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JEWELRY DEVELOPMENT IMPACT INDEX: A COMPARATIVE CASE STUDY OF EMERALD MINING IN COLOMBIA AND ZAMBIA



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Executive Summary

The production of jewelry has a significant impact on economic development and human security in the countries where the industry operates. Presently, the international jewelry industry lacks a standardized tool to measure how it impacts the welfare of people in those countries. This report presents the findings of the fourth iteration of a research project carried out by American University (AU) graduate students in coordination with the U.S. Department of State, Office of Threat Finance Countermeasures, and the University of Delaware, Minerals, Materials, and Society Program. The project as a whole aims to create a tool to assess the impact of the global jewelry industry particularly on vulnerable populations. The objectives of the current phase of the project are to 1) identify the impact of gem industries, specifically emeralds, in Colombia and Zambia, using United Nations (UN) indicators of human security, and 2) conduct a comprehensive review of the existing Jewelry Development Impact Index (JDII) methodology to make it scalable and applicable to all eight countries studied to date in this project.

The purpose of the current case studies is to examine the effects of the emerald mining industry in Colombia and Zambia. The case studies also provided an opportunity to apply an updated and scalable methodology to measure the risk to human security of the emerald mining industry in the two host countries. Key findings generated by this study include:

-) Capital flight and lack of beneficiation presents a risk to the value addition potential of the industry;
-) The presence of non-state actors that take advantage and profit from informal mining;
-) Fundamental resources, such as clean water, are negatively impacted by the emerald mining industry; and
-) Emerald mining increases risk of displacement of indigenous and ethnic groups, especially from previously arable lands.

The process of applying case studies to the JDII methodology has also provided lessons for the further development of the index, including but not limited to normalizing past scoring and standardizing for future use, and ensuring scores are based on well researched and triangulated data.

Key Terms and Abbreviations

Artisanal or Small-scale Mining (ASM)

Convention on the Rights of Child (CRC)

Extractive Industries Transparency Initiative (EITI)

Environmental Performance Index (EPI)

International Labor Organization (ILO)

Key Informant Interview (KII)

International Trade Union Confederation (ITUC)

Large-Scale Mining (LSM)

Organization for Economic Cooperation and Development (OECD)

The Nature Conservatory (TNC)

United States Agency for International Development (USAID)

United States Department of Agriculture (USDA)

Related specifically to Colombia:

National Authority of Environmental Licensing (ANLA)

National Mining Agency (ANM)

Fondo Nacional de Esmeraldas (FNE)

Revolutionary Armed Forces of Colombia (FARC)

Minería Texas Colombia (MTC)

Registro Único de Comercializadores de Minerales (RUCOM)

Related specifically to Zambia:

Zambian Ministry of Labor and Social Security (MLSS)

Table of Contents

Executive Summary	1
Key Terms and Abbreviations	2
Introduction	5
Methodology	6
<i>Improvements Made to Methodology</i>	7
Research Gap/Gap Analysis	7
Recommendations for Future JDII Development	9
Chapter 1: Historical and Cultural Background	9
1.1: Colombia	9
1.2: Zambia	12
Chapter 2: Governance Challenges	13
2.1: Colombia	13
2.2: Zambia	18
Chapter 3: Economic Challenges	24
3.1: Colombia	24
3.2: Zambia	28
Chapter 4: Environmental Challenges	34
4.1: Colombia	34
4.2: Zambia	37
Chapter 5: Health Challenges	40
5.1: Colombia	40
5.2: Zambia	44
Chapter 6: Human Rights Challenges	48
6.1: Colombia	48
6.2: Zambia	55
Chapter 7: Supply Chain Governance	61
7.1: Colombia	61
7.2: Zambia	64
Chapter 8: Eight Country Comparison	67
Conclusion	69
Annex A. Two-Country Comparison Index	71
Annex B. Questions used for Scoring	72

Annex C. Drivers of Risk – Colombia and Zambia	79
Annex D. Eight-Country Comparison Index	80
Works Cited	83

Introduction

The emerald industry in Colombia and Zambia is complex and highly fragmented. It is made up of a number of publicly traded corporations, thousands of small, privately held companies, and government entities. The sourcing, manufacturing, and trading of raw materials and production of finished emeralds have a significant impact on human security. Additionally, these activities often take place in the world's most fragile and vulnerable societies. The sourcing of raw materials and the production of finished jewelry call for increased study and monitoring to enable the jewelry industry to enhance the positive influence it can have, particularly in emerging economies. At present, the international jewelry industry lacks established measures or standards to assess its impact, particularly on sourcing countries.

This report was compiled by graduate students at American University in Spring 2019 in cooperation with partners at the U.S. Department of State, Office of Threat Finance Countermeasures, and the University of Delaware, Minerals, Materials, and Society Program. The report aims to contribute to the development of an evidence-based metric, called the Jewelry Development Impact Index, to assess the level of risk posed to human security by factors related to the presence of the precious mineral and gem industries. Expanding upon the work of previous American University graduate student research teams, the report examines the challenges to human security posed by emerald mining in Colombia and Zambia, both of which are significant contributors to global jewelry production and trade. The risk these industries pose to human security is assessed in accordance with categories established by the UN: 1) Governance, 2) Economy, 3) Health, 4) Environment and 5) Human Rights, with the addition of a section focusing on supply chain governance. The report also proposes updates to the previously used methodology as well as recommendations to assist in the refinement of the methodology by future research groups. It is expected that this process will ultimately lead to the development of a reliable and scalable JDI. The report explains the methodology and updates made to the JDI tool and its application to the two-country case study of emerald mining. The updated JDI is then applied across all eight countries studied by American University research teams, comparing levels of risk and demonstrating the scalability of the updated methodology.

Methodology

In order to assess the level of risk posed to human security by the precious mineral and gem industries, the AU team utilized and updated the JDII. The following indicators of risk assessment are created under the UN categories for human security. Each category is assessed according to data compiled in sub-indicators. The team developed several key questions pertaining to each indicator and sub-indicator, based on a literature review and research. Interviews were conducted with subject matter experts and information gathered through desk research to score each question under each sub-indicator. The review of academic literature, news articles, business reports, and interviews with experts, business leaders, and government stakeholders has enabled the research team to generate insights to add to existing quantitative datasets and indices. The index methodology relies on expert knowledge to score countries' level of risk. Each question and indicator/sub-indicator is examined in the context of emerald mining in Colombia and in Zambia.

The indicators used in this methodology are borrowed from the UN's framework of indicators for human security. Each indicator consists of multiple sub-indicators. The score for each sub-indicator has been assessed through a set of questions determined to be heuristic in understanding specific risks to the environment, the economy, and other human security concerns. Questions were scored on a 0-5 scale to give each question the same weight (*see Annex A*). The scale ranges from 0, representing no risk, to 5, representing a very high risk. The following chart demonstrates the scoring used.

Figure 1. Methodology Scoring Key

0	Always or Yes	No Risk
1	Almost Always	Very Low Risk
2	Usually	Low Risk
3	Sometimes	Moderate Risk
4	Almost Never	High Risk
5	Never or No	Very High Risk

Improvements Made to Methodology

In order to contribute to the JDII, the research team built upon the work done in previous projects. The methodology used in past efforts has yielded useful information about the impacts of mineral mining and jewelry production on human security. The current effort identified various shortcomings in the existing methodology and introduced several changes in *how* scores were calculated for each indicator, focusing on standardized scoring and scalability.

Standardized Scoring

In the previous methodology, a 0-1 scale was used for some questions, which yielded a decimal score, while a 0-5 score was used for other questions that yielded a whole number. This gives unfair weight to some indicator questions over others and complicates interpretation. To address this challenge, the scoring method was changed to standardize the 0-5 scoring across all questions, ensuring that the scores more accurately reflect human security risks in Zambia and Columbia.

Scalability

One of the primary objectives of this project has been to improve the scalability of the index to move from case studies to a comparable index score. The objective here is to create an index that can be applicable beyond the case studies that have been considered to date so that impact can be assessed across a larger data set. The questions that became the basis for scoring were made broader and the same set of questions were applied to all eight countries in the multi-country comparison (*See Annex C*). A uniform set of questions permits the revised ranking to be applied across larger numbers of countries.

Research Gap/Gap Analysis

Significant gaps in information regarding emerald mining in each country were noted by the research team. Available data was overly generalized and did not address the real difficult and meaningful questions about human security impacts. Interviews were conducted to try to fill as many gaps as possible.

Colombia's main research gaps were found to be the lack of information regarding risks associated with governance and the economy as they relate to the emerald mining

industry in particular. Given Colombia's political climate and the sensitivity around the topic, information about governance was quite limited and potentially biased. Additionally, while Colombia is a member of the Extractive Industries Transparency Initiative (EITI), information on the state of transparency in the country was mainly focused on gold and copper mining. The same lack of information was found when attempting to analyze the economic risks of emerald mining. Most information is aggregated, separating it into different specific gem industries proved difficult. Moreover, the emerald sector has less government oversight than other gems being mined. Smuggling and artisanal mining further skews available data. Analyzing Colombia's gold mining may be more useful for a top-down view of the effects resources have on the Colombian economy. There is a decline in the importance of emeralds to Colombia's gross domestic product (GDP), and gold mining is more lucrative. However, emeralds have remained important on the local level.

The largest gaps in information gathered on Zambia were similar to those for Colombia – a lack of emerald mining specific information. Available information was at times found to be bias and unreliable. For example, data on the income of workers in the emerald mining industry was only made available by large firms, such as Gemfields. Based on further research, the team found that incomes vary annually and seasonally and are often not accounted for in the informal sector. One reason for the paucity of information is the process of manufacturing, which is done outside of Zambia, another is that emeralds do not play a major role in the economy and have therefore solicited little attention from scholars and international organizations. To understand the impact of emerald mining on Zambia, more data is needed on labor markets and the revenues of gem producing companies, both big and small. Targeted research is needed to gauge the impediments to value-creation in the emerald industry. It is understood that much beneficiation happens outside of Zambia, but it remains unclear why this is the case. Additional data is also necessary on how much the government invests in skills and capacity development for the emerald industry that would allow for more value creation within Zambia. Such value creation would potentially allow for the industry to have a greater, more positive impact on the country.

Recommendations for Future JDII Development

Several future improvements can be made to the JDII to improve its effectiveness and accuracy in assessing levels of risk posed to human security by the precious gem and mineral industries. In its current state, the index contains high levels of subjectivity in the scoring process as the scores are primarily based on interviews with industry experts and literature review and research. While still of value, the index lacks statistical accuracy and the ability to be used as a predictive quantitative tool. More on the ground research would be invaluable in increasing the accuracy and utility of the index. Of course, there are many factors, financial and political, mitigating against such a comprehensive field-based approach.

Chapter 1: Historical and Cultural Background

1.1: Colombia

Colombia once supplied nearly 63 percent of the world's emeralds. Known for their impeccable quality, emeralds have figured prominently in the history of Colombian trade. The country's indigenous people mined for emeralds and established trading routes as far back as 1000 BC. Colombian emeralds continue to be a source of income for the local population, although the economic benefit of emerald mining has diminished in comparison to other natural resources. The industry's informal nature of the mining process has remained, due to characteristics embedded in Colombian culture, regardless of mine owner.

The Spanish maintained control of the mines from the mid-sixteenth century through Colombian independence. In 1946, the newly independent government nationalized the mines and gave oversight responsibility to the Bank of the Republic. In more recent times, disputes between wealthy mining families led to the what is known as the *Green War* (1984-1990). The Green War was started by Colombian local groups in an effort to claim control over the emerald mines in the Boyacá Department. The groups sought to enforce and normalize their own organized institutions. The violence was criticized as a failure in government regulation and policing. The Green War concluded in 1990 through a peace agreement facilitated by the Catholic Church. While the peace agreement between the various emerald factions put an end to the Green War, it has slowly begun to collapse due to

the lack of enforcement and death of Don Victor Carranza, the infamous Colombian “emerald czar”.

The Green War

The Green War began over property and involved wealthy mine-owning families who fought to maintain control over land rich in natural resources. In the 1980s, Pablo Escobar’s partner, Gonzalo Rodríguez Gacha, began plans to control the emerald trade due to the transit routes and lack of government oversight in the region. The mine owners fought to protect their claims on the mines, leading to the start of the Green War. Nearly 6,000 people lost their lives in the conflict. The Colombian Government was virtually absent leaving a power vacuum for “emerald armies” to form and secure the mines instead. Reportedly, wealthy mine owners attempted to keep their mines physically isolated as a way to prevent access and control by the government.¹ The various forms of emerald armies were comprised of private militias or left-wing guerrillas.

