by the government. Reliable statistics on the number of worker injuries and deaths for both methodologies are unavailable due to government inefficiency and a lack of reporting from industry mining entities.



Workers in Sierra Leone wash and sift gravel in search of gems.

Lister, Tim. "Blood Diamonds' Arrest Exposes Grim Trade." CNN. Cable News Network, August 31, 2015. <https://www.cnn.com/2015/08/31/europe/blood-diamonds/index.html>.

The leading cause of death in Sierra Leone is communicable disease with malaria and diarrheal diseases among the top three causes.⁶⁹ Mining workers are especially at risk due to the close proximity at work sites, unhygienic living conditions in communities near mining locations, and stagnant waters that allow the breeding of mosquitoes that spread malaria. With the spread of COVID-19 and under equipped health care facilities, mining workers—both authorized and illegal—face significant health challenges from their work in the diamond mining industry.

Food Security

Diamond mining in Sierra Leone is largely constrained to southeast regions of the country. This has limited its direct impact on agricultural efforts for the country at large. Local communities are impacted by the loss of fertile topsoil, pollution to water sources, and dust clouds from mining operations. Diamond mining can attract agricultural workers and farmers because of the prospect of a greater income, especially as climate change and recent droughts have led to volatile food prices. However, data to show the significance of job migration is limited at this time.

Water Security

Diamond mining in Sierra Leone produces the same challenges and pollution to water sources as is found in other countries. Dust clouds from mining operations, mineral runoff into water sources, and stagnant water in open-pits have increased health risks to communities living near mining sites.⁷⁰ The pollution from mining operations have led to some legal action being undertaken by local communities against mining companies and the government of Sierra Leone.⁷¹ Efforts such as the African Development Bank's Three Towns Water Supply and Sanitation Project are intended to counter the lack of clean drinking water sources in both urban and rural areas.⁷²

5.4 Governance

State of Governance and Criminal Organizations

Governance in Sierra Leone has had a difficult upbringing since the beginning of democratization in Africa in the 1990s, which spurred a bloody civil war. The Revolutionary

United Front (RUF) rebels were born from this chaos, collecting funds from illicit diamond mining schemes⁷³. Over the years RUF transformed from an illegitimate domestic entity to political party which international organizations were willing to conduct business⁷⁴. Since RUF's rise to legitimacy, the inherent governing institutions in Sierra Leone has been undermined—creating an added layer of governmental instability. RUF's transition to main stream politics was formed under the auspice that the organization had fought for democracy, and since democracy had been achieved with the



Miners pan for diamonds in Sierra Leone.

“De Beers Rolls Out App to Clean Up Sierra Leone Diamond Supply Chain.” Voice of America. Accessed April 16, 2020. <https://www.voanews.com/africa/de-beers-rolls-out-app-clean-sierra-leone-diamond-supply-chain>.

conclusion of the civil war, RUF could step back from its more aggressive role and settle into the legitimate political realm. The civil war in Sierra Leone ended in 2002. Thus, the majority of the population still vividly remembers when their nation was divided and dangerous. The RUF party committed atrocities and war crimes during this era with almost no time in-between their transition and acceptance into legitimacy⁷⁵. Local populations are thus forced to watch RUF contend on a regional scale, knowing and experiencing the atrocities the group previously committed. This creates a level of tension between the governed and the governing, as the general public have not and probably never will, accept a government that allows actors to exist in accepted society⁷⁶.

Accountability

As for accountability, this one example displays how the government of Sierra Leone is unable to keep organizations accountable for their actions. While measures were taken against RUF for their crimes, those measures were inadequate compared to the atrocities they committed—which have scarred the nation even to this day⁷⁷. This directly translates to mining corporations, as the blood diamond industry inherently defies regulatory action and accountability measures. While Sierra Leone has the law and transparency structures in place, all government monitoring is done at the national level, with local facility checks rare to non-occurring⁷⁸.

Transparency

In 2013, the government of Sierra Leone passed the freedom of information law which signified a major leap forward for governmental transparency for the state. The law states that the Sierra Leonean government is responsible for drafting a plan for the future dissemination of government records⁷⁹. The execution of this law has been effective, and has allowed for some valuable information to be released to information seekers. There are some stipulations however, that have hindered the public's ability to access this information. Foremost, the law contains a clause on a "fees notice," which states that the public authority who harbors the information should charge a fee for information dissemination to the requestor⁸⁰. This leave room available for the public official to boost fees in order to deter information sharing. A second issue is that most government agencies in Sierra Leone lack the necessary personnel to have an official available and able to respond to requests as they come in. Thus, there is often a significant lag in information releases—if the agency has designated a body act on the freedom of information law at all⁸¹.

Industry Regulation

In 2009, a law called the Minerals and Mines Act replaced a previously established mining law enacted in 1994. This act established a number of new concepts, to include: 1) mining rights are now ‘first come first serve’; 2) only companies registered in Sierra Leone will be granted an exploration license; 3) large-scale mining corporations will be held liable for best-practices through a number of accountability measures⁸². These accountability measures are that percentages of profits are given back to the host community, tax documents are given to local tax authorities, that the company provides financial assurance for environmental liabilities, and finally that the company gives Sierra Leoneans preference for job opportunities. While spectacular in theory, the act was criticized for its opportunistic view of the government’s ability and desire to enforce such accountability measures. In response, the government of Sierra Leone created the National Minerals Agency (NMA) in 2012—which was mandated to:

administer and enforce the [2009 Act], any other acts related to the trade in minerals and related regulations and make recommendations to the Minister for amendment and other improvements in [these] laws and regulations⁸³.

This emerging semi-autonomous governmental organization has been largely successful in coaxing mining operations to comply with the extensive legal framework set forth for extractive industries⁸⁴.

Corruption

The government of Sierra Leone struggled with severe corruption, like most other West African states, until the creation of the amended Anti-Corruption Act in 2019. This act followed the

election of current President Julius Maada Bio, who built his campaign on governmental corruption clean up. The 2019 Anti-Corruption Act has given Bio the legal backing needed to fight corruption head-on with success. The results of this clean up can already be seen, with a corruption rating of 33/100 in 2019 compared to 30/100 in 2018⁸⁵. This three-point difference, while seemingly small, is indicative of the forthcoming progress stemming from a maturing democratic system. With this hope in mind, Sierra Leone continues to battle major corruption issues particularly within the law and policing sectors. Drug trafficking and money laundering continue to haunt the state, with Sierra Leone acting as a stop for illicit shipments going from South America to Europe. Despite new leadership and progressive reform, these activities continue to carry over from the previously long-neglected public sector⁸⁶.

5.5 Economics

Historical Mining Development

There have been many efforts to reform the mining sector, including attempts to stop smugglers from retracting and selling natural resources, such as precious stones. These efforts have been made in collaboration amongst many development agencies, NGOs, and the Minister of Mineral Resources in the post-Civil war era, 1991 – 2002.⁸⁷

Industry employment

Sierra Leone is one the largest diamond producers in West Africa. The production consists of high-quality gems and industrial grade stones. Alluvial diamonds became a main resource for supporting the political economy by the 1970s.⁸⁸ Diamond mining generated income is frequently used in the financing growth of other important local cash crops. These crops, such

as coffee, cocoa, and kola nuts, are prioritized under this type of investment farming, and can be considered substitute income products from the mining sector.