Don Victor Carranza

One of the main actors in the Green War and subsequent peace agreement was Don Victor Carranza. He began as a child prospector and rose until he owned around half of the emerald business in all of Colombia.² It is alleged that Don Carranza established a paramilitary militia in order to seize and establish ownership of the mines. The militia was to become his private army known as the *Carranzeros*, or the Black Serpents. Following efforts by the Catholic Church to mediate a truce in 1990, Carranza expanded his territory to include the cocaine trafficking routes and substantially increased recruits for the *Carranzeros* to protect the land.³ The Revolutionary Armed Forces of Colombia (FARC), primarily funded by the cocaine industry, fought with Carranza’s military units whom often allied with the Colombian army. The alleged alliance with the Colombian army was one of the reasons Carranza was able to act with impunity.⁴ For example, in 1998, Carranza was arrested for forming death-squads and charged with kidnapping. However, the charges were

¹ Emerald Wars: Colombia's Multiple Conflicts Won't End With the FARC Agreement. (n.d.). Retrieved from <https://smallwarsjournal.com/jrnl/art/emerald-wars-colombia's-multiple-conflicts-won't-end-with-the-farc-agreement>

² Victor Carranza. (2013, April 20). Retrieved from <https://www.economist.com/obituary/2013/04/20/victor-carranza>

³ Emerald Wars: Colombia's Multiple Conflicts Won't End With the FARC Agreement. (n.d.). Retrieved from <https://smallwarsjournal.com/jrnl/art/emerald-wars-colombia's-multiple-conflicts-won't-end-with-the-farc-agreement>

⁴ Ibid.

dropped after he spent only three years in prison. Carranza returned to his business until his death in 2013.

Present-Day Green War

As Don Carranza's health declined, a power vacuum was created because of his success in the industry. Suddenly around 40 percent of the industry was up for grabs. As such, there was an increase in targeted assassinations of high-profile actors associated with the emerald mines. Lawyers, stakeholders, and managers have been targeted. Leading up to Carranza's death, 25 people were killed, all of whom were linked to the emerald trade.⁵ Following Carranza's death, a partner of Carranza-owned Esmeracol mine, Jose Alejandro Rojas Gonzalez, or "Martin Rojas", was assassinated in Bogota.⁶ He owned the exploitation rights of the Coscuez emerald mine. Esmeracol has now been acquired by Fura Gems. A new Green War will most likely not occur but the power struggle from Carranza's death demonstrates a greater need for the government to enforce its presence in the industry.

Geography

Emeralds in Colombia are concentrated within the Boyacá Department, which consists of thirteen provinces, 123 municipalities, and two special districts. Special districts are given to locations based on political, historical, industrial, or cultural characteristics, which grants certain benefits.⁷ Muzo principality, located within Western Boyacá Province, is known as the capital of emeralds due to the high-quality gems found in the Muzo mines.⁸ The Muzo mines have a underground galleries: Tequendama, Catedral, Volvere, and La Rampa.⁹ La Rampa is unique in its substantial depth of 1,300 feet, which has necessitated the development of specialized mining methods and technology for purposes of extraction and ventilation.

⁵ 'Selective and Silent': The New 'Green War' for Colombia's Emeralds. (2017, October 06). Retrieved from <https://www.insightcrime.org/news/analysis/selective-and-silent-the-new-green-war-for-colombias-emeralds/>

⁶ Investigativa, U. (2014, May 17). Crimen en gallera, una advertencia al grupo de Carranza. Retrieved from <https://www.eltiempo.com/archivo/documento/CMS-14002421>

⁷ OECD. (2017). *Colombia Profile*. Retrieved from <https://www.oecd.org/regional/regional-policy/profile-Colombia.pdf>

⁸ "Into the Green Land: Emerald Mining in Colombia." Colombia | Al Jazeera, www.aljazeera.com/indepth/inpictures/2017/03/green-land-emerald-mining-colombia-170306110821882.html.

⁹ Millennial Legacy - The mine. (2016, March 10). Retrieved from <http://www.muzo.co/en/millennial-legacy/the-mine>

1.2: Zambia

The landlocked country of Zambia is a close second to Colombia as the world's most important source of emeralds.¹⁰ While more commonly known for its large copper mining industry, Zambia's Copperbelt region is also home to emerald deposits that are found near the Kafubu River. Due to Zambia's rainy season, mining must be done through open-pit mines, and extraction has proven to be expensive. There seems to be no question in the longevity of the supply in the region, but sustainability, due to cost and other factors, has been cited as a potential barrier, effectively characterizing the industry as a high-risk business.¹¹ Despite a fairly stable political climate, free of any recent large-scale violence, the country continues to face challenges in development. Alleged corruption and a volatile economy remain at the heart of the country's issues.¹² The country, despite positive efforts, has managed to fall prey to the well-known resource curse so many of its neighbors also face.

Rise of International Mining Companies

Small scale mining of the country's emeralds dates back to the 1930s, prior to the country's independence from Britain; however, significant mining of the resource began in the 1970s.¹³ As Zambia began to grasp the extent to which emeralds could be realized as a resource for the developing low-income country, they established a restricted zone (Ndola Rural Emerald Restricted Area) in the region, displacing residents. International corporate mining companies moved in, forming partnerships with the Government of Zambia. The government agency, the Reserved Minerals Corporation (RMC) was formed to manage the mining companies and rights, but conversely also held stake in the new large private-sector mining companies establishing themselves in the region.¹⁴ Privatization of the resource took hold.

Today, emerald mining in Zambia is monopolized by three large mines – Kagem Mining Co., Grizzly, and Chantete.¹⁵ The foreign mining companies operating in these mines

¹⁰ (Hanco) Zwaan, J., Seifert, A., Vrána, S., Laurs, B., Anckar, B., & (Skip) Simmons, W. et al. (2005). Emeralds from the Kafubu Area, Zambia. *Gems & Gemology*, 41(2), 116-148.

¹¹ Zwaan, J., Seifert, A., Vrána, S., Laurs, B., Anckar, B., & Simmons, W. et al. (2005). Emeralds from the Kafubu Area, Zambia.

¹² Zambia. (2019). Retrieved from <https://www.state.gov/e/eb/rls/othr/ics/2017/af/269795.htm>

¹³ Zwaan, J., Seifert, A., Vrána, S., Laurs, B., Anckar, B., & Simmons, W. et al. (2005). Emeralds from the Kafubu Area, Zambia.

¹⁴ *Ibid.*

¹⁵ Shortell, P., & Irwin, E. (2017). *Governing the Gemstone Sector: Lessons from Global Experience*. National Resource Governance Institute. Retrieved from https://resourcegovernance.org/sites/default/files/documents/governing-the-gemstone_sector-lessons-from-global-experience.pdf

extract more than a quarter of the world's production of rare emeralds in Zambia.¹⁶ The Government of Zambia retains a percentage of ownership, for example, the Zambian Government owns 25% of the Kagem mine, while Gemfields, a large UK-based company, owns the other 75%.¹⁷ The push and pull between the government and the international companies surrounds itself around the issue of the location of beneficiation and remote selling of the rough emeralds. The relationship of these semi state-owned enterprises contributes to the governance issues of the sector explored in the forthcoming section.

Chapter 2: Governance Challenges

This chapter will focus on Colombian and Zambian governance and legislation in relation to the emerald mining industry in their country context. Chapter 2 of this report will discuss the state of governance and accountability, transparency, corruption prevention, industry regulation, the presence of criminal non-state actors and organizations, as well as how the risks posed in these areas affect overall governance of emerald mining in Colombia and Zambia.

2.1: Colombia

2.1.1: State of Governance and Accountability

According to the Colombian Constitution, the Colombian State is the official owner of all emerald resources in Colombia. The Colombian Ministry of Mines & Industry and the National Mining Agency (ANM) are established governmental entities in place to regulate the country's mining industry. There are also informal institutions in place to monitor the emerald mining industry on a micro-level. Despite the Colombian government as the official owner, individuals can acquire rights to emerald resources through obtaining a mining license through competent legal entities, which grants legal permission and prior authorization.¹⁸ These mining licenses are valid for thirty years.¹⁹ The primary regulation in force, in regards to governance and accountability, is the Mining Code issued through Law 685 of 2001, which seeks to “regulate the legal relationships between the state and

¹⁶ Vives, L. (2019). Emeralds, Rubies Could Make Zambia Rich - IDN-InDepthNews, Analysis That Matters. Retrieved from <https://www.indepthnews.net/index.php/the-world/africa/2476-emeralds-rubies-could-make-zambia-rich>

¹⁷ Vives, L. (2019). Emeralds, Rubies Could Make Zambia Rich - IDN-InDepthNews.

¹⁸ Veraar, D (May 2018) *Company Formation: How to Set Up an Emerald Mining Company in Colombia* BizLatinHub <https://www.bizlatinhub.com/how-set-up-emerald-mining-company-colombia/>

¹⁹ Ibid

individuals at all stages of mining (i.e., exploration, construction and assembly, exploitation, processing, transport and marketing of minerals in the soil or subsoil)".²⁰ Risks to governance exist because institutions in place to monitor the emerald mining industry are reportedly limited in effectiveness and industry actors are therefore not always held accountable.

In the territories outside the control of the government, the emerald industry has operated in a grey space between legality and illegality, presenting challenges to governance.²¹ Therefore, one of the government's main focuses for mining is the organization and formalizing of the industry.²² The Colombian Government has adopted a "five pillar, three-door approach" to bring more miners into the legal system.²³ This approach aims to address some of the challenges to accountability, transparency, corruption, industry regulation, and non-state actor involvement in the industry. These five pillars include:

- Improvement to accuracy and trustworthiness of national mining resources through an improved mining census and collaboration between mining agencies;
- Customized legal guidelines for mining depending on the size of the operation;
- Identification and development of infrastructure needs for the mining community;
- Development of trust between mining communities, companies, and the government;
- Strengthened partnerships and cooperation with companies in each sector and promotion of the Organisation for Economic Cooperation and Development (OECD) guidelines.²⁴

The three-door approach encompasses these five pillars and emphasizes formalization, reconversion, law enforcement, and judicial action to those involved in illegal operations and criminal activity.²⁵ Should the five pillar, three-door approach be successful, less risk will be posed to governance surrounding the emerald mining industry in Colombia.

²⁰ Richer La Flèche, E. (October 2017) *The Mining Law Review*, The Sixth Edition, p.61
<https://www.hklaw.com/files/Uploads/Documents/Articles/Colombia-Mining.pdf>

²¹ Farah, Douglas *Emerald Wars: Colombia's Multiple Conflicts Won't End With the FARC Agreement*, Small Wars Journal
<https://smallwarsjournal.com/jrnl/art/emerald-wars-colombia%E2%80%99s-multiple-conflicts-won%E2%80%99t-end-with-the-farc-agreement>

²² Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology*, Fall 2017, Vol. 53, No. 3
<https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

²³ Ibid

²⁴ Ibid

²⁵ Ibid

2.1.2: Transparency

While information and data on Colombia's mining permit process and industry actors is usually easily accessible and publicly available, the overall state of transparency regarding emerald mining allegedly remains poor. Colombia is a member of the EITI. Membership in the EITI holds Colombia to an international standard of mining governance and accountability.²⁶ One challenge to full transparency is that much of the information on Colombia, in relation to the EITI, is related to gold, coal, and copper, with little mention of emeralds. EITI ranked the government as "Satisfactory" in civil society engagement and involvement with implementing EITI.²⁷ The involvement of civil society increases transparency through monitoring of collection and use of revenue derived from emerald mining.²⁸ While increased accountability from civil society organizations helps create greater transparency, the alleged lack of protection, by law, for whistleblowers, weakens it. Colombia is also a member of the OECD. Although the country is a member of the OECD, Colombia reportedly follows the OECD due diligence guidelines and responsible business conduct guidelines inconsistently. Overtime, the Colombian government has increased calls for transparency and traceability in efforts to formalize the loose system of independent miners that exists, but many risks to transparency remain.²⁹

2.1.3: Corruption Prevention

Although Colombia maintains several corruption prevention mechanisms and institutions, risks are posed through questions regarding the effectiveness of these mechanisms, therefore presenting opportunities for potential corruption. According to Transparency International, Colombia scores a 36 out of 100 (as of 2017) on their transparency scale, with 0 as highly corrupt, demonstrating the prevalence of corruption.³⁰ While anti-corruption laws do exist in the industry, risks arise in the form of inconsistent enforcement and rent-seeking. Dedicated agencies in charge of licensing can act as a mechanism to help prevent corruption if used effectively.

²⁶ Ibid

²⁷ EITI Colombia (2019) Retrieved from: <https://eiti.org/colombia#mineral-production-in-tonnes>

²⁸ Okonjo-Iweala, N. & Osafo-Kwaako, P. "The Role of Civil Society in Supporting Fiscal Transparency in African Countries" https://www.r4d.org/wp-content/uploads/Ngozi-CSO_Paper_Revised_Version.pdf

²⁹ Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology*, Fall 2017, Vol. 53, No. 3 <https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

³⁰ Caripis, L. (2017) *Combating Corruption in Mining Approvals* Transparency International https://www.transparency.org/whatwedo/publication/combating_corruption_in_mining_approvals

A government agency, such as the ANM, can act as a thorough approval mechanism for granting licenses to help prevent corruption down the line, except in the case of informal mining.³¹ Staffing constraints and alleged corruption within government agencies can potentially hinder their effectiveness as tools of corruption prevention and license applications can take up to several years in some instances.³² In its own corruption risk assessment in 2016, the ANM found a probable risk of favoritism in responding to license applications.³³ Public bodies in Colombia have a legal duty to keep registers of the assets and income of their staff to mitigate the risk of conflicts of interest.³⁴ However, these registers are not always updated or thoroughly verified and the requirements only apply to public officials, not consultants engaged by the state to carry out government functions in mining and environmental approvals.³⁵ Along these lines, government officials allegedly rarely publicly disclose their finances. The Colombian Ministry of Mines oversees the Fondo Nacional de Esmeraldas (FNE) which helps prevent corruption by monitoring and overseeing that money goes back into the mining regions, instead of into the pockets of bureaucrats.³⁶ Despite the existence of corruption prevention and regulation mechanisms, internal corruption and informal mining lead to higher risks in corruption surrounding emerald mining in Colombia.

2.1.4: Industry Regulation

Colombia regulates the formal sector of the mining industry, through regulated agencies and laws. However, the roughly 63% of informal mining activity in Colombia poses risks to industry regulation and, by extension, overall governance of the emerald mining industry.³⁷ Emerald traders register with Registro Único de Comercializadores de Minerales (RUCOM) in the ANM, which has increased from 178 registered traders in 2015 to 5,150 in 2017.³⁸ The Colombian Constitution of 1994 provides that the subsoil and the non-renewable resources are property of the Government, while also allowing for individuals to

³¹ Ibid.

³² Ibid.

³³ Ibid

³⁴ Ibid

³⁵ Ibid

³⁶ Ringsrud, R., *A Blog About Emeralds* <http://www.emeraldmine.com/>

³⁷ Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology*, Fall 2017, Vol. 53, No. 3 <https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

³⁸ Ibid

acquire rights over those resources.³⁹ According to Article 334 of the Constitution, it is the “state’s responsibility to intervene in the use, production, operation, exploitation and distribution of the minerals obtained from the soil and subsoil”, which directly translates into a specific regulation for the mining industry, allowing individuals to develop these activities.⁴⁰ The ANM attempts to regulate the industry, and these activities through: execution of the title and registration processes, technical assistance, and promotion and observation of the obligations arising from the mining concessions.⁴¹ Although the process of obtaining permits and/or licenses related to the mining industry is accessible, it also creates risks to governance due to its alleged lack of timeliness.

Another essential part of industry regulation, in regard to emerald mining, is the regulation of explosives used in the mining process. Water-gel explosives authorized for emerald mining must be purchased from the Colombian military weapons manufacturer and kept in a secure area according to strict guidelines. In the Chivor area of Colombia, the explosives’ storage area at each mining operation is guarded by private security. The government must also certify the miners handling the explosives.⁴² Although the government usually enforces industry regulations, and legal entities related to mining exist, there is still a high presence of illegal mining that cannot be regulated, posing a risk to governance of mining and ensuring its safety as a whole.

2.15: Presence of Criminal Non-State Actors and Organizations

Governance of the emerald mining industry in Colombia is at risk due to the presence of terrorist organizations and criminal actors. Internal conflict contains actors and dynamics that are closely related to renewable and nonrenewable resources, particularly in border areas.⁴³ Due to conflict-based factors, the mining sector in Colombia has not developed at the same pace as the oil industry, and therefore there are reportedly fewer protections and regulations. Large reserves of minerals are located in remote areas that have been difficult to access due to the presence of illegal groups over the past decades. Armed groups engage

³⁹ Richer La Flèche, E. (October 2017) *The Mining Law Review*, The Sixth Edition, <https://www.hklaw.com/files/Uploads/Documents/Articles/Colombia-Mining.pdf>

⁴⁰ Ibid

⁴¹ Ibid

⁴² Fortaleché, D. et al “Colombian Emerald Industry: Winds of Change”, *Gems & Gemology*, Fall 2017, Vol. 53, No. 3 <https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

⁴³ Lavaux, Stéphanie. (2006) “Natural Resources and Conflict in Colombia: Complex Dynamics, Narrow Relationships.” *International Journal*, vol. 62, no. 1, pp. 19–30. *JSTOR*, www.jstor.org/stable/40204242.

in rent-seeking behavior to finance their groups, and they are often drawn to geographic areas of commodity boom, particularly when there is no state presence.⁴⁴ The two emerald belt zones of Boyaca and Cundinamarca have also experienced the creation of local private armies "as protectors of the cartel linked to emerald trade, or as paramilitary in the service of drug traffickers, due to the transfer of capital between the two industries".⁴⁵ These militarily strong emerald armies kept the FARC from gaining a foothold in the country's emerald zones, despite the FARC operating on the periphery and multiple attempts at moving into the zones.⁴⁶ The lack of state presence in certain parts of the country, along with informal mining, and the military strength of certain armed groups, pose risks to governance of the emerald mining industry in Colombia.

2.2: Zambia

2.2.1: State of Governance and Accountability

Zambia's alleged lack of rule of law and strong governance institutions are evident when examining the economic, health, and social state of the country. These issues are magnified with the emerald mining industry in the country. Despite valiant efforts and advances made by the country, effective development of its gemstone resource is continuously undermined by reported ineffective governance and an inadequate regulatory framework.⁴⁷ There are few formal institutions to monitor the industry, and institutions currently in place are underfunded, rendering them easily bought through the various forms of alleged corruption present in the industry. To demonstrate, as industry actors entered and the government issued hundreds of gemstone-mining licenses, by 2004, only 40% of the licenses were estimated to be active.⁴⁸ Furthermore, as of 2013, Zambian Government officials estimated that 40% of Zambia's gemstones, worth an estimated 60 million USD annually, were mined without a license.⁴⁹ The Government of Zambia therefor has seemingly lost ultimate control and regulation. The accountability measures, judicial and non-judicial,

⁴⁴ Arnsion, C., (2011) *The Social and Economic Dimensions of Conflict and Peace in Colombia* <https://www.wilsoncenter.org/publication/the-social-and-economic-dimensions-conflict-and-peace-colombia>

⁴⁵ Lavaux, Stéphanie. (2006) "Natural Resources and Conflict in Colombia: Complex Dynamics, Narrow Relationships." *International Journal*, vol. 62, no. 1, pp. 19–30. *JSTOR*, www.jstor.org/stable/40204242.

⁴⁶ Farah, Douglas *Emerald Wars: Colombia's Multiple Conflicts Won't End With the FARC Agreement*, Small Wars Journal <https://smallwarsjournal.com/jrnl/art/emerald-wars-colombia%E2%80%99s-multiple-conflicts-won%E2%80%99t-end-with-the-farc-agreement>

⁴⁷ Shortell, P., & Irwin, E. (2017). *Governing the Gemstone Sector: Lessons from Global Experience*. National Resource Governance Institute. Retrieved from <https://resourcegovernance.org/sites/default/files/documents/governing-the-gemstone-sector-lessons-from-global-experience.pdf>

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

have also been ineffective. Informal monitoring institutions, watchdogs, and civil society remain unorganized and/or underfunded to have any substantial effect.⁵⁰ Associations such as the Emerald and Semi-Precious Stones Mining Association of Zambia continue to be frustrated and discontent with the government's management of the emerald sector.⁵¹

This is also seen through the amount of rough emerald exports that are sold outside of Zambia. While the Government of Zambia has made multiple attempts at reigning in the sale of its emerald resources back into the country, international mining companies remain steadfast on selling in foreign markets in order to maintain a more competitive price.⁵² However, it is also for this reason that Zambia has been able to make the most of its gemstone resource and become marketable on an international-scale, effectively increasing the value of Zambian emeralds. The increased value also benefits the Government of Zambia as it maintains a percent equity stake in the mines, bringing in revenues for the country. Mining companies, such as Gemfields, owner of the Kagem mine, link Zambia's emeralds to global markets with their global auction model.⁵³

In 2013, the Government focused initiatives on requiring mining companies to trade and sell in Luakasa in an effort to bring small-scale, local miners into the competitive landscape.⁵⁴ In doing so, the Government hoped to increase transparency within the country and formalize the industry making room for further opportunities for revenue collection. In Zambia, small-scale miners are limited and blame the lack of government support and conflict of interest given the government's stake in the mines.⁵⁵ Government officials, even those at high levels of the government, such as the Minister of Labor, are allegedly easily persuaded by the mining companies.⁵⁶ Zambia's regulations therefore lack legitimacy even if present. Lack of any real formal regulations and the government's conflict of interest, allows mining companies to operate, for the most part, as they please, with the exception of trade laws and enforced taxes.

⁵⁰ AU-JDI Zambia Interview. Interview by Hannah Murray. (2019). [Telephonic]. Washington, DC - Copenhagen, Denmark.

⁵¹ Sichelwe, N. (2014). Zambia's Emerald Conundrum. Retrieved from <https://www.aljazeera.com/indepth/features/2014/02/zambia-emerald-conundrum-201424124739676466.html>

⁵² Zambia does a Botswana on emeralds. (2013). Retrieved from <https://www.ft.com/content/401eb438-9493-3777-b233-df1de1e09879>

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Sichelwe, N. (2014). Zambia's Emerald Conundrum.

⁵⁶ AU-JDI Zambia Interview. Interview by Hannah Murray. (2019). [Telephonic]. Washington, DC - Copenhagen, Denmark.

The international, large mining actors have well-established international trading arrangements, while the small-scale actors and any illegal miners remain constrained to local traders. Often, the small-scale miners are supplied with necessities in exchange for emeralds, rather than fiscally compensated as the economic and social issues of livelihood in Zambia are dire. Due to this lack of regulation, informal local markets have taken up through street markets and selling by illegal miners.⁵⁷ Most recently, the Government of Zambia in December of 2018 announced an increase in taxes of 1.5% of miner royalties with an aim to curb the country's public debt.⁵⁸ Issues surrounding taxes continues to be a debate between the government and the mining companies, as Zambia tries to reap as many benefits as possible from their mining sector. The country reportedly is not benefiting in the manner it should be, whether due to the informal actors, lack of regulation, or mismanagement of funds. A Washington-based group, Global Financial Integrity concluded that Zambia's crime, corruption and tax evasion, due to poor lack of governance and institutions, cost the country \$8.8 billion, which is the equivalent to almost half of Zambia's GDP.⁵⁹

2.2.2: Transparency

There is a lack of transparency in the emerald mining industry in Zambia. While the country is part of the EITI, the overall transparency of operations is lacking. Similar to Colombia, and other member countries, Zambia's membership with the EITI means the country is held to a certain international standard of mining governance and accountability. As of 2017, EITI had ranked Zambia as having made meaningful to satisfactory progress across almost all requirements, with the exception of license allocations.⁶⁰ However, these are not necessarily specific to the emerald mining industry and are allegedly not the reality on the ground.⁶¹ As stated above, alleged corruption derails any governance of the sector, along with accountability mechanisms. Whistleblowers are not protected by the law and are victims or corruption themselves. The Government of Zambia has attempted to increase

⁵⁷ (Hanco) Zwaan, J., Seifert, A., Vrána, S., Laurs, B., Anckar, B., & (Skip) Simmons, W. et al. (2005). Emeralds from the Kafubu Area, Zambia. *Gems & Gemology*, 41(2), 116-148. doi: 10.5741/gems.41.2.116

⁵⁸ Zambia. (2019). Retrieved from <https://eiti.org/zambia>

⁵⁹ Neate, R. (2013). Emerald miner loses fifth of market value on Zambian anti-corruption plans. Retrieved from <https://www.theguardian.com/business/2013/apr/08/emerald-miner-gemfields-zambia-anti-corruption>

⁶⁰ Zambia. (2019). Retrieved from <https://eiti.org/zambia>

⁶¹ AU-JDI Zambia Interview. Interview by Hannah Murray. (2019). [Telephonic]. Washington, DC - Copenhagen, Denmark.

transparency in relocating the sale of their emeralds back to Zambia, as explained above, but efforts have reportedly been limited in effectiveness.

2.2.3: Corruption Prevention

Similar to Colombia, Zambia's score of public sector corruption according to Transparency International is 35 out of 100, demonstrating a reported significant level of corruption.⁶² As stated in the above sub-sections, the Government of Zambia has attempted to implement economic reforms in order to address their debt and continue to attract foreign investors, whether in the mining sector, or otherwise. In order to do so, many of these reforms have included initiatives for transparent policymaking, however, these efforts have allegedly been continuously undermined by corruption.⁶³ Foreign companies, as well as leading international mining actor, Gemfields, have cited corruption, specifically allegations on tax evasion as a deterrent to operating in the country. However, in comparison to neighboring resource-rich countries, Zambia is less complex and risky.⁶⁴ Such allegations against mining companies, while brought to court to dispute, are not processed in a timely manner as Zambian courts are reportedly inexperienced in regards to commercial litigation and are subject to corruption.⁶⁵ The court system is inundated with pending cases affecting timely and transparent resolutions.

The Government of Zambia's anti-corruption initiatives are governed by the Anti-Corruption Act of 2010 and the National Anti-Corruption Policy of 2009. The laws and stated policies may, in theory, be in place, allegedly the reality is that their implementation is ineffective or limited. These laws state penalties and punitive action depending on the offense but are allegedly applied selectively.⁶⁶ This level of corruption, of course effects the citizens of Zambia, but also transcends to the emerald mining industry hindering the development of a well-regulated formal sector. However, in regards to the emerald mining industry in Zambia, such advancements could significantly affect profits in the short-run.⁶⁷

⁶² Transparency International - Zambia. (2019). Retrieved from <https://www.transparency.org/country/ZMB>

⁶³ Zambia. (2019). Retrieved from <https://www.state.gov/e/eb/rls/othr/ics/2017/af/269795.htm>

⁶⁴ AU-JDI Zambia Interview. Interview by Hannah Murray and Kritika Kapoor. (2019). [Telephonic]. Washington, DC – London, UK

⁶⁵ Zambia. (2019). Retrieved from <https://www.state.gov/e/eb/rls/othr/ics/2017/af/269795.htm>

⁶⁶ AU-JDI Zambia Interview. Interview by Hannah Murray. (2019). [Telephonic]. Washington, DC - Copenhagen, Denmark.