In 2013, Sierra Leone's economy grew by over 21 percent due to the expansion of large-scale mining companies into the region. This expansion was supported by the government and the World Bank in order to strengthen foreign direct investment. This influx of large multinational mining corporations, like Arcelor Mittal, Rio Tinto, and London Mining, for example, has fueled substantial economic growth.⁸⁹

Smuggling/ Informal Economy

During the 1970s and 1980s, the diamond industry in Sierra Leone became nationalized—thus instigating exploitation, which in turn, contributed to a decrease in outputs and an increase in illegal artisanal mining. Despite the introduction of the Kimberly Process, which identifies diamonds that have been legally exported, Sierra Leone still receives a large amount of smuggled diamonds from Liberia and Cote d'Ivoire. Approximately 15 to 20 percent of Sierra Leone's diamonds are said to be smuggled through the neighboring countries of Guinea and Gambia.⁹⁰



A worker stands in a mining field in Sierra Leone.

Cohn, Adam. "Sierra Leone Diamond Miner." Flickr. Yahoo!, January 30, 2009. <https://www.flickr.com/photos/adamcohn/3238697590/in/photolist-69Jojd-5HSiY8-5WcgbU-5Wcchj-5JGwGB-3idyRo-cv38yo-czec6y-cuufg7-cvB2M9-cwMaqE-bEUVAQ-69GHCw-69y4R4-iuBvT7-7pcApF-eaxqq2-5W8cUa-cCdWnU-5W7RiT-69GJMb-cDsja0-5WcaXC-6JdkZZ-cHDD2w-bp6nnn-cDWSVU-cKaPfb-bpoH7i-ctQEKo-7ZFnz1-iuDxTf-cw8VhU-bAJmda-eCAE3s-bpjHqr-5WciUu-69GLGL-69CEpn-8jCRUA-69GMKN-cAkK6S-9RUyFU-9noyvN-cEsVEJ-55Kgh4-bp6NfZ-6Jw8hM-cD7JiC-639WqL/>.

Fiscal

The Diamondiferous Area Community Development Fund (DACDF) was developed in Sierra Leone to return a portion of the government-mandated 3% tax on diamond exports. The goal of DACDF was to encourage diamond miners and chiefs to participate in the legal diamond mining process.⁹¹

Non state/Terrorist group

In 1991, the Revolutionary Unit Front (RUF) from Liberia attacked Sierra Leone and gained control over the diamond mines. They have played a significant role in decreasing the country's official diamond exports by smuggling the gems out of Sierra Leone and using the proceeds to buy arms from other African states. The Kono District continues to be controlled by the RUF, who uses Liberia as their primary smuggling route.⁹² The RUF's continued presence in Sierra Leone escalates the illegal diamond trade and consequently contributes to the widespread human rights abuses.⁹³

5.6 Environment

Sustainability

The environmental sustainability challenges emerging from diamond mining in Sierra Leone are intrinsically linked to Sierra Leone's bottom position on the United Nation's Human Development Index. Civil society in Sierra Leone reports consistent environmental degradation linked to all mining, including diamond mining, across the country. Government reports often counter these claims. It is estimated that since the early 1990s, over 100,000 hectares of land have been deforested and cleared for mining purposes, with no attempts at remediation.⁹⁴

Deforestation is cited as the most grievous of environmental harms linked to diamond mining in Sierra Leone. The large amount of land clearance has led to a significant loss of bio-diversity across the country. Large cats such as lions and leopards, elephants, fish species, and birds, are facing decreased populations due to deforestation.⁹⁵ Additionally, as land is cleared for mining plots, arable land that was once used for food production loses its fertility. The land used for mining plots is unusable when the mines are active, and are often too damaged after mines have been depleted and vacated to be converted back to farmlands.⁹⁶

Water quality is also of concern in Sierra Leone and neighboring nations—often linked to mining practices. The high levels of deforestation, along with the sediments being removed from a mining site and dumped in open pits, has led to increased sedimentation in waterways. As small particles of mined materials collect in rain waters that runoff into local waterways, these sediments settle into river and lake beds. This increase in sedimentation changes the water quality, making it more dangerous for human usage and less able to support biological life.⁹⁷ In addition to sediment runoff, there is notable chemical runoff from mine sites into local waterways. These chemicals can cause the death and mutation of biotic life, poisoning of land irrigated with polluted water, and numerous health effects when consumed by humans. While different chemical slurries are used for different mined minerals, runoff is uniform and found at all mining sites investigated for environmental sustainability.⁹⁸

Environmental sustainability is similar in Sierra Leone to mining nations across the globe.

Diamond mining in Sierra Leone is associated with deforestation and loss of arable land. These losses are linked to both a loss of biodiversity and decrease in food security. Additionally, increased water sedimentation and chemical runoff from mine sites decreases the availability of potable water to local wildlife and communities and increases the risk of consuming polluted water.



Workers strip the soil of minerals in a mining operation in Sierra Leone.

“Blood Diamonds.” Time. Accessed April 16, 2020. <https://time.com/blood-diamonds/>.

Protections

The Kimberley Process is heavily considered in Sierra Leone as one of the most significant players in establishing environmental protections surrounding the diamond industry. Since the early 2000s officials in Sierra Leone, including the Gold and Diamond Department, have been applying Kimberley Process standards to their diamond industry.⁹⁹ There are conflicting reports on the effectivity of the environmental protections put in place via the Kimberley Process. Former President of Sierra Leone, Ahmed Tejan Kabbah, admitted in 2004 and 2005 that the environmental impacts of illegal and unregulated mining was still of significant concern. Alluvial mines are most often illegally operated and cannot be controlled by the Kimberley Process or the Gold and Diamond Department. Non-governmental organizations and citizen groups across Sierra Leone report that the information about increased environmental protections is false and government propaganda.¹⁰⁰

In 2003 the Core Mineral Policy was passed, taking a pro-business stance on diamond mining across the country. According to the Core Mineral Policy, individual mine plots should not exceed 210 square yards. An attempt to control the size of artisanal mining projects, the lack of regulation about stacked plots means that many operations have purchased additional adjacent plots, legally maintaining acres of active diamond mine sites.¹⁰¹ These connected plots exemplify the challenges of implementing the laws and regulations derived from the Kimberley Process, and illustrate how well-intentioned environmental protections can be subverted. It has been suggested that because of these inconsistencies the only successful way to promote sustainable development across Sierra Leone, and to ensure environmental protections across the mining industry, is to transition most mines to inactivity and to convert their land into agricultural plots.

6.0 Zimbabwe

6.1 Cultural & Historical Background

Zimbabwe became independent from Britain in April of 1980, after nearly 100 years of colonial rule. Long-time former President Robert Mugabe ruled the nation for 37 years (1987-2017). While he led the country through its fledgling independence and is commemorated as a figure of African relinquishment from colonialism, his regime placed significant harm onto the Zimbabwean people¹⁰². His rule saw the nation's economy depreciate significantly, and citizens suffering many human rights abuses. Mugabe established a regime with his opponent Tsvangirai, who became Prime Minister at his side. This was done so that Mugabe's regime would face fewer complications with maintain control over the government and so that he would be seen as a legitimate ruler¹⁰³.