⁶⁷ Neate, R. (2013). Emerald miner loses fifth of market value on Zambian anti-corruption plans. Retrieved from <https://www.theguardian.com/business/2013/apr/08/emerald-miner-gemfields-zambia-anti-corruption>

2.2.4 Industry Regulation

Zambia was the first country in sub-Saharan Africa to undergo a policy review in 2012 by OECD according to their policy framework for investment. The review cited a need to “strengthen the oversight and enforcement mechanisms of the country’s regulatory framework”. Between the alleged corruption and lack of strong rule of law, Zambia’s regulation in terms of emerald mining is limited and information is not readily available. The country focuses initiatives on taxes in order to maximize their return. This leaves a vacuum for illegal mining to take place. The Government has reportedly attempted to address the concerns of foreign mining companies with illegal activity by limiting citizen access and increasing military and security presence around the emerald mines. However, the efforts have reportedly been ineffective and contributed to increased corruption and alleged human rights abuses at mining sites. Foreign companies have reportedly taken matters into their own hands to separate illegal activity and citizen access by employing foreign security. This has led to a large presence of criminal actors that will be discussed in the following section.

2.2.5 Presence of Criminal Non-State Actors and Organizations

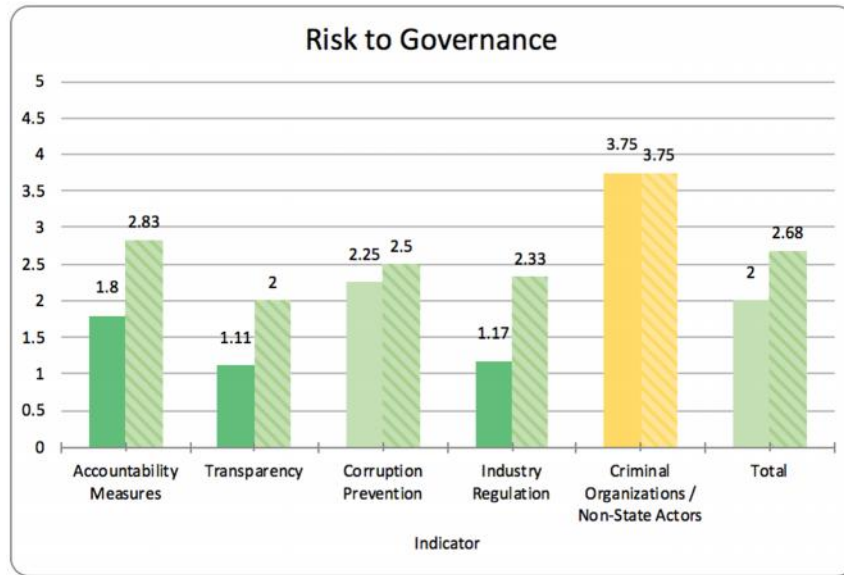
Zambia’s security situation remains stable and is currently absent of terrorist organizations, but is not without reported criminal actors, especially within the emerald mining industry. Every year, the Government of Zambia reports to have lost billions in illicit financial flows related to its mining industry.⁶⁸ As of 2005, the Export Board of Zambia estimated \$5 million US worth of rough emeralds were smuggled out of Zambia.⁶⁹ This illicit activity is not well documented, but presence on the ground suggests emerald cartels, comprised of a mix of Zambians and foreigners, are working together to exploit the underpaid workers in the industry.⁷⁰ Due to the alleged corruption in the country and within its government officials, such suspected cartels will continue to operate with limited accountability. There is a shortage of information on these cartels, but their presence contributes to a loss of returns to the country.

⁶⁸ OECD (2012), *OECD Investment Policy Reviews: Zambia 2012*, OECD Investment Policy Reviews, OECD Publishing, Paris, <https://doi.org/10.1787/9789264169050-en>.

⁶⁹ Ibid.

⁷⁰ Shortell, P., & Irwin, E. (2017). *Governing the Gemstone Sector: Lessons from Global Experience*. National Resource Governance Institute. Retrieved from <https://resourcegovernance.org/sites/default/files/documents/governing-the-gemstone-sector-lessons-from-global-experience.pdf>

2.3: Comparison by Sub-Indicator



The JDII scores of governance for Colombia and Zambia demonstrate similar levels of risk, with Colombia scoring a 2 and Zambia scoring a 2.68 out of 5. As 0 represents no risk and 5 represents high risk, Colombia and Zambia both fall into the low risk category for governance, with Zambia closer to the moderate risk score of 3. Zambia demonstrates a substantially higher risk than Colombia in the state of governance and accountability measures, with a score of 2.83 to that of Colombia's 1.8. Zambia's higher score can be attributed to the reported lack of informal institutions to monitor the emerald mining industry on a micro-level. Zambia also demonstrates slightly more risk than Colombia in the state of transparency. Colombia scored a very low risk 1.11 while Zambia scored a low risk 2. Zambia's higher level of risk is due to low accessibility and availability of data on industry actors as well as low levels of presence of civil society organizations that focus on issues surrounding the emerald industry. Colombia and Zambia score very similarly on corruption prevention with Colombia scoring a low risk 2.25 and Zambia scoring a slightly higher 2.5. The slight difference in scores can be attributed to reportedly slightly lower levels of enforcement of anti-corruption laws and lower levels of government officials publicly disclosed finances in Zambia.

The emerald mining industry in Zambia has slightly higher risk to corruption prevention than in Colombia. Colombia scores a 1.17 and Zambia scores a 2.33. The difference in scores is due to an alleged lack of accessibility to obtaining licenses related to

the emerald mining industry in Zambia and lower levels of government enforcement of industry regulations. Where both countries score slightly higher, and therefore higher risk, was in the risk to governance posed by criminal organizations and non-state actors. Both Colombia and Zambia score 3.75 in the moderate to high risk category due to the presence of criminal organizations hoping to gain financially from the emerald trade. Overall, Colombia and Zambia do not have significantly high levels of risk in governance in relation to the emerald mining industry. However, there are still improvements that can be made in both countries to combat non-state actors and ensure more effective institutions and mechanisms are in place to govern the industry and prevent corruption.

Chapter 3: Economic Challenges

Chapter 3 will discuss the economic risks and present situation for both Colombia and Zambia's emerald industry. The chapter begins with each country's analysis of *Industry Employment*, which gauges the makeup of the workforce. A large percentage of foreign labor may increase risk if local populations are unable to enter into the industry. Next, the chapter will examine *Fiscal Sustainability*, which discusses if the current practices surrounding the mining of emeralds can fulfill the global and local demands. The chapter then addresses *Beneficiation*, which is the addition of value after mining that takes place either within or outside of the country. Some of the steps that can be taken to increase the value are refining, manufacturing, cutting, and jewelry crafting. The following section is *Smuggling and the Informal Economy*, which incorporates artisanal and small-scale mining. The two countries will each close with a discussion on *Non-State Actors and Terrorist Funding*.

3.1: Colombia

3.1.1: Industry Employment

Based on the informality of the emerald industry, it appears that local Colombians make up the majority of the labor force. Fura Gems, an emerald mining company, has employed 96 percent of their labor force from Coscuez, Colombia and plans to increase their workforce from 270 miners to 400.⁷¹ *Minería Texas Colombia* (MTC), another large emerald

⁷¹ Cobb, J. S. (2018, December 14). Company walks fine line to revive Colombia emerald mine. Retrieved from <https://www.reuters.com/article/us-colombia-fura-gems-emeralds/company-walks-fine-line-to-revive-colombia-emerald-mine-idUSKBN1OB1LF>

mining company, has also made efforts to combat the informality of the industry by hiring those who previously worked as informal miners. However, some informal miners may not be able to get a job within the formal industry and some prefer the thrill of finding riches.⁷² Previously, those who worked for wealthy mining families received a percentage of what they found rather than a wage.⁷³ In addition to the large informal workforce, according to the United States Department of Labor's 2018 report, Colombia's emerald and gold sectors engage in child labor.⁷⁴ Many of these children in Colombia are engaging in artisanal mining with the consent of their parents.⁷⁵ Colombia was named one of the 14 countries that achieved "Significant Advancement" in the report which signifies that the country has improved and has basic labor protections.⁷⁶

3.1.2 Fiscal Sustainability

In Colombia, as with many resource-rich countries, artisanal mining is an economically unsustainable necessity for the local populations. However, artisanal mining in Colombia also provides the most production units. Before the mines were open to multinational corporations, informal miners had multiple outlets to engage in the industry. *Guaqueros* (prospectors) could find emeralds by sifting through waste, panning in the Itoco river, or working for a mining family and received payment according to the emeralds they found.⁷⁷ The intertwining connection between small-scale mining and Colombian culture has made emeralds a common way for rural inhabitants to obtain income.

3.1.3 Beneficiation

Colombian emeralds are characterized as being of the highest quality. Once the largest producer of emeralds, Colombia now produces less than 25 percent of the global supply.⁷⁸ With that said, emerald production is infrequent, thus Colombia's high-quality even if in small supply, increases the value and price of their emeralds. Colombia's emeralds have a near perfect hexagonal structure and are vibrant green in color. Colombian mines have

⁷² Multinationals move in to Colombia's emerald mountains. (2018, January 06). Retrieved from <https://www.economist.com/the-americas/2018/01/06/multinationals-move-in-to-colombias-emerald-mountains>

⁷³ *Ibid.*

⁷⁴ Office of Child Labor, Forced Labor, and Human Trafficking. (2018). List of Goods Produced by Child Labor or Forced Labor. Retrieved from <https://www.dol.gov/sites/default/files/documents/ilab/ListofGoods.pdf>

⁷⁵ United States Department of State Bureau of Democracy, Human Rights and Labor. (2017). COLOMBIA 2017 HUMAN RIGHTS REPORT. Retrieved from <https://www.state.gov/documents/organization/277563.pdf>

⁷⁶ *Ibid.*

⁷⁷ Multinationals move in to Colombia's emerald mountains. (2018, January 06). Retrieved from <https://www.economist.com/the-americas/2018/01/06/multinationals-move-in-to-colombias-emerald-mountains>

⁷⁸ *Ibid.*

uncovered famous emeralds such as the *Fura* and *Esmeralda Tena*. Colombia's emerald market represents a relatively small fraction of the country's GDP in comparison to its gold, oil, iron, and coal industries' revenues.⁷⁹



Pictured above: *Fura* (11,000 karat and 2.27 kilos). Known to be the largest emerald in the world. Found in 1999 in the Muzo mountains. Picture obtained from: <http://www.geologyin.com/2018/04/the-largest-emerald-crystal-in-world.html>

3.1.4 Smuggling and the Informal Economy

The entrance of multinational corporations in Colombia's emerald mining has provided well-established ownership over the emerald mines. These companies bring with them mining professionals, training, and safety and health certifications. Charles Burgess, the Director of MTC, one of the only foreign mining companies in Colombia, bought the mines previously owned by Don Victor Carranza. The preceding "Wild West-like" culture that had become entrenched in emerald mining, has been traded for stability with regular paychecks.⁸⁰ Moreover, Colombia is instituting OECD guidelines and standards as common practice. Miners now receive consistent salaries, health care, and benefits. The most recent multinational corporation to enter the sector, Fura Gems, is slowly closing off public access

⁷⁹ AU-JDI Colombia Interview. Interview by Samantha Rip. (2019). [Telephonic]. Washington, DC - Bogotá, Colombia.

⁸⁰ Multinationals move in to Colombia's emerald mountains. (2018, January 06). Retrieved from <https://www.economist.com/the-americas/2018/01/06/multinationals-move-in-to-colombias-emerald-mountains>

to the mines while assisting the locals in finding alternative means to employment.⁸¹ Typically, there have been hundreds of locals arriving daily to mine for emeralds for a living. However, multinational corporations are making an effort to put an end to informal mining practices previously part of the local population's culture.

The changes instituted by the mining corporations have been met with fierce pushback from the local population. Residents have revolted against the international standards being put in place by international mining companies, such as MTC. Examples of the locals' revolt efforts include violent incidents or illegal mining on. In 2013, *guaqueros* (prospectors) accessed MTC-owned land until tunnels collapsed resulting in the loss of three people.⁸² Again in 2015, the Muzo mine, owned by MTC, had the doors to the mines' tunnels blown off and workers targeted by bandits.⁸³ Thus, the push-pull relationship between corporations and communities may continue to create an increase in localized violent outbursts. Any approach to formalizing the economy can complicate the already tense community relations between multinational corporations and the community. Solutions such as finding alternative employment may backfire if the locals' new jobs are menial and lack the same monetary benefit.⁸⁴ Jobs like farming, sewing, and baking cannot provide in the same way as the price paid by mining an emerald.

3.1.5 Non-State Actor and Terrorist Funding

In 2015, the Colombian President, Juan Manuel Santos said, "Today, criminal mining brings more money to criminal groups, to guerrilla groups, to mafias... than drug trafficking".⁸⁵ Drug cartels and other non-state armed actors have reportedly successfully laundered money through the mines. In order to do so, there is a need to form private armies to protect the lucrative operations.⁸⁶ Emeralds have consistently been used as a financial resource for the cartels due to the state's absence around the mines. Links between the cartels and emerald mines have been corroborated through the interviews conducted for

⁸¹ Cobb, J. S. (2018, December 14). Company walks fine line to revive Colombia emerald mine. Retrieved from

<https://www.reuters.com/article/us-colombia-fura-gems-emeralds/company-walks-fine-line-to-revive-colombia-emerald-mine-idUSKBN1OB1LF>

⁸² Investigativa, U. (2013, May 18). Los nuevos 'zares' de las esmeraldas. Retrieved from <https://www.eltiempo.com/archivo/documento/CMS-12809002>

⁸³ Cobb, J. S. (2018, December 14). Company walks fine line to revive Colombia emerald mine. Retrieved from

<https://www.reuters.com/article/us-colombia-fura-gems-emeralds/company-walks-fine-line-to-revive-colombia-emerald-mine-idUSKBN1OB1LF>

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ *Ibid.*

this report. Moreover, smuggled emeralds are easier to sell than other illegal goods and are therefore more likely to become an “underground export”.⁸⁷ An illegally mined emerald can be sold in multiple ways in Colombia. Often, if the emeralds are small enough, they are stowed away and smuggled across the border to be sold by an outside vendor. Other options include mixing the illegal and legal emeralds.

The Colombian emerald industry, however, has remained comparatively untouched by criminal activity when compared with the country’s goldmines. An interviewee indicated that although there are regulations in place in regard to gold mining, illegal mining remains an issue and believes only about 30% of gold is reported.⁸⁸ Gold has trumped emeralds as well as cocaine as a source of income for the FARC and other armed groups. The rise in gold prices has incentivized workers to move away from agricultural production to gold mining.⁸⁹ This alleged lack of state control can also be seen in the emerald sector. The *El Tiempo*, the Colombian national newspaper, reported that the government admitted to being unaware of the amount of gems extracted from tunnels.⁹⁰ However, *El Tiempo* also reported that emerald exports declined from 480 million Colombian pesos to 125 million pesos.⁹¹ The loss of such revenue, while devastating to the Colombian economy, demonstrates a substantial decline in the significance of emeralds.

3.2: Zambia

Zambia has a highly urbanized economy with major centers such as its capital, Lusaka, which is known to be the fastest growing city in central Africa⁹². Mining and quarrying account for a large proportion of Zambia’s merchandise exports and have traditionally contributed the largest proportion of the country’s⁹³ total GDP. Zambia is the fourth largest producer of copper world-wide and is well-endowed with a range of precious stones like amethysts and emeralds. Zambia produces 20% of all the world’s emeralds,

⁸⁷ AU-JDI Colombia Interview. Interview by Samantha Rip. (2019). [Telephonic]. Washington, DC - Bogotá, Colombia.

⁸⁸ *Ibid.*

⁸⁹ Meacham, C., Farah, D., Lamb, R. D., & Center for Strategic & International Studies. (2014, March). Colombia: Peace and Stability in the Post-Conflict Era. Retrieved from https://csis-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/140304_Meacham_Colombia_Web.pdf

⁹⁰ Investigativa, U. (2013, May 18). Los nuevos 'zares' de las esmeraldas. Retrieved from <https://www.eltiempo.com/archivo/documento/CMS-12809002>

⁹¹ *Ibid.*

⁹² South African Development Community. “Zambia”. <https://www.sadc.int/member-states/zambia/>

⁹³ “The republic of Zambia”The Common Market for Eastern and Southern Africa <https://www.comesa.int/the-republic-of-zambia/>

though combined mining activities constitute only 12% of Zambia's output⁹⁴. Other important sectors are the agriculture and fishing sectors, followed by a traditionally weak but slowly expanding manufacturing and services sector.

3.2.1: Fiscal Sustainability

In 2017, Zambia's economic growth was 3.9%, which is attributed to a bumper crop harvest and better supply of electricity⁹⁵. The export industry stands to gain in the near future with high international copper prices and improved domestic production from newer and recently refurbished mines. Yet, a decline of the private sector and diminishing private investment and consumption, have led to reduced prospects for mining exports. As a result, the mining sector contracted by 0.5% in 2017⁹⁶. This weak performance by a key sector in Zambia's economy resulted in slow GDP growth in 2017. Furthermore, disputes between the government and mining firms over increased electricity tariffs and taxes (VAT) arrears persisted throughout 2017. All this has prevented the mining industry from contributing to Zambia's economy to its fullest potential.

Inflation has been controlled within 6-8% as high copper prices have eased external pressures, leading to a stable kwacha, the currency of Zambia, combined with a bumper harvest. In turn, the central bank has eased monetary policy. Zambia, however, continues to face large fiscal debt; the public debt-to-GDP ratio is at around 61%. In October 2017, a joint International Monetary Fund (IMF)-World Bank Debt Sustainability Analysis elevated the risk of external debt distress from medium to high. The 7th National Development Plan runs from 2017 to 2021 and calls for a fundamental shift in Zambia's resource allocation and emphasizes its continued efforts in poverty reduction.

The government's stake in Zambia's mining sector has been a struggle since its independence in 1964 when Zambia still hosted a range of commercial enterprises owned by the British South Africa Company and resident expatriates⁹⁷. Zambia's leadership struggled with the fact that local Zambians had no ownership over these enterprises and no

⁹⁴ibid.

⁹⁵ World Bank Group. 2017. "How can Zambia borrow without Sorrow"
<http://documents.worldbank.org/curated/en/782221512459934813/pdf/WP-P157243-PUBLIC-WorldBankthZambiaEconomicBriefDecemberFinalWEB.pdf>

⁹⁶ ibid.

⁹⁷ Burdette, Marcia M. "Nationalization in Zambia: A Critique of Bargaining Theory." *Canadian Journal of African Studies / Revue Canadienne Des Études Africaines* 11, no. 3 (1977): 471-96.

Zambians held managerial positions within these companies. Following the Mulungushi Party Conference in 1968, the government led reforms aimed at nationalization of production, especially mining. President Kenneth Kaunda asked 26 companies for 51% equity and in 1973, announced that Zambia would end all contracts with foreign companies; it would henceforth focus on paying off debt and taking control of their economy. By the 1990s, Zambia's economy was characterized by the predominance of state-owned enterprises (SOEs) or parastatal organizations; about 80 percent of the Zambian industrial activity was carried out by SOEs, with the private sector at 20 percent⁹⁸. A state holding conglomerate called Zambia Industrial and Mining Corporation Limited (ZIMCO) included most of these SOEs and was charged by the government to monitor SOEs to protect the interests of the state. While there were a number of other parastatal organizations that functioned similarly, the ZIMCO group remained dominant.

In 1991, the incumbent Movement for Multiparty Democracy (MMD) party adopted policies aimed at integration into the world economy. The liberalization, privatization, and globalization reforms that followed had both positive and negative effects on Zambia's economy, including:

- According to surveys conducted by Zambia's Central Statistical Office, the incidence of poverty, as defined, has reduced from 70 percent in 1991 to 65 percent in 2008⁹⁹.
- Unemployment fell throughout the country, particularly in the agricultural sector. Interestingly, Copperbelt and Lusaka provinces recorded higher rates of unemployment at around 31%¹⁰⁰.
- Export-based trade grew following liberalization reforms resulting in the balance of payment problems. In addition to minerals, Zambia has exported processed foods, handicrafts, leather products, and horticulture products.
- The informal sector grew rapidly. The improvement in employment has often been attributed to the growth in informal employment given that by 2009, around 90% of Zambia's working population was informally employed. Notably, informality has

⁹⁸ Kaunga, E.C. 1994. "Privatization: The Zambian Experience". United Nations. <http://unpan1.un.org/intradoc/groups/public/documents/aapam/unpan028227.pdf>

⁹⁹ *ibid.*

¹⁰⁰ *ibid.*

remained low in the mining and quarrying sector,¹⁰¹ while agriculture, forestry, and fishing remain predominantly informal.

3.2.2: Beneficiation

The formalization of the emerald industry began in the 1970s when the Zambian government realized the economic potential of Zambia's emerald reserves¹⁰². Apprehensive of illegal mining, the government established a restricted zone in the area adjacent to the Kafubu river near Kitwe, now called the Ndola Rural Restricted area. A government-controlled agency called Reserved Minerals Corp took over most of the deposits and prospecting rights in the 1980s. By 2004, most emeralds were being produced by open-pit operations operated by Kagem, Grizzly, and Chantete concessions. Kagem, operating from the world's largest emerald mine, is the most prominent mining company, and was under government control until 2001 when an Indian-Israeli company called Hagura bought all its shares. Today, the Kagem mining operation is owned jointly by the Zambian government (25%) and Gemfields, a natural resources company based in the UK.

The most salient risk to the Zambian economy that the emerald industry posits is a capital flight, through the sale of rough emerald to other countries where most value-addition takes place. Currently, Zambia produces emerald worth around USD 60 million annually, which could jump to around USD 170 million if value addition was done locally¹⁰³. The cutting and polishing industry in Zambia is negligible. Apart from an agreement with the Zambian government regarding supporting rough gemstone sales locally by hosting an annual auction in the country, Gemfields does not carry out any other beneficiation activity in Zambia; essentially, Gemfields is a rough gemstone miner, not involved in any other downstream value-adding activity. The rough stones are auctioned off for cutting and setting primarily in India and Singapore. In 2013, mining minister Yamfwa Mukanga noted that "Zambian gemstones have for a long time been sold on foreign markets, a situation that has contributed to capital flight and denied Zambians of the much-needed benefits from the

¹⁰¹ Ministry of Labour and Social Security. 2018. "An Analysis of the Informal Economy in Zambia". ILO. Retrieved from: http://www.ilo.org/wcmsp5/groups/public/---africa/---ro-addis_ababa/---ilo-lusaka/documents/publication/wcms_671567.pdf

¹⁰² Silondwa, Whiteson. 2012 "Constraints to the growth of the emerald industry in Zambia: A case study of the Zambian Emerald Industry-Ndola Rural, Copperbelt Province, Zambia". LAP LAMBERT Academic Publishing.

¹⁰³ Silondwa, Whiteson. 2012 "Constraints to the growth of the emerald industry in Zambia: A case study of the Zambian Emerald Industry-Ndola Rural, Copperbelt Province, Zambia". LAP LAMBERT Academic Publishing.

resource.”¹⁰⁴ According to sources familiar with sustainability and risk at Gemfields, this is due to Zambia’s low demand of finished emerald products relative to countries like India, where consumer tastes create a larger demand for emerald finished emerald jewelry¹⁰⁵.

3.2.3: Smuggling and the Informal Economy

Informality in the emerald sector in Zambia has been limited by the presence of large concessions like Grizzly, Kagem, and Chantete, meaning that emerald mining has been relatively centralized by large companies, leaving less space for small and medium-sized mining companies. However, while informality in the sector has not been a significant challenge for the government, smuggling has. Zambians have failed to reap the benefits from the large amount of emeralds that are sold through illicit networks in the black market¹⁰⁶.

According to the Government’s Gemstones Processing and Lapidary Training Centre (GPLTC), the emerald sector, like the precious stones sector at large, faces the double challenge of illegal mining and the export of unprocessed stones¹⁰⁷. Though not in large numbers, some mines in Zambia operating without licenses smuggle emeralds in their raw, unprocessed form, unlike those exported by licensed miners. Consequently, they are sold at a much lower price in the black market, losing much of the inherent value of these emeralds. Buyers tend to prefer these cheaper alternatives, and in turn, prices are driven to fall.

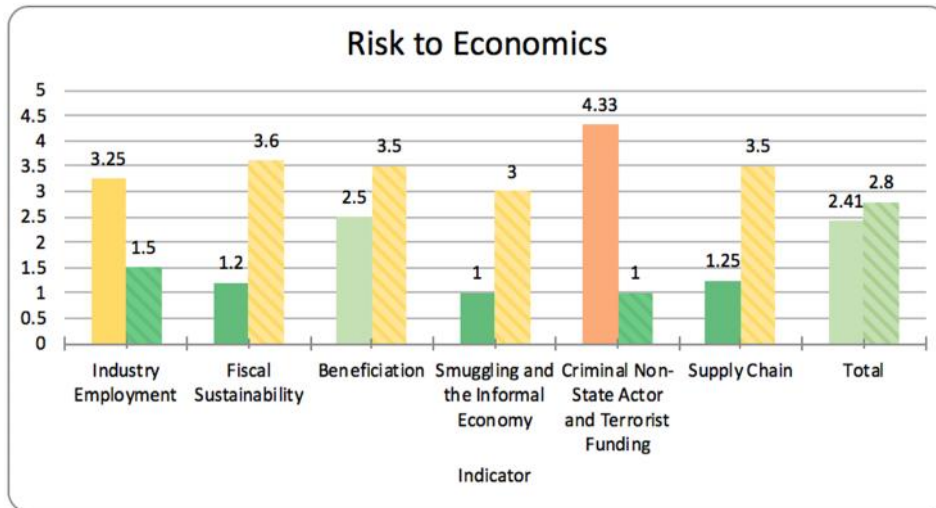
¹⁰⁴ DeMarco, Anthony. 2013. “Zambia Ruling A Blow For Emerald Ambitions Of Gemfields”. Forbes

¹⁰⁵ AU-JDI Zambia Interview. Interview by Kritika Kapoor. (2019). [Telephonic]. Washington, DC.