The Zimbabwe population is young, with the majority of people being under 29. Close to one-third of the population lives in urban centers across the country, and another third works directly in the agricultural sector in rural areas¹⁰⁴. The majority religion is Christianity as a result of heavy Apostolic and Roman Catholic missionary involvement for the past several decades. The Roman Catholic Church acted in support of Mugabe and Zimbabwe's national interests early in the country's independence, and thus is held in a favorable view¹⁰⁵.

For decades, the country worked to recover physically and economically from the severe exploitation it had faced, developing new industries and promoting global market integration and growth. When diamond deposits were discovered in the eastern province of Marange in 2001 the

country acted swiftly to take advantage of this new resource. International diamond giant Da Beers Group took control of diamond mine exploration and mining rights across Marange in 2001 and maintained this control through 2006¹⁰⁶. Zimbabwe adopted the Kimberley Process Certification Scheme (KPCS) in 2003 in order to eliminate the market of trade in “conflict diamonds.”¹⁰⁷

In mid-2006 artisanal diamond mining exploded across the country when the government reclaimed mining rights and announced that diamond extraction would be open to all people. This led locals and international corporations to rush to mine diamonds in the Marange fields¹⁰⁸. While Zimbabwe continues to take steps to ensure ethical diamond mining, the country remains under suspicion due to continued reports of violence and diamond-smuggling.

6.2 Human Rights

Zimbabwe has a long history of human rights abuses, especially in the Marange diamond fields. These abuses have been consistently analyzed by credible sources like Human Rights Watch, and frequently condemned by the international community. Zimbabwe has been working towards addressing these issues, however many issues remain unaddressed and even exacerbated by state actions.

Worker’s Rights

An approximate 1.5 million people depend on or work in artisanal mining.¹⁰⁹ Zimbabwe has a long history of human rights abuses



Zimbabwean lawyers march for human rights.

jjf-GB, teleSUR/. “Zimbabwe: Lawyers March to Demand Respect for Human Rights.” News | teleSUR English. teleSUR, January 30, 2019. <https://www.telesurenglish.net/news/Zimbabwe-Lawyers-March-to-Demand-Respect-for-Human-Rights-20190130-0003.html>.

within its diamond mines. These abuses were exposed by Human Rights Watch in 2009. This report, entitled “Human Rights Abuses in the Marange Diamond Fields of Zimbabwe,” took a deep dive into the different atrocities occurring in the fields including corruption, police smuggling syndicates, killings by police, sexual abuse and exploitation, and forced child labor, among others.¹¹⁰ Over 10 years later, workers in the mines are still facing these issues. There is still evidence of armed forces forcing labor in the mines. When workers protest, they are met with armed soldiers and police firing tear gas canisters.¹¹¹ According to the US State Department’s 2019 human rights report, forced labor has been reported in the Marange Diamond fields.¹¹² Additionally, the majority of work-related injuries were reported in mining. Workers also fear that when working for foreign-owned mining companies they will be mistreated by late payments of salaries, lack of sufficient protective clothing, and other abuses.¹¹³ It is against the law in Zimbabwe to have forced or compulsory labor. However, in October of 2019, the US banned artisanal diamonds from the Marange fields because of the evidence of forced labor.¹¹⁴

Indigenous/Minority Rights

82% of the population is made up of the Shona ethnic group. The other groups include 14% Ndebele. Caucasians and those of Asian descent make up less than 1%, and other racial or ethnic group make up about 3%.¹¹⁵ In 2008 the Zimbabwean president signed the Indigenization and Economic Empowerment Act, requiring that all public companies are at least 51% owned by indigenous Zimbabweans.¹¹⁶ There has not been report of discrimination towards any ethnic minorities, most likely because indigenous Zimbabweans are of the same ethnic group.

Women's rights

There have not been recent reports by the US State Department, Human Rights Watch, or other credible sources on the mistreatment of women in diamond mining, specifically. However, older reports address specific atrocities that occurred. During the 2009 military attack on the diamond mines in Marange, 200 miners were murdered and many of the women and girls were sexually assaulted and traumatized. The women and girls who survived the incident have not been compensated for their trauma.¹¹⁷

Children's rights

Artisanal diamond mining is extremely dangerous for children because of the chemicals, floods, and other perilous conditions.¹¹⁸ In Zimbabwe, the worst forms of child labor, of which mining is included, is outlawed. While the Department of Social Welfare does oversee child labor matters and the enforcement of child labor laws, punishments were not strict enough to discourage corporations from breaking these laws. Additionally, the laws are seldom enforced. In the informal mining sector children worked for themselves, their families, or someone in their community, and are exposed to hazardous waste—such as mercury. The prevalence of child labor is in large part due to the law only requiring children to attend school until age 12—which makes them ripe for employment from ages 12 to 15.¹¹⁹ While child labor in mining still occurs, it has been found that Zimbabwe has made moderate advancements in efforts to eliminate these practices. For example, in May of 2018, Parliament enacted a law which would rescind a miner's license if they engaged in child labor.¹²⁰ Child labor in diamond mining is currently unpopular in Zimbabwe due to this law.

Freedom from Violence

In the Marange fields, there is a continual problem with artisanal miners raiding for gems. This prompts increased security and results in violent conflicts between police forces and raiding workers. Currently, there is no space for artisanal miners to legally operate and sell diamonds to the state—which encourages illicit activity.¹²¹ The government has yet to address the concerns of the community, but has instead militarized the surrounding area to protect the associated assets.¹²²

6.3 Human Health

The variations in the diamond mining methods found in Zimbabwe present different risks to workers. The Ministry of Mines reported a variety of injuries and fatalities from cave-ins and collapsing trenches, to gassing in 2018.¹²³ The Government of Zimbabwe has established laws protecting the health and rights of workers. These laws are largely unenforced, leaving mining companies to self-report and enforce. Mining companies have demonstrated improvements to worker safety but continue to face challenges—such as the spread of sexually transmitted diseases within camps. Violence and conflict occur between



Zimbabweans stand in line to be tested for COVID-19.

Al Jazeera. "Dire Shortage' of Equipment to Fight Coronavirus in Zimbabwe." Zimbabwe News | Al Jazeera. Al Jazeera, April 7, 2020. <https://www.aljazeera.com/news/2020/04/shortage-equipment-fight-coronavirus-zimbabwe-200407154305912.html>.

corporate mining entities and small-scale ASM digs over the rights to mineral dense mining locations. This violence increases the health risks faced by miners and places additional burdens on the resources of local healthcare facilities.¹²⁴

Zimbabwe continues to face reoccurring issues with cholera nationwide from untreated water sources. With health care workers periodically striking, the concern of a large-scale disease outbreak in mining camps and villages is high. The spread of COVID-19 into the country will further highlight challenges associated with the limited healthcare available to workers and the capacity to deal with wide-scale disease spread.

Food Security

The current drought in Zimbabwe has hindered analysis of the impact of diamond mining on food security. As farmers continue to face drought conditions, it is likely a growing number will turn to the illegal mining industry as a source of income. These conditions have been noted by several agricultural NGOs which has triggered the second highest risk level for famine according to the Famine Early Warning System network.¹²⁵ The government has attempted to limit the damage done to agriculturally viable land by mining operations. Zimbabwean law requires mining companies to make an effort to repair topsoil disturbed and removed during their operations. This law is enforced with varying degrees of effectiveness.

Water Security

Alluvial diamond mining has been utilized significantly along the Save and Odzi Rivers in Zimbabwe. This method can impact the water security and human health for local communities,

including those downriver from mining operations. As topsoil and mining runoff seep into the rivers, villages and persons reliant on these rivers are exposed to potentially toxic minerals and chemicals. Alluvial mining operations increase the siltification of rivers which can limit water availability. Previously referenced laws written to protect water sources have led to some limited government enforcement.

6.4 Governance

State of Governance & Crime

Zimbabwe declared independence from Britain in 1965, and has suffered from poor governing practices since—which has led to a failing economy and deep-rooted poverty among other consequences¹²⁶. Such economic decline was first observed with the election of former Prime Minister and later president Robert Mugabe, who was democratically elected in 1980. Mugabe sought to right the wrongs he felt that the British colonizers imposed on his nation. With this

mission, economic reform was put in place meant to take certain powers away from the white ruling minority; to be placed back into the hands of native Zimbabweans¹²⁷. This consisted of halting all



A rural village in Zimbabwe holds a community meeting.

"1. Good Governance for Sustainable Development | UN in Zimbabwe." United Nations. United Nations. Accessed April 16, 2020. <http://www.zw.one.un.org/togetherwedeliver/zundaf/1-good-governance-sustainable-development>.

private-mining activity in favor of state-owned natural resource extraction¹²⁸. The Zimbabwe Mining Development Corporation (ZMDC) was formed, which began to take advantage of the

newly explored alluvial deposits¹²⁹. Though positive in intention, these reforms—coupled with the lack of infrastructure left when the British pulled out after the war—created an economic black hole that encouraged political violence, petty crime, and gang activity spurred by poverty. The most relevant of these crimes to the diamond mining industry is the abundance of political violence that has, and continues to, ensue over the ownership of mining sites. Political and military leaders have led violence against civilians in diamond mining fields in order to gain control of this lucrative extractive industry.¹³⁰

Corruption

Corruption in Zimbabwe is common and expected by those who live, and commonly operate, in this nation. Corruption is also rampant within Zimbabwe’s extractive industries, as the state carries out human rights abuses on mine workers—and then continues to sell its products in the international arena. Zimbabwe holds a corruption perception score of 24/100. This low of a rank indicates that not only is corruption present at every level of government, but also that it affects every day activities and business in a major way. The level of corruption, while ever-present, effects critical infrastructure differently¹³¹.

Law enforcement “suffer from poor working conditions, a lack of training and resources, and low salaries.¹³²” And are one of the most likely sectors, particularly at the lower levels, to accept bribes and immorally manage civilians. In the judicial sector, companies have reported that “informal payments to influence courts’ decisions are sometimes exchanged.¹³³” Finally, corruption is present and active for “businesses acquiring public licenses, permits or utilities.¹³⁴” This extends to the natural resource sector, who’s governing officials often misreport revenue.

Transparency

Transparency as a standing component of governmental infrastructure is non-existent, with reform possibility existing in the same realm. Former Zimbabwean president Mugabe built his campaign on the need for transparency and corruption reform, and yet no actions were successfully taken to enhance either issue—both during his term, or within the term of current president Emmerson Mnangagwa¹³⁵.

Accountability & Industry Regulation

All effective industry regulations disappeared when Mugabe disallowed private-sector mining to operate in Zimbabwe. Once the state took over natural extractives, industry regulation and accountability measures were left to be run by the government of Zimbabwe. Military and political leaders took advantage of this freedom, committed human rights abuses and general violence, and then sold these conflict diamonds to international vendors—primarily Western consumers and large retailers.¹³⁶

6.5 Economics

Industry employment

Zimbabwe experienced a decade long economic crisis from 1999-2008. “However, in 2010 there was an enormous increase in mineral exports of over 150 percent, which was followed in 2011 by another increase of near 30 percent.”¹³⁷ The substantial recovery of the mining sector greatly impacted the country’s GDP, increasing it by 9.1% in 2010 and 9.3% in 2011.

Smuggling/Informal Economy

While the 2006 discovery of diamonds in Chiadzwa brought hope to the country, it also led to substantial instability and brought about smuggling and other illicit activities, including illegal diamond mining. This “could not be allowed to continue forever because it posed a threat to law and order and the local communities.”¹³⁸

“The International Monetary Fund’s Natural Resources Per Capita index claims that Zimbabwe is one of the countries with the highest natural resources per capita in the world.”¹³⁹ However, most

of the revenue from the diamond industry is untapped by local communities because the government controls all mining operations. Diamonds are instead smuggled out of the country to be sold in Mozambique, Dubai, India, and China.¹⁴⁰ Zimbabwe has



continued to lose economic value from the diamond trade sector;

A civilian handles a mixture of US dollars and Zimbabwean dollars.

Al Jazeera. “Zimbabwe Economy to Grow by 6 Percent: Finance Minister.” News | Al Jazeera. Al Jazeera, October 1, 2018. <https://www.aljazeera.com/news/2018/10/zimbabwe-economy-grow-6-percent-finance-minister-181001162723823.html>.

Central Bank Governor, Gideo Gono, has projected that this loss has totaled in \$400 million.¹⁴¹

Non state/Terrorist group

Smuggling in Zimbabwe brought about economic instability as well as an escalation of International terrorist groups. These groups, considered terrorists by the United States and European Union, are financed through illegal diamond extraction and smuggling¹⁴².

Fiscal

The mining sector's role in the government of Zimbabwe is significant in terms of monetary value. In 2011, the mining industry paid US\$311 million in taxes, which was 12 percent of the total fiscal revenue. This figure "increases to 18% and over US\$460 million when estimated Government's revenues from the Marange diamond fields are included."¹⁴³

6.6 Environment

Sustainability

Challenges to environmental sustainability are similar to those that exist in Guinea and Sierra Leone. Primarily, the expansion of derelict land, extensive deforestation, increased siltation, and water pollution.¹⁴⁴ These challenges can be best expressed through a general analysis of the impacts of diamond mining on the environment in Zimbabwe, and a case-study analysis of the Chiadzwa ward in east Zimbabwe.