¹⁰⁶ Mukanga, Chola. 2013. “Zambia’s Lost Gemstones”. *Zambian Economist*.

¹⁰⁷ *ibid*.

3.3: Comparison by Sub-Indicator



The JDI indicator scores for economics vary significantly based on the country. For none of the individual indicators are the scores similar, which is most likely due to how the two separate economies have been created and developed over time. In total, Colombia scored a 2.41 and Zambia scored a 2.8 out of 5, which puts both countries within low (2) to moderate (3) risk. Colombia received higher risk for industrial employment because of the dominant informal nature of the industry. Colombia scored a 3.25 and Zambia scored a 1.5. Zambia, however, has more fiscal sustainability risk due to the decline in private sector and diminished private investment and consumption. Colombia scored a 1.2 and Zambia scored a 3.6. For beneficiation, Zambia also scored marginally higher since most of the value-adding activities are conducted outside of the country. Colombia scored a 2.5 and Zambia scored a 3.5. Smuggling and the Informal Economy is again, at a higher risk for Zambia. The unlicensed mines in Zambia smuggle unprocessed emeralds and are sold at a lower price on the black market. Colombia received a 1 and Zambia scored a 3. Colombia classifies as high risk in Criminal Non-State Actor and Terrorist Funding because of its ties to armed groups, cartels, and the creation of private armies. Colombia scored a 4.33 and Zambia scored a 1.

Chapter 4: Environmental Challenges

Chapter 4 will investigate the risks to environment posed by the emerald industry in Colombia and Zambia. A focus will be given to current environmental sustainability, along with an overview of the legal framework in place for environmental protection in each respective country.

4.1: Colombia

4.1.1 Environmental Sustainability in Colombia

Colombia is the second most biodiverse country in the world, containing over 56,000 species.¹⁰⁸ However, this biodiversity is threatened by Colombia's extractive industries and weak enforcement of environmental regulations. According to the Environmental Performance Index (EPI), Colombia currently ranks 42nd out of 180 countries for its overall environmental performance.¹⁰⁹ Emerald mining in Colombia has resulted in significant damage to the surrounding environment, subsequently resulting in negative impacts on the health of people living near these mines. Some of the major environmental concerns surrounding emerald mining are soil erosion and degradation, water contamination, loss of biodiversity, as well as excessive water and energy consumption.¹¹⁰

Process of Mining

Compared to other types of mining, such as gold mining, emerald mining is relatively less destructive to the environment. Emerald mining does not require the use of polluting chemicals, such as mercury or cyanide, for extraction. However, there are still environmental concerns related to the extraction phase that need to be addressed in order to limit environmental degradation.

Before tunnel mining became the predominant method for emerald mining in Colombia, mechanized surface mining, also known as open-pit mining, was the norm.¹¹¹ Open-pit methods require large areas of land and can have a variety of harmful effects on the surrounding environment, such as deforestation and loss of biodiversity. This technique can

¹⁰⁸ A look at the natural world of Colombia. (2017). Retrieved from <https://www.worldwildlife.org/magazine/issues/winter-2017/articles/a-look-at-the-natural-world-of-colombia>

¹⁰⁹ Colombia. (2019). Retrieved from <https://epi.envirocenter.yale.edu/epi-country-report/COL>

¹¹⁰ Cartier, L. E. (2010). Environmental Stewardship in Gemstone Mining: Quo Vadis? *InColor*.

¹¹¹ Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology, Fall 2017, Vol. 53, No. 3*
<https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

also result in soil erosion and instability.¹¹² Underground mining also poses environmental risks, such as flooding. Additionally, when shafts and tunnels are created using explosives are not well planned, there is also risk of collapse.

Water Contamination

Currently, environmental protection laws in Colombia prohibit the dumping of debris from mining sites. Nevertheless, sources state that debris continue to be dumped in rivers and streams around the mines. This results in a negative impact on the turbidity levels of the water, as emeralds are frequently found in mica schist shales.¹¹³

Conflict

Colombia's history of conflict has also contributed to environmental degradation. Although Colombia is transitioning out of a conflict phase, throughout the 20th century illegal armed groups controlled vast amounts of territory. These criminal groups often exploited natural resources, like emeralds, to finance their operations. These unregulated mining practices lead to environmental destruction as these criminal group are not complying with legal standards and regulations.¹¹⁴

4.2.2 Environmental Protections in Colombia

According to Article 8 of Colombia's Constitution, it is both the duty of the State as well as individuals to protect Colombia's natural assets.¹¹⁵ The Mining Law of 2001 also assigns the State the role of assuring that those participating in Colombia's mining industry are meeting sustainable development criteria.¹¹⁶ This is primarily overseen by The National Mining Agency.

Over the past decade, Colombia has taken steps towards tightening their environmental policy. The *Autoridad Nacional de Licencias Ambientales* (ANLA) was created in 2011 and is responsible for granting or rejecting applications for environmental licenses and permits. Additionally, in 2012, an Office of Environmental and Social Affairs was created

¹¹² Cartier, L. E. (2010). Environmental Stewardship in Gemstone Mining: Quo Vadis? *InColor*.

¹¹³ *Ibid*.

¹¹⁴ UN Environment: Colombia. (n.d.). Retrieved from <https://www.unenvironment.org/explore-topics/disasters-conflicts/where-we-work/colombia>

¹¹⁵ The Constitution of Colombia (1991). Retrieved from https://www.constituteproject.org/constitution/Colombia_2005.pdf

¹¹⁶ Republic of Colombia, Minister of Mines and Energy (2006). Plan nacional para el Desarrollo Minero: Vision al ano 2019. Retrieved from https://www.minenergia.gov.co/documents/10180/412670/PNDM_2019_Final.pdf

in the Ministry of Mining and Energy.¹¹⁷ Furthermore, the Colombian government has developed plans to fully formalize the mining industry, detailed in the 2019 Mining Development Plan.¹¹⁸

Mining companies are required to obtain an environmental license from the ANLA if removal of “useful and sterile” material is greater than 2 million tons per year. If removal is less than 2 million tons per year, a mining company is required to obtain licensing from the regional authority.¹¹⁹ While mining licenses were required for every phase of mining activity until 2001, the new Mining Code only requires environmental licensing for carrying out operational activities. This update prohibits the rejection of a mining project prior to the “exploration phase” due to potential environmental harm. This is in violation of the Río Declaration on the Environment and Development, of which Colombia is a signatory. Principle 15 of this document states that a precautionary approach must be used by the States to protect the environment.¹²⁰

Protected Lands

Colombia’s Mining Code has established protected lands where any type of mining exploration and operations is prohibited. However, reportedly these restrictions are often ignored.¹²¹ In 2010, the government approved law 1382, updating the Mining Code and increasing the amount of land protected from mining. Despite efforts, during the eight months between approval and ratification of the law, areas licensed for mining increased by 80%. This reform was later declared unconstitutional.¹²²

Remediation

A mining project is required to have a mining and environmental insurance policy during both the exploration and extraction phases. Aside from this insurance policy, Colombia does not have any specific regulations concerning the closure and remediation of mines. According to one source, “closure and remediation obligations are set out in the

¹¹⁷OECD (2014). Environmental Performance Review: Colombia (Highlights) Retrieved from <https://www.oecd.org/countries/colombia/Colombia%20Highlights%20english%20web.pdf>

¹¹⁸ Republic of Colombia, Minister of Mines and Energy (2006). Plan nacional para el Desarrollo Minero: Vision al ano 2019. Retrieved from https://www.minenergia.gov.co/documents/10180/412670/PNDM_2019_Final.pdf

¹¹⁹ PROCOLOMBIA (n.d.). Manual of Environmental Licensing in Colombia. Retrieved from https://www.investincolombia.com.co/images/Manual_of_environmental_licensing_in_Colombia.pdf

¹²⁰ Vicente, A., Martin, N., James Slee, D., Birss, M., Lefebvre, S., & Bauer, B. (2011, November). Mining in Colombia: At what cost? [Editorial]. *PBI Colombia*. Retrieved from

https://www.peacebrigades.org/fileadmin/user_files/projects/colombia/files/colomPBIa/111203_mining_in_colombia_web.pdf

¹²¹ *Ibid.*

¹²² *Ibid.*

environmental license and on a case-by-case basis, depending on the type of mine, mineral, and location.”¹²³

4.2: Zambia

In the Kafubu area of Zambia, where the country’s emerald mining primarily exists, no enriched heavy metals or toxic elements have been found. However, with each phase of a mine’s lifespan, including prospecting, exploration, and mine development, various environmental interactions and impacts have occurred.¹²⁴

4.1 Environmental Sustainability in Zambia

Mining-induced environmental changes range from air and water (surface and groundwater) contamination from emissions of sulfur-dioxide, waste landfills and tailings, and lead and cadmium poisoning. Other environmental concerns include noise, vibrations, habitat loss, and soil erosion. These environmental impacts are evident in communities near Zambian mines.¹²⁵ Additionally, mining in Luapula Province has contributed to deforestation and land disputes.

Contamination of the Kafue River and its tributaries in the Copperbelt region was investigated to determine the environmental impact of mining and related activities. Values of pH in the Kafue River and its tributaries in the contaminated area are close to neutral with maximum values in tributaries with high concentrations of sulfate, gradually increasing downstream.¹²⁶

Environmental pollution in Zambia is also closely associated with health problems, i.e., accidents and human injuries, eye irritation, bronchial and other respiratory diseases, affecting miners, children, and women in communities around mining operations. The impact on health will be discussed further in the following chapter.

Despite these impacts, reducing pollution from mining and small-scale mining (SSM) operations has not been a priority for Zambian government institutions, such as the Ministry of Mines and the Environmental Council of Zambia (ECZ).

¹²³ La Fleche, E. R. (Ed.). (2016). *The Mining Law Review* (5th ed.). Law Business Research. Retrieved from <https://m.hklaw.com/files/Uploads/Documents/Articles/MiningLawReviewColombiaChapter2016.pdf>

¹²⁴ Seifert, A. V., Žá ek, V., Vrána, S., Pecina, V., Zachariáš, J., & Zwaan, J. C. (2004). Emerald mineralization in the Kafubu area, Zambia. *Bulletin of Geosciences*, 79(1), 1-40.

¹²⁵ Boocock, C. N. (2002). Environmental impacts of foreign direct investment in the mining sector in Sub-Saharan Africa. *Foreign Direct Investment and the Environment*, 19.

¹²⁶ Norrgren, L., Pettersson, U. R. N. S., Örn, S., & Bergqvist, P. A. (2000). Environmental monitoring of the Kafue River, located in the Copperbelt, Zambia. *Archives of environmental contamination and toxicology*, 38(3), 334-341.

4.2 Environmental Protections in Zambia

The principal environmental health and safety laws applicable to the mining industry include the Environmental Act, the Occupational Health and Safety Act No. 36 of 2010, the Mines and Minerals Environmental Regulations No. 29 of 1997, and the Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations SI No. 28 of 1997 (EIA Regulations)¹²⁷. The principal regulatory bodies responsible for the administration of the environmental, health and safety protection regulatory framework include the Zambia Environmental Management Agency (ZEMA), the Zambian Ministry of Mines and Minerals Development (Mines Safety Department) and the Occupational Health and Safety Institute. However, like many other regulations in Zambia, the legal enforcement of these regulations has been minimal and often ineffective.

Protected Lands

According to Zambian law, human settlement is not permitted in protected lands, such as national parks, and land use is limited primarily to photo-tourism. National parks have generally not suffered from human encroachment but are subject to widespread poaching, regular uncontrolled burning (which sometimes emanates from areas outside of the park boundaries) and in some cases, informal mining.¹²⁸

Remediation

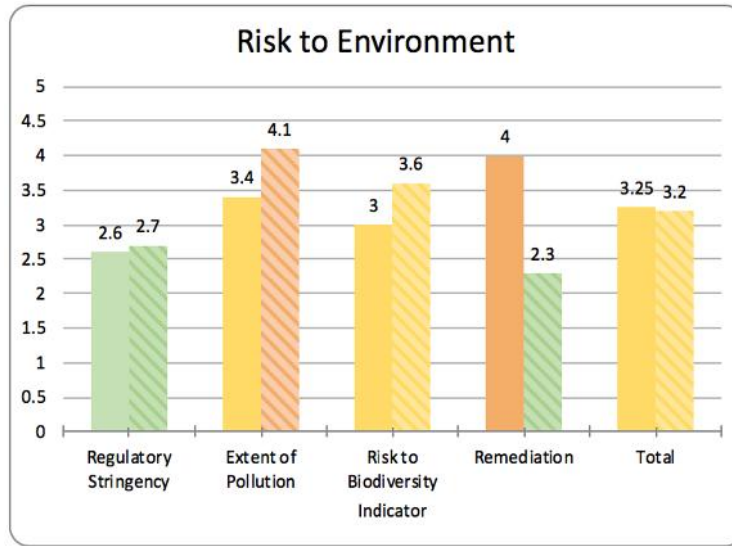
The closure requirements of a mining project are detailed in the Mines and Minerals (Environmental) Regulations and elicit funds for remediation if necessary. According to these regulations, closure of a mine can only occur after the applicant has applied to the Director of Mine Safety for a partial or complete shutdown of a mine. The application must include an audit report on the environment surrounding the mine site prepared by an independent professional.¹²⁹ When a site is closed, the Mines and Minerals (Environmental Protection Fund) Regulations provide refunds to license holders with any outstanding balance subtracted from the refund. The Director of Mine Safety may use any part of the refund to rehabilitate the site.