Diamond mining in Zimbabwe is primarily conducted on the artisanal scale, which is more environmentally sound than extraction on an industrial scale. However, it should be noted that this does not mean diamond mining in Zimbabwe has no impact on environmental sustainability. Diamond mining in Zimbabwe drives deforestation, the conversion of agricultural lands into

barren fields designed for mine access, and the stripping of local resources from areas surrounding mines to serve mining communities. Some of the deforestation and land conversion can be explained by the need to move heavy machinery like small backhoes, small sluicing machines, and mine carts.¹⁴⁵

Mining practices in Zimbabwe also impact water quality surrounding mining sites. The Great Dyke Mineral Belt, which stretches north to south throughout Zimbabwe, is surrounded by the country's numerous platinum mines. Water surrounding this area has been increasingly silted by mining runoff and has contributed to decreasing water quality¹⁴⁶.

Freshwater crab species found in Zimbabwe have been researched as a marker to indicate river health surrounding mines. A recent study found that two freshwater crab species are being negatively impacted by runoff



The Marange diamond fields southeast of Mutare, Zimbabwe.

"Zimbabwe's Misery Diamonds - Zimbabwe." ReliefWeb. Accessed April 16, 2020.
<https://reliefweb.int/report/zimbabwe/zimbabwe-s-misery-diamonds>.

from gold and diamond mining across Zimbabwe. The impacts on water quality have caused crab spawning to decrease, shell-structure to weaken, and lifespan to shrink¹⁴⁷.

Chiadzwa, a ward in eastern Zimbabwe that houses a significant diamond mining operation, reflects each of these challenges individually and can act as a primary case in understanding the evolving status of environmental sustainability in Zimbabwe's diamond mines. Diamond mining

in Chiadzwa opened in 2006 and underwent regulatory transformations through 2012, as the government attempted to control environmental harm. The diamond mines, which expanded quickly in this time, were creating derelict lands and driving deforestation. Both of these were driven by diamond extraction, clearing land to create housing for miners, and miners extracting survival resources like timber for cooking wood and water for drinking and washing¹⁴⁸.

In 2012, the University of Zimbabwe noted increased buildup of sediments, called siltation, and dramatic increases of chemical and heavy metal water pollutants in both the Odzi Save Rivers¹⁴⁹. By April of 2012, the Save River was so congested with sediment that the river had partially dried up, impacting livelihoods including agriculture and fishing¹⁵⁰. The noted chemicals and metals were directly linked to the practice of dense medium separation that was being used to remove diamonds from gravel in mined stone. During dense medium separation, ferrosilicon, which is an alloy of iron and silicon, was used to scrub diamonds clean. After the debris were removed, the slurry of ferrosilicon was dumped outside of the mines, where it was able to run off directly into the local waterways. These water sources directly served miners, and thus exposed them to oxidative stress, where the body begins to physically break down. Additionally, high levels of chromium and nickel were detected in mine runoff, which are both cancer-causing and directly entering both rivers¹⁵¹.

Protections

Few mining regulations existed in Zimbabwe prior to the expansion of mining practices in Chiadzwa. Zimbabwe does not formally recognize the need to protect the environment and does not include any rights for non-human actors in their constitution¹⁵². From 2006 to 2012 there was often entirely unregulated mining, which quickly grew out of government control in terms of

both human and environmental impact. This can be specifically noted about Chiadzwa's diamond mining operations¹⁵³. To regulate the environmental harms being caused by diamond mining, the government of Zimbabwe yielded to pressure from the Environmental Management Agency (EMA) and sent the military into Chiadzwa to directly control mining operations. Members of the Zimbabwe African People's Union – Patriotic Front encouraged the government to prosecute diamond mining firms for water pollution in their 2012 annual report¹⁵⁴. In April of 2012, citizens of Chiadzwa noted that most significant pollution tied back to foreign mining companies, and several large calls for environmental protection via the regulation of foreign interests arose. Many informal attempts at governmental regulation were proposed, but there were no formal environmental protections that were enforced or legalized because of the complaints.

There are sizable African actors involving themselves in attempts at environmental protection across African mining industries. In 2009, the African Commission on Human and People's Rights developed a Working Group of Experts on Extractive Industries, Human Rights, and the Environment. This group was designed to build understandings of the intersection of human rights and environmental protections but was not given legal mechanisms to enforce findings. The African Initiative on Mining, Environment, and Society (AIMES), established in 1999, also conducts similar research. AIMES both publishes research and holds conferences, but the impact of this work on protections in Zimbabwe is indeterminate¹⁵⁵.

In Zimbabwe, what few protections exist are difficult to enforce. The EMA, as of the early 2010s, employed only 326 people. These employees were not legally allowed to enter Chiadzwa,

and other major mining areas across Zimbabwe¹⁵⁶. Following extensive reporting from the EMA, it was determined that decommissioned mine sites would require approximately \$34 million dollars to enact environmental protection and mitigation strategies¹⁵⁷. This is money that has not been budgeted for, is not available, and will realistically not be diverted into environmental protection plans. Pressure from civil society has previously been able to secure promises from the international corporations running the mines across Zimbabwe to act with environmental protections in mind, but the dangers of greenwashing and unmet agreements made to placate locals must be considered¹⁵⁸.

7.0 Methodology

In order to assess the risks that artisanal diamond mining poses with respect to the five UN human security indicators, the American University graduate research team utilized the guidance of the Jewelry Development Index (JDI). The JDI index is a tool created by the Minerals, Materials and Society program at the University of Delaware, in order to assess the impact of gems on the international community using five of seven UN human security indicators. These indicators are: environment, economics, governance, human health, and human rights. Each indicator has several sub-indicators. Environmental impacts include environmental sustainability and environmental projections. Economic impacts include industry employment, fiscal sustainability, beneficiation, smuggling/informal economy, and non-state actor/terrorist funding. Governance impacts include governance and accountability, transparency, corruption, industry regulation, and non-state actors/criminal organizations. The human health impacts include human health risks, food security, and water security.

The AU team was able to produce a three-country analysis on artisanal diamond mining in Guinea, Sierra Leone, and Zimbabwe using literature reviews and research. Interviews were conducted with industry experts and information was collected through extensive desk research. Desk research was conducted using a combination of books, academic articles, news reports, journals, and official reports. This qualitative research was used to draw analytic conclusions based on team findings.

8.0 Gap Analysis

Academic research on diamond mining, artisanal small-scale, or otherwise, was challenging to obtain. There has not been extensive research done on most of the elements of diamond mining investigated across this report related to the three researched nations. All three nations have governments with limited capacity to produce and transmit knowledge. There has been little on-the-ground research done on diamond mining in Guinea and Sierra Leone, and what exists on Zimbabwe is limited. Information across all topics was limited due to government capacity, the reliability of government figures, and a lack of third-party verifications. There were also challenges in both identifying regional and subject experts who felt qualified to give interviews, and in accessing online resources. Specifically, there has been little research conducted with mine workers and locals surrounding mine sites on impacts on human rights. Gaps in governance included a lack of available information on criminal organizations and non-state actors related to the diamond industry, a lack of available online resources on government operations and processes, and the question of the reliability of government figures.

For economic rights, there were gaps in available information related to mining and its benefit on the hiring of locals, corruption prevention or any anti-corruption law, information on natural resources and its availability for the coming years, beneficiation on labor force, and the right skill sets and education. There was also a gap in available information on regulations in place to prevent illegal exports. Information on environmental rights and human health were linked. Both saw gaps in local knowledge where people might now have the technical skills or scientific training to recognize and document environmental harm or harm to human health. Without

environmental impact assessments (EIAs), or environmental monitoring and evaluation at mine sites, comparing environmental conditions related to mining was not possible. There was little information available about what chemicals are currently being used on mine sites, and there were no significant health studies on these chemicals to inform human health.

9.0 Recommendations for Future Research

The AU team recommends the following to those who intend to research diamond mining in Guinea, Sierra Leone, and Zimbabwe:

1. *Focus on obtaining information from persons in-country.* The information found online for this project—while historically accurate, runs the risk of failing to adequately describe the three countries of focus. Corruption in these states runs rampant, and online sources are often outdated or purposefully incorrect. Thus, original data on this topic as it relates to human health, human rights, governance, economics, and environment, is needed for future academic production.
2. *Collect data from on-the-ground workers—to include miners and managerial staff.* Miner accounts and associated data in particular would be an asset to this field of study, as it would give a first-hand account of working conditions hours, health concerns, child labor activity, etc. which is often inaccurately reported.
3. *Greater third party research gathering efforts.* Third party independent reporting has been the greatest ally in seeking truthful information about the extractive industry in Africa. Enhanced data origination on this topic, particularly in Guinea, through independent reporting would enhance the foundation for academic analysis.

10.0 Comparative Analysis

10.1 Human Rights

Guinea, Sierra Leone, and Zimbabwe face many of the same human rights challenges. All three countries face issues with enforcement of laws that protect its citizens, and laws not being strict enough to deter violation. Additionally, they all have past reports regarding lack of equality for women and/or gender-based violence. The three countries also all seem to struggle with legality of work in the mines and lack of rights for workers. Furthermore, all three countries have forced labor in diamond mining. While there was evidence of discrimination of minorities within the countries, both Sierra Leone and Zimbabwe did not have reports on discrimination within the diamond mines. However, Sierra Leonian miners in Guinea did face discrimination. Violence in the mines was common in both Zimbabwe and Sierra Leone, but not in Guinea.

Of the three countries, Zimbabwe was the only one that has taken moderate steps to eradicate child labor in mining. Mining is considered one of the worst forms of child labor and is extremely dangerous for children because of the nature of the job. Sierra Leone and Guinea have made minimal progress. Some children are working to increase household income, or to be able to afford schooling—however, this form of labor is extraneous and unsafe. Zimbabwe appeared to be the only country of the three who created a law that would deter the use of child labor in mines.

10.2 Human Health

Human health in the diamond mining industry continues to be a challenge in all three nations.

Three conclusions can be made based on the information in this report that apply uniformly to all three states. The first is the lack of enforcement of standards, regulatory or industry-wise.

Although larger companies within the diamond mining industry are conscious of standards and enforce basic safety, smaller companies and ASM are less likely to enforce these same standards.¹⁵⁹ Each government's regulatory effort in accordance with established law have not been effective. Whether this is due to a lack of available personnel and equipment, or corruption from government official's involvement in the industry, is country specific. The result is that regulatory enforcement and law are not uniform within the industry.

The second challenge is labor demand between farming and mining, which may impact food security. Climate change and economic factors that impact the farming and agricultural industry within each country can often preempt a migratory shift of laborers from farming to mining, especially ASM ventures. This is especially impactful if the mining methodology does not require extensive equipment, such as alluvial mining. Although data regarding the scale of this migratory shift has yet to be accumulated, an assessment of diamond mining on food security should be mentioned and addressed by each country.

Lastly, water security is inherently impacted by diamond mining methodologies in each country. Diamond mining utilizing alluvial and pipe mining methods impacts available water sources. Alluvial mining requires digging and impacts water currents, which can pollute the water that is used downstream by local communities. Pipe mining, whether done by open-pit or underground,

requires digging and the use of explosives, which creates dust clouds or runoff, that can enter water sources. Both results can affect the water security in local communities.

All three countries have laws and regulations in place to protect human health. The Government of Sierra Leone has demonstrated greater capability to enforce regulations within the diamond industry. Recent efforts have been made legally in Sierra Leone to protect and appropriately compensate relocated communities impacted by the diamond industry. This same effort has not been demonstrated in Guinea and Zimbabwe yet, though civil governance and legal groups continue to make strides to bring greater recognition to local communities near mining operations. The impact of diamond mining on human health is ultimately determined by the regulatory capabilities of each country.

10.3 Governance

Guinea, Sierra Leone, and Zimbabwe all share similar governance struggles—most of which are associated with political corruption. Of the described corruption perception scores, Sierra Leone scored the highest with a 33/100, Guinea with a 29/100, and Zimbabwe with 24/100. Based on the findings Sierra Leone is perceived to be the country with the most effective reforms, as corruption is at the very least being addressed in a productive manor—and outcomes of these reforms (such as a higher corruption perception score) can be seen by the international community.

Sierra Leone and Zimbabwe are much more involved in the diamond extractive industry, with Guinea specializing primarily in other mineral mining. Because of Sierra Leone and Zimbabwe's

specialization, blood diamonds (or conflict diamonds) are a dark stain shared by both nations—although still heavily seen in Zimbabwe, and less so in Sierra Leone due to political reform.

Guinea and Sierra Leone have made the greatest strides towards transparency, with Sierra Leone’s freedom of information law and Guinea’s intent to publicize all mining contracts. Zimbabwe has made little-to-no efforts in this realm, and will not likely report accurate information in regards to mining until the state releases some control of their mining sites in favor of allowing outside corporations to participate. This would create an incentive for transparency, as the Zimbabwean government would want a private organization open about their in-country mineral operations.

10.4 Economics

Over the past several decades, diamond trade has fueled conflicts in many countries across the world. The Kimberley Process Certification Scheme, implemented in 2003, sought to stop the trade of “conflict diamonds” within participating countries. Some have considered the KPCS a success while others view it as a strong attempt at resolution that has ultimately failed. That said, the KPCS appears to be more successful in Sierra Leone than it is in Zimbabwe, given that Zimbabwe’s legitimate government is unwilling to play by the KPCS rules, and the country remains suspicious due to continued reports of violence and diamond-smuggling.

Smuggling in the mining industry seems to bring economic instability as well as an escalation of conflict. In Zimbabwe, the economy had lost US\$400 million worth of revenue because of smuggling of diamonds¹⁶⁰. In Sierra Leone between 15 and 20 percent of locally mined

diamonds are still smuggled out of the country and in Guinea illicit mining and smuggling are prevalent and large proportion of local production is clandestine¹⁶¹.

In Guinea the government intentionally keeps taxes low to encourage traders to legally sell their diamonds, while in Sierra Leone the government charges a three percent export tax on diamonds, and a quarter of these export taxes go to development projects for rural communities. In Zimbabwe, the sector's contribution was around US\$311 million in 2011 due to increased fees and new revenues forged from the diamond sector¹⁶².