¹²⁷ Occupational Health And Safety Institute Jobs In Zambia ... (n.d.). Retrieved from <https://jobwebzambia.com/jobs/occupational-health-and-safety-institute-jobs-in-z>

¹²⁸ Watson FGR, Becker MS, Nyirenda MA (In press) Human encroachment into protected area networks in Zambia: Implications for large carnivore conservation. *Environmental Change*.

¹²⁹ Charles Mkokweza, July 2018, <https://gettingthedealthrough.com/area/22/jurisdiction/50/mining-zambia/>

4.3: Comparison by Sub-Indicator



The JDI scores in respect to the environment indicator for Colombia and Zambia demonstrate strikingly similar levels of risk, with Colombia scoring a 3.25 and Zambia scoring a 3.2 out of 5. These scores place both countries in the moderate risk category for environment. Environmental Regulatory Stringency and Enforcement scores were also similar, with Colombia scoring 2.57 and Zambia scoring a 2.71. Risk for both Colombia and Zambia predominantly came from weak enforcement mechanisms of environmental regulations, such as preventing criminal or informal mining on government protected lands. Zambia demonstrated higher risk in Existence and Extent of Pollution, with a score of 4.14 compared to Colombia's 3.43. Zambia also scored higher in the Risk to Biodiversity section with a score 3.6 to Colombia's score of 3. While both countries are extremely biodiverse, this difference in scoring can be attributed to emerald mining contributing more significantly to Zambia's overall deforestation. The most significant difference in scores can be found in the Post-production, Planning, and Remediation indicator. Colombia, with a score of 4, scores drastically higher than Zambia's 2.33. This is due to Colombia lacking specific regulations concerning mine closure.

Chapter 5: Health Challenges

The mining industry can bring about either negative or positive effects on human health, e.g. industrial accidents, soil and water contamination, mining accidents, or introduction of health services. It should be noted that the mining industry can also have and has generated positive effects by mitigating health risks or provide improvements to the overall health of society. This section will examine how the emerald mining industry in Colombia and Zambia have impacted human health and food and water security.

5.1: Colombia

5.1.1: Human Health

The mining policy of Colombia is set by the Ministry of Mines and Energy, and they state that all mining activity that takes place in Colombia has “several scales and standards of production and environmental management.” In Colombia, small-scale mining utilizes a low knowledge of resources and reserves which negatively impacts the overall process, including health and the environment.¹³⁰ In Colombian medium-scale mining projects, those involved in the mining efforts “have a greater knowledge of resources and reserves,” which strengthens their mining planning and compliance with labor, safety, and mining hygiene standards.¹³¹ Large mining projects, “are carried out under the best technical and economic conditions and standards, environmental and social issues,” because it is vital for the country’s economy, as well as the social and regional impact they generate.¹³² According to the Ministry of Mines and Energy, illicit mining activities have proven detrimental to the environment and society, particularly in polluting the environment and destroying the ecosystem as they fail to meet environmental standards, which also results in reservoirs being exploited unethically.¹³³ Gemstone and bulk metal mines tend to generate large amounts of particulate pollution which can lead to respiratory diseases through inhalation and gastrointestinal problems when the particulate pollution enters the water supply.¹³⁴ In

¹³⁰ Ministry of Mines and Energy. (2016) “Política Minera de Colombia”

<https://www.minminas.gov.co/documents/10180/698204/Pol%C3%ADtica+Minera+de+Colombia+final.pdf/c7b3fcad-76da-41ca-8b11-2b82c0671320>.

¹³¹ *Ibid.*

¹³² *Ibid.*

¹³³ *Ibid.*

¹³⁴ Barnwal, Prabhat and von der Goltz, Jan. “Mines: The local wealth and health effects of mineral mining in developing countries,” *Journal of Development Economics*, Volume 139, 2019, Pages 1-16. <http://www.sciencedirect.com/science/article/pii/S0304387818304875>

some mining regions of Colombia, malaria is an ongoing issue among the local population as well.¹³⁵

The most significant concern to human health in Colombian mines arises from illegal or small scale-artisanal mining. These individuals are unequipped to properly mine and are forced to use their bare hands, opening them up to the risk of injury and illness. The overall health of Colombian miners has changed over time, which is attributed to the changes in the mining industry. In the past, Colombian miners worked for food or turned to selling stolen emeralds. With the insertion of international companies, the dynamics on the ground have changed. MTC, the previously referenced a Houston-based company, has purchased multiple mines in Colombia and have sought to graft a modern corporate approach onto an outlaw industry by replacing a large workforce of miners using picks and shovels with industrial machinery.¹³⁶ MTC, which has become the state's second-largest employer, pays its roughly 600 workers at least \$420 a month, about twice the national minimum wage, plus MTC provides health insurance and other benefits.¹³⁷

During the time Victor Carranza was the 'Emerald Czar' in Colombia, the mountains of dirt excavated from the mines were dumped in the riverbed for people to pick over for emeralds missed by miners. This practice helped keep the peace among communities living in poverty; thousands would line the river banks for the opportunity to search for leftover emeralds. However, residents have reported MTC filters out more emeralds, leaving behind fewer scraps for the impoverished Colombians living near the mines.¹³⁸

In 2016, approximately 96% of Colombians had health insurance coverage from some arrangement, be it through the state, an employer, or purchased one's own. Though the data on the quality of the coverage is not completely clear and the overall access to healthcare and the level of improvements that have been made to the system are not equally distributed across the various geographic regions and socio-economic groups in Colombia.¹³⁹ This only reinforces the notion that impoverished groups who have been negatively affected by the

¹³⁵ Castellanos, A., Chaparro-Narváez, P., Morales-Plaza, C. D., Alzate, A., Padilla, J., Arévalo, M., & Herrera, S. (2016). Malaria in gold-mining areas in Colombia. *Memorias do Instituto Oswaldo Cruz*, 111(1), 59–66.

¹³⁶ Cobb, Julia Symmes. "The Dangerous Search for Emeralds in Colombia". Washington Post. 9 August 2015. https://www.washingtonpost.com/sf/world/2015/08/09/the-dangerous-search-for-emeralds-in-colombia/?noredirect=on&utm_term=.ebc905874261

¹³⁷ *Ibid.*

¹³⁸ *Ibid.*

¹³⁹ OECD. (2015). *OECD Reviews of Health Systems: Colombia 2016*, OECD Reviews of Health Systems, OECD Publishing, Paris, <https://doi.org/10.1787/9789264248908-en>.

mining corporations are suffering in Colombia, especially because of the introduction of large corporations and their practices into the country. The presence of large-scale mines (LSMs) have resulted in fewer miners being employed by the corporations because these companies prefer to use industrial machines to mine gems and minerals. When these corporations use newer mining technologies, they do not need to hire a large-scale workforce, meaning there are not as many Colombians hired who can be benefitting from the health benefits programs these corporations provide. The health benefits that miners could have obtained while employed by mining corporations, coupled with the higher income, would have aided Colombians in obtaining a better level of healthcare by allowing them to travel to the regions that can provide a better level of care. Additionally, these miners would have had the extra income to ensure that they could afford the healthcare services they would need. The reduced number of miners employed by these corporations will cause a negative impact on the health of Colombians since many miners would not have access to a higher income nor additional benefits provided by the corporation, and as previously stated, the quality of care in the rural areas of Colombia is not at the high level of care in more urban settings.

Another critical issue in miner safety is the actual conditions in the mines themselves, which run deep underground from 300 to 1,500 feet.¹⁴⁰ Argentinian jeweler Jorge Adeler has documented his travels to the emerald mines of Colombia and has found evidence of dangerous conditions in the mines such as bare electric wires in water-filled tunnels. In some cases, he has seen how the use of explosives has resulted in numerous cave-ins at the Coscuez mines, resulting in the injury and death of miners.¹⁴¹ These miners are working in such hazardous conditions, yet to provide for their families they are forced to work in such dangerous conditions. While the situation of mine safety may have changed with LSM corporations, these types of hazards are still a real concern in illicit and informal mining operations.

¹⁴⁰ "Muzo". <http://www.muzo.co/en/millennial-legacy/muzo>

¹⁴¹ Adeler, Jorge. "Colombian Emeralds – From the mines of Coscuez, Colombia". 2004. <https://www.jorgeadeler.com/colombian-emeralds-from-the-mines-of-coscuez-colombia-set-2/>

5.1.2: Food Security

According to the International Food Policy Research Institute, Colombia is the third most populous country in Latin America with an estimated population of 44 million people. Approximately, 21 million people are considered poor and 6 million live below the level of extreme poverty.¹⁴² Economic growth in Colombia has been somewhat stagnant due to decades of conflict, which has threatened infrastructure, displaced populations, and generated large debts. Colombia has one of the world's highest rates of internally displaced people who also suffer from high levels of poverty and hunger.¹⁴³ Foreign aid programs have made efforts to address such issues. For example, the U.S. Agency for International Development (USAID) funded program, Plan Colombia, has contributed to economic growth in the country. Achievements of the program include a 30% decrease in rural poverty levels over ten years, and well over 350,000 hectares of farmland have been planted with licit crops, like cacao and specialty coffee, increasing the security and economic benefit of hundreds of thousands of farmers.¹⁴⁴ According to the U.S. Department of Agriculture (USDA), food security in the Latin America and the Caribbean (LAC) region has steadily improved. Colombia is estimated to be food secure according to the USDA's International Food Security 2015-2025 report, but Colombia is increasingly dependent on grain imports with the country importing 75% of the required grains.¹⁴⁵ Colombia became food secure through a 140-percent increase in imports, strong growth in grain yields, and a steady decline in population growth (from over 1.8 percent per year in the mid-1990s to near 1 percent in 2015). Imports now account for two-thirds of grain supplies. Recent issues, such as declining oil output, reductions in foreign direct investment, and lower oil prices could constrain growth in Colombia and possibly affect food security for the country.¹⁴⁶

5.1.3: Water Security

The information on the direct link between emerald mining and water security in Colombia is limited. There is evidence of leftover grit and rocks from mining excavations

¹⁴² International Food Policy Research Institute. (2012). "Food Security Portal." <http://www.foodsecurityportal.org/colombia/resources>

¹⁴³ *Ibid.*

¹⁴⁴ USAID. (2016). "USAID Assistance for Plan Colombia". <https://www.usaid.gov/news-information/fact-sheets/usaid-assistance-plan-colombia>.

¹⁴⁵ USDA (2015). "International Food Security Assessment, 2015-2025", https://www.ers.usda.gov/webdocs/publications/37264/53198_gfa26.pdf?v=0.

¹⁴⁶ *Ibid.*

being dumped on land and in rivers around the mines.¹⁴⁷ Organizations like The Nature Conservancy (TNC) protects water by ensuring that critically important habitats are restored, and water is kept clean at the source instead of investing in expensive filtration systems. TNC has helped safeguard water sources for 16 million people with Water Funds in Bogota, Valle del Cauca, Medellin, Cali, Cucuta, Cartagena, Santa Marta and Cienaga.¹⁴⁸ Even with organizations working to safeguard the water supply in Colombia, the threat still exists from air-borne dust and contaminants from mining and the coking of certain mined resources like coal in nearby areas.¹⁴⁹ A 2011 report states that the long-term consequences of mining could cost 70 percent of Colombians their water supply.¹⁵⁰

5.2: Zambia

5.2.1: Human Health

The life expectancy of Zambian men and women are 60 and 64 years, respectively¹⁵¹. The top five causes of death in Zambia are HIV/AIDS, neonatal disorders, lower respiratory tract infections, tuberculosis, and diarrheal diseases.^{152,153} Mining contributes to occupational safety hazards and food and water security risks with small-scale or artisanal miners experiencing the most significant burden. Displacement and migration due to the introduction of commercial mines increase the prevalence of infectious and sexual diseases and produces violent conflicts that stem from resource scarcity. However, some studies show that mining in Zambia may benefit human health by increasing standards of living and benefits to healthcare infrastructure.