10.5 Environment

Guinea, Sierra Leone, and Zimbabwe see many similarities in how environmental challenges and environmental protections surrounding diamond mining manifest. Most of these similarities relate directly to the specific environmental challenges found in each nation. Land changes and water quality challenges are most abundant. All three nations see diamond mining increasing deforestation and desertification, leading to less green space in mined areas. Mining requires access to mineral and metal veins, the movement of equipment, and the placement of workers, often on previously undisturbed land. Therefore, all three nations see these sustainability similarities- they are similarities seen across all areas that participate in extractive industry. Both Sierra Leone and Zimbabwe saw deforestation and desertification increasing soil erosion. Both also saw increased levels of siltation, where mining materials run off into water ways, increasing particulate matter in local rivers. All three nations face water-based environmental challenges, as well. The runoff of both silt and chemicals is a noted issue surrounding mining sites in all three nations.

Environmental protections in all three nations are also similar, with Sierra Leone and Zimbabwe notably more credible than Guinea in their attempts to prevent and mitigate environmental harm caused by mining. All three nations participate in the Kimberley Process for their diamond production. While all three lack the institutional support to enforce all Kimberley Process mechanisms, Sierra Leone and Zimbabwe have dedicated government institutions that attempt to integrate Kimberley Process practices into their mining procedures. Zimbabwe is the most reliable with environmental protections, in part because they have permitted independent researchers to work in and around their diamond mines. This has created more material to study the impacts of Zimbabwe's attempts to protect the environment from diamond mining practices. All three nations lack the institutional capacity to carry out or enforce their documented and codified environmental protections, making all three weak in environmental protection. However, the dedicated efforts of Sierra Leone and Zimbabwe indicate first-steps in successful environmental protection practices.

11.0 Conclusion

Based on the findings presented above several conclusions can be drawn on how diamond mining impacts human security in Guinea, Sierra Leone, and Zimbabwe. Each subsection of each of the topics explored above contributes to the furthest possible understanding of how these impacts are felt. Human rights, human health, governance, economics, and the environment each present unique findings, which combine to contribute the following findings.

There has been a strong link between human rights violations and the diamond industry, especially in Africa. Diamond mining is a dangerous line of profession that requires skill, training, and caution to perform. In the cases of Guinea, Sierra Leone and Zimbabwe, human rights abuses are still prevalent, despite the existence of the Kimberley Process and human rights organizations like Amnesty International and Human Rights Watch who work to expose and eradicate such issues. All three countries have had a history of human rights abuses in most of the five categories of worker's rights, indigenous/minority rights, women's rights, children's rights, and freedom from violence. While some countries are making strides to fix some of the issues, others seem to be at a stand still, making little to no progress.

Forced labor is a major issue for worker's rights in all three countries. Other challenges include wages, human trafficking, and mistreatment in the mines. All of the workers' rights issues are related to lack of enforcement from the government. There are labor laws that are in place in these countries, however, they are not being enforced. Sometimes this is due to lack of proper

training and other times it is caused by not having enough government personnel to carry out proper inspections of mining sites. Even when there are inspections, violations are not brought to justice often and punishments are not severe enough to act as a deterrent.

Findings were better for indigenous and minority rights. Out of the three countries, Guinea was the only one with instances of discrimination against a minority group in mining. However, Guinea also was the only country that had a large minority population because of the miners who immigrated from Sierra Leone. In Sierra Leone and Zimbabwe, most people who work in mines are from the same ethnic group, which could be the reason there are not cases of discrimination. All three countries also have laws against discrimination.

Diamond mining is a male dominated profession. It is standard in all three countries for women to work at the mine sites, but rarely participate in the digging part of the process. Additionally, all three countries have histories of women being exposed to rape and gender-based violence at the mine sites. However, there have not been recent reports of this in Zimbabwe. While Zimbabwe seems to be making strides to protect women in mining, the women who were victims of past atrocities in the Marange fields have not been compensated for their trauma.

Diamond mining is considered one of the worst forms of child labor because of the dangerous nature of the business. All three countries have current or past history of use of child miners. While they all have labor codes that set the working age and conditions for children, these laws are not properly enforced in Sierra Leone or Guinea. In these two countries, children are subject

to long hours with little compensation. Neither country has made substantive strides to eradicate this form of labor. However, Zimbabwe has made moderate efforts to stop child mining.

Violence in the mines was only an issue in Sierra Leone and Zimbabwe. There have been instances in Sierra Leone where violence has ensued because workers protested poor conditions. In Zimbabwe, violence in the mines is more prominent. Violence is usually invoked by the government and it affects the entire community surrounding the mine.

The human rights abuses in Guinea, Sierra Leone, and Zimbabwe all are linked to governance and economics. The government does not have strict enough laws and they are not properly enforcing the laws that are currently in place. This could be due to economics because they do not have the capital or infrastructure that it requires to pay the necessary amount of inspectors to audit mine sites. Child labor is also linked to economics because many children do not have money for school so they work to pay for schooling or they work because they are no longer attending school. However, it is necessary for these governments to have stricter laws and stricter punishments in order for these abuses to subside.

Human health in connection with diamond mining has always been a challenge. Diamond mining is inherently dangerous and pollutive, made even more so without effective regulations enforced at work sites. In the cases of Guinea, Sierra Leone, and Zimbabwe, the lack of governmental enforcement of existing regulations has negatively impacted the human health of local communities near diamond mines, both industrial, ASM connected, or illegal. This negative impact is connected to the likelihood of diseases, water pollution, and food security.

The confined work environments and living spaces that diamond miners operate in make diseases, but communicable and diarrheal, dangerous. In all three countries, diseases such as malaria, tuberculosis, and cholera continue to be real and present dangers. With healthcare facilities already stressed, such as with the recent health workers strikes in Zimbabwe, and the spread of the COVID-19 virus, the health of both workers and local communities are not benefiting from diamond mining. In conjunction with the expected dangers of mining such as falling rocks and heavy machinery injuries, diamond mining in all three countries continue to have human health negatively impacted.

Water security has fared little better with regards to diamond mining. Efforts by the Zimbabwe Environmental Legal Association and researchers from Najal University in Sierra Leone have published deliberate and in depth studies of how industry diamond mining has resulted in pollution of water sources from runoff, siltation of rivers, and creation of stagnant water sources that breed bacteria and insects. With little transparency from diamond mining in Guinea, we can infer that the same results are being seen. Relocation of communities away from mining sites may allow some degree of protection from pollution effects, but only if the new location is prepared with basic and functioning amenities.

Diamond mining can also have both a direct and indirect impact on food security at multiple levels. The most evident direct impact is the loss of farmable land from mining operations and pollution. Our environment analysis is much more deliberate about laying out this impact, but for human health, food security to local communities becomes threatened as farmable land is lost to diamond mining entities - both industrial, ASM, and illegal. In select interviews, in-country

experts have noted that relocation efforts for local communities have provided solutions to this, but the new locations are often poorly prepared with limited infrastructure. The indirect impact to food security is migratory labor moving from the agricultural sector to diamond mining. This is often due to the volatility of agricultural produce prices and the potential income from diamond mining that requires minimal skill sets to do.

Diamond mining with regards to human health demonstrates little if any positive impacts within Guinea, Sierra Leone, and Zimbabwe. Without proper government enforcement of existing regulations that protect the human health of workers and the food and water security of local communities, it is unlikely human health indicators of human security will be positive. Should the governments of these countries begin demonstrating greater initiative and enforcement, it is possible that the negative impact on human health from diamond mining can be minimized, allowing the economic benefits to spread from the local communities to the national government.

The governance in Guinea, Sierra Leone, and Zimbabwe is far from effective in the ongoing effort to legitimize the African diamond mining industry. All three government systems are unable to regulate, or hold accountable, mining corporations operating within their countries. Additionally, all three nations were found to have serious issues with corruption that are pervasive throughout society--extending well into the executive political atmosphere. With varying degrees of success, there have been efforts from each country to combat this evasive corruption; whether to please the international area and their Western diamond consumers, or to legitimately increase human security.

Non-state actors were not seen as a main challenge to the diamond mining sector in Guinea and Zimbabwe--who instead dealt with petty crime born from poverty to include gang and other minor street activity. Sierra Leone's difficulties with the RUF rebels created a severe threat to mine workers and the general populace until their dissolution in 2018. Despite RUF's rise to legitimacy, the trauma imbued into Sierra Leone's diamond mining industry continues to haunt. The smuggling routes used by RUF are also still in place and operationalized, furthering the illicit blood diamond trade whose impacts can be seen internationally.

Governmental transparency in all three countries is severely lacking in practice. While Guinea and Sierra Leone have proposed increased transparency and accountability measures, the seen effects are dim in comparison to the original promises made by executive leadership. Sierra Leone has made the greatest strides towards legitimate transparency, with applied transparency laws for mining corporations--however, there is no recorded accountability as the government has yet to perform in-person checks and solely relies on mining corporations self-reporting. Zimbabwe has the lowest level of transparency, with no laws or political push to increase this effort within their state.

While the Kimberley Process promotes industry regulation, Guinea, Sierra Leone, and Zimbabwe all utilize smuggling routes to pump illegal diamond exports into the rest of the world--which is completely unregulated by the Kimberly process and any associated mining legislation. These smuggling efforts undermine industry regulation for all three nations, and are an ingrained process in the currently established African diamond mining process. The black

market diamond trade acts as the backbone of Western consumerism, which encourages the continuation of this illegal and life-taking cycle.

Among the three nations of Sierra Leone, Guinea and Zimbabwe, human security has been put at risk because government has put its own interests before those of society. The failure to stem the ongoing incidents of smuggling in the mining industry has escalated conflict within the areas. Because there are not appropriate legal measures and safeguards in place within the mining industry, citizens of the three nations have had to seek alternative sources of livelihood. This hurts not only the people themselves, but the economy as a whole.

If managed effectively, the diamond industry could significantly and positively impact the communities of these three nations. It could bring about employment opportunities, and the revenue stream from trade could be used for community development. In Sierra Leone, one of the largest diamond producers in West Africa, the mining industry could provide thousands of jobs for residents, which could, in turn, lead to building a better society.

In summation, the economic impact of the diamond industry has contributed to the growth of Guinea, Sierra Leone, and Zimbabwe, but has also brought substantial economic instability, been detrimental to human security, and has brought about conflict among borders. All three nations saw brutal civil wars funded by the trade and sale of valuable diamonds, as well as the invasion of terrorist groups. It's undeniable that the residents of these countries lost homes, family members, money and jobs due to the governmental mismanagement of resources like diamonds.

The conclusions that can be drawn about the environmental impacts of diamond mining across Guinea, Sierra Leone, and Zimbabwe are similar to those conclusions previously drawn about the environmental impacts of extractive industries across the globe. There is irrefutable environmental harm taking place on all sites of extraction, and diamond mining sites across Guinea, Sierra Leone, and Zimbabwe are no different. All extractive industries impact the environment through deforestation, land degradation, desertification, water pollution, soil erosion, and soil pollution. These impacts are not more present in diamond mining than in other extractive industries, but even small-scale artisanal mining is not spared from the negative environmental consequences of mining.

While the Kimberley Process exists across all three nations as a set of regulatory guidelines to promote ethical diamond mining, it is both difficult to confirm that the environmental standards promoted are being upheld, and that the government's of each of these nations have the capital, political will, and/or institutional capability that allows nations to support the Kimberley Process. Each of these nations, with an emphasis on Sierra Leone and Zimbabwe, have taken on independent initiatives to promote environmentally sustainable practices in diamond mining through regulation. Zimbabwe, with the Environmental Management Agency, has taken strong on-paper steps to afford protections to the environment to prevent traditional harms like land and water degradation. As previously discussed, however, both poor governance and economic prospects negatively impact the ability for these nations to fulfil their environmental goals.

It is not surprising to see Guinea, Sierra Leone, and Zimbabwe struggle with the challenges surrounding both the physical impacts of diamond extraction, and the attempts to regulate negative environmental impacts. These are challenges faced by all nations, with mining operations at all scales. It is promising to see Sierra Leone and Zimbabwe with active mining

ministries that are attempting to codify protections for the environment. It is not realistic to assume that all nations participating in the Kimberley Process, or any regulator process, will be able to fulfil all of the requirements immediately, if at all. It is important that nations try, however. It should be well-regarded that all three of these nations are making attempts to participate fully in the Kimberley Process, and that each seems willing, at least on paper, to codify attempts at environmental protections.

From a human security standpoint, environmental regulations will have direct positive impacts on human health, as many of the challenges facing the environment branch from process-based challenges in mining that negatively impact human health. The questions of land arability, water pollution, and soil erosion all directly correlate to human security. Controlling mine runoff through environmental regulation protects freshwater sources in the environment, and the people who drink it. Deforestation and desertification negatively influence the rate and impacts of wildfires, a great threat to humans and the environment alike. Decreasing these land practices could positively impact human security.

Perhaps the greatest potential impact that increased environmental regulation could provide is the opportunity for a continuous monitoring presence on the ground at mining sites. Environmental monitoring and evaluation is a practice common in the environmental field. It encourages the active participation of civil society and promotes land stewardship, but it also provides the opportunity for outside organizations to maintain a presence on the ground. To sufficiently monitor mine sites, outside organizations would require consistent on-the-ground participation, meaning that they could monitor not only the environmental elements of human security, but the additional elements discussed above as well. Presenting monitors as existing for environmental purposes would allow additional data on human rights, human health, governance, and economic

statuses to be gathered as well. This would be instrumental in wrestling with the large gaps in knowledge that exist surrounding all elements of diamond mining in Guinea, Sierra Leone, and Zimbabwe.

Clearly, there are still strides to be made in ensuring definite human security as related to diamond mining in Guinea, Sierra Leone, and Zimbabwe. The Kimberley Process provides a significant marker for nations to meet, and often serves as the base for which regulatory processes surrounding diamond mining are implemented. Soft tools like certifications are important tools in building human security capacity, as they encourage nations to codify human and environmental rights, and often support economic and health efforts. At this time, the most important step to be taken to ensure that human security is considered in nations that are extracting diamonds is to encourage the growth and stability to internal governance. Without well-supported government institutions, it is challenging for nations that commit to protecting human security to achieve these aims.

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