Among artisanal miners (ASM), injuries are common due to unsafe working conditions. In artisanal mines, miners often dig by hand without regulatory oversight or safety standards, resulting in poorly constructed pits, shafts, and underground tunnels that are at higher risk of collapse, landslides, flooding, and lack of ventilation. Mining accidents

¹⁴⁷ Corso, Javier. (2017). "Into the green land: Emerald mining in Colombia." Al-Jazeera. 20 March 2017. <http://www.aljazeera.com/indepth/inpictures/2017/03/green-land-emerald-mining-colombia-170306110821882.html>

¹⁴⁸ The Nature Conservancy. "Colombia: Protecting Water at the Source". <https://www.nature.org/en-us/about-us/where-we-work/latin-america/colombia/stories-in-colombia/colombia-water/>

¹⁴⁹ McIntyre, Neil et al. "A Framework for Assessing the Impacts of Mining Development on Regional Water Resources in Colombia," *Water*. 10(3). 4 March 2018. <https://www.mdpi.com/2073-4441/10/3/268/pdf>

¹⁵⁰ Gravgaard, Anna-Katarina. "Regulating Colombia's Mining Industry" *The Pulitzer Center*. 18 October 2011. <https://pulitzercenter.org/reporting/regulating-colombias-mining-industry>

¹⁵¹ World Health Organization. (2016). <https://www.who.int/countries/zmb/en/>

¹⁵² Institute for Health Metrics and Evaluation, © 2018 University of Washington, <http://www.healthdata.org/zambia>

¹⁵³ GBD Compare, Zambia, 2015, <https://www.cdc.gov/globalhealth/countries/zambia/default.htm>

can cause fatalities or severe injuries, including crushing injuries, amputation, or suffocation. Other health risks include respiratory infections, skin diseases, and metal poisoning in large- and small-scale mines and populations living near mines. Underground mines may release harmful gasses, including sulfur dioxide, which can lead to pneumoconiosis in workers who are acutely exposed and impact the air quality surrounding mines.¹⁵⁴

Another detriment to human health in Zambia has been the physical displacement and relocation of communities through forced evictions and demolitions that have occurred during the construction of mines.¹⁵⁵ Displacement decreases access to healthcare facilities, disrupts treatment regimes, and increases disease risk with potentially unsanitary living conditions in temporary housing. Displaced peoples and migrants are both at higher risk of mental health disorders, including depression, anxiety, and post-traumatic stress disorder.¹⁵⁶ Additionally, the location of mines within heavily-populated areas, cramped living quarters, and the migration of people coming to work in the mines speed the spread of infectious diseases, such as tuberculosis.

Some research has suggested an increase in the transmission of HIV/AIDS and other sexually transmitted infections (STIs) in emerald mining cities due to prostitution.¹⁵⁷ However, studies of Zambian copper mining cities have demonstrated a reduction in transactional sex possibly attributed to an economic boom and higher standards of living among male and female miners, decreasing their likelihood of engaging in risky sexual behaviors for income.¹⁵⁸ It is unclear how this has impacted the rates of STIs in the area or if these trends also occur in emerald mining cities.

Population growth in mining cities and resulting resource depletion can induce unequal access to resources, including food, medical supplies, health services, and humanitarian aid. Scarcity can provoke violent conflict, including local hostility and resistance to current and proposed mining projects.¹⁵⁹ The international community often

¹⁵⁴ Ministry of Health Zambia, EQUINET (2018) Mining and Public Health in Zambia Meeting report, 10 April 2018, Lusaka, Zambia. <https://www.equinet africa.org/sites/default/files/uploads/documents/Zambia%20mining%20and%20public%20health%20Mtg%20Rep%20April%2018.pdf>

¹⁵⁵ Kapesa, R., Mwitwa, J., & Chikumbi, D. C. (2015). Social Conflict in the Context of the Development of New Mining Concessions in Zambia. *Southern African Peace and Security Studies*, 4(2), 41-62.

¹⁵⁶ World Health Organization (2018), *The health of refugees and migrants: Regional situation analysis, practices, experiences, lessons learned and ways forward*. <https://www.who.int/migrants/publications/PAHO-report.pdf?ua=1>

¹⁵⁷ Shoko, P. M., & Mwitwa, J. (2015). Socio-economic impact of small scale emerald mining on local community livelihoods: the case of Lufwanyama district. *Int. J. Educ. Res.*, 375-388.

¹⁵⁸ Journal of Health Economics, Volume 31, Issue 6, December 2012, Pages 797-812. <http://dx.doi.org/10.1016/j.jhealeco.2012.07.007>

¹⁵⁹ R Kapesa, J Mwitwa, DC Chikumbi - Southern African Peace and ..., 2015 - saceps.org

stigmatizes miners as being “illegal” and engaging in a lifestyle rampant with drug abuse, prostitution, and violence. On the contrary, Gilberthorpe et al. (2016) suggest, “The derogatory narrative is crude and broad, obscuring not only the complex decisions that lead people to undertake these activities but also the implications of these activities for wellbeing and livelihood security.”¹⁶⁰

International mining companies often claim to bring improved health infrastructure to mining cities due to foreign and private investment. Mining companies in Zambia have built hospitals, trained doctors and nursing staff, started anti-malaria initiatives, and opened eye clinics.¹⁶¹ However, there are questions as to how sustainable this investment is, how it impacts Zambia’s national health system and efforts, and how health infrastructure can handle increased demand due to the population boom in mining cities.

5.2.2: Food Security

Explosives used for extraction spread chemicals and dust over vast areas into rivers and other water sources. Additionally, chemical waste runoff generated by mining activities can contain high concentrations of heavy metals that contaminate soil, crops, ground water, and surface water.¹⁶²

5.2.3: Water Security

Poor sanitation or improper waste management at mining sites can increase the spread of disease, especially diarrheal diseases such as cholera. Zambia’s most recent cholera outbreak in 2017 resulted in 547 cases and 15 deaths in less than two-and-a-half months.¹⁶³ Standing water at mining sites become breeding grounds for mosquitos, increasing rates of malaria and other vector-borne diseases.

http://www.saccps.org/pdf/4-2/4-2_all.pdf#page=44

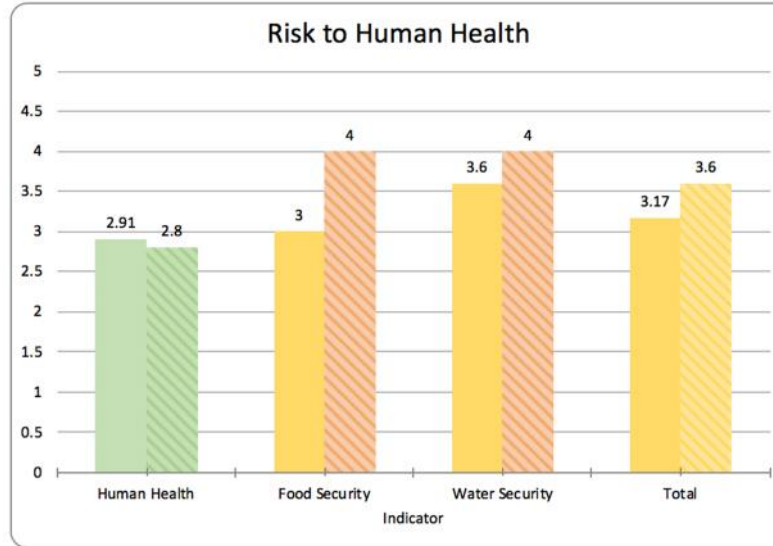
¹⁶⁰ Gilberthorpe, E., Agol, D., & Gegg, T. (2016). ‘Sustainable mining’? Corporate social responsibility, migration and livelihood choices in Zambia. *The Journal of Development Studies*, 52(11), 1517-1532

¹⁶¹ A Zambia Chamber of Mines Initiative, “An ear to the ground: Mining companies are getting better at listening to communities.” <https://miningforzambia.com/an-ear-to-the-ground/>

¹⁶² Nachiyunde, K., Ikeda, H., Okuda, T., & Nishijima, W. (2013). Assessment of dissolved heavy metal pollution in five provinces of Zambia. *Journal of Environmental Protection*, 4(01), 80.

¹⁶³ World Health Organization, (2017). <https://www.who.int/csr/don/11-december-2017-cholera-zambia/en/>

5.3: Comparison by Sub-Indicator



The scores in respect to the health indicator for Colombia and Zambia demonstrate a similar level of risk, with Colombia scoring an average of 3.17 and Zambia with an average of 3.64 out of 5. Zambia's score represents a higher risk to the overall health of the population when compared to Colombia. Both nations are considered moderate-risk, with Zambia considered slightly higher risk. These respective scores are created from scoring each country based on three separate categories: human health, food security, and water security. Both countries scored 2.91 in terms of human health indicating a moderate risk of negative impacts on the population as a result of the mining industry. Food security scores between the two countries diverged; Colombia scored a 3 and Zambia scored a 4. The scoring reflects the moderate effect the mining industry has on food security in Colombia, however, this may also be attributed to the overall larger food security issues the country faces. Zambia's score in regards to food security demonstrates the high impact the mining industry has had on food availability in the country, as almost all mines, particularly emerald mines, are not located in regions used for agricultural purposes.

The final category used to determine the overall score is water security, where both countries score as high-risk. Colombia scored a 3.6 and Zambia 4, illustrating the significant impact the mining industry has on both countries. Colombia can be categorized as moderate to high risk for the availability of clean water. In Colombia, runoff from grit and leftover rocks from mining makes its way into the water supply. This runoff may contain chemicals

and other pollutants consumed by the population or used to irrigate crops. Whereas in Zambia, the water security issue is more focused on a lack of improper waste management from mining sites and communities. Both countries display a significant risk to their populations when it comes to health. Limited access and poor quality of food and water can increase the possibility of structural violence and at worst, can lead people to engage in conflict over such resources.

Chapter 6: Human Rights Challenges

The emerald industries in Colombia and Zambia pose significant risks to the human rights of affected populations, particularly miners and residents in the areas surrounding mines. Five human security pillars have been outlined by the United Nations Development Human Security Index relative to the precious mineral and gem industries: workers' rights, indigenous/ethnic group rights, women's rights, children's rights, and freedom from violence¹⁶⁴.

6.1: Colombia

6.1.1: Workers' Rights

As explained in previous sections, emerald mining in Colombia is mainly informal. In 2017, an estimated 63% of emerald mining was conducted informally.¹⁶⁵ The informality of emerald mining in Colombia poses significant challenges to enforcing labor laws and protecting miners.

Safety of Working Conditions

Emerald mining can be a dangerous activity if proper precautions and safety measures are not in place. The National Mining Agency is responsible for overseeing that Colombian emerald mines are following proper regulations.¹⁶⁶ Mines are also subject to inspections by the Ministry of Labor. However, inspections are reportedly infrequent and lack rigor.¹⁶⁷

¹⁶⁴ UNDP's 1994 Human Development Report Stresses Human Security. (1994). Foreign Policy Bulletin, 5(2), 46-47. doi:10.1017/S1052703600005074

¹⁶⁵ Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology*, Fall 2017, Vol. 53, No. 3 <https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

¹⁶⁶ Mission and Vision. Retrieved from https://www.anm.gov.co/english/Mission_and_Vision

¹⁶⁷ United States Department of State Bureau of Democracy, Human Rights and Labor. (2018). *Country Reports on Human Rights Practices for 2018: Colombia*.

Information concerning working conditions in illegal mining operations is limited. However, the International Labor Organization (ILO) has documented that many small-scale, or informal miners, are unable to invest in the proper equipment and safety tools required to minimize the risk of accidents. Across the mining industry, accidents are roughly six times more likely to occur in small-scale mining operations than they are in large-scale mines, according to the ILO.¹⁶⁸ As discussed in chapter five, emerald mining also poses health risks. The dust generated from the mines can lead to respiratory disease both for miners, as well as the surrounding communities.¹⁶⁹ Workers also reported that they are frequently exposed to extreme temperatures while working in the mines.¹⁷⁰

Fair Compensation

While the monthly minimum wage in Colombia is about twice that of the poverty line, due to the informal nature of emerald mining in Colombia, many miners are not formally employed and therefore they are not receiving a regular wage.¹⁷¹ The distribution of revenue from mining is inequitable, benefiting only a few segments of the communities.

The law in Colombia prohibits any type of forced or compulsory labor, prescribing 13 to 23 years imprisonment, in addition to fines, for violations. However, there have been reports of National Liberation Army guerilla groups and other organized-crime groups using forced labor for illegal emerald mining.¹⁷² The prevalence of forced labor in connection with emerald mining is unclear.

Ability to Advocate

Article 39 of Colombia's constitution provides workers with the right to join trade unions and associations without interference from the State.¹⁷³ The law also permits Colombian workers who are not performing "essential public services" to strike. However, before a union conducts a strike, they must follow certain legal procedures. In order for a strike to be legal under the law, a union must enter into a conversation period with the

¹⁶⁸ Mining: A hazardous work. (2015, March 23). Retrieved from https://www.ilo.org/safework/areasofwork/hazardous-work/WCMS_356567/lang--en/index.htm

¹⁶⁹ Digging for Ethical Gems. (2018). Retrieved from <https://www.greenamerica.org/green-living/digging-ethical-gems>

¹⁷⁰ International Labor Organization. (2001). El Trabajo Infantil en la Minería Artesanal de las Esmeraldas. Retrieved from <http://white.lim.ilo.org/ipec/boletin/documentos/lbesmeraldas.pdf>

¹⁷¹ United States Department of State Bureau of Democracy, Human Rights and Labor. (2018). *Country Reports on Human Rights Practices for 2018: Colombia*

¹⁷² *Ibid.*

¹⁷³ The Constitution of Colombia (1991). Retrieved from https://www.constituteproject.org/constitution/Colombia_2005.pdf

employer, present a list of demands, and gain a majority approval within the union. Furthermore, strikes are limited to periods of contract negotiations and collective bargaining. Employers may fire employees who participate in illegal strikes.¹⁷⁴

Regardless of the legality of trade unions and strikes, there is evidence that suggests there are severe impediments to Colombian worker's ability to advocate. In 2018, the International Trade Union Confederation (ITUC) listed Colombia as one of the worst countries in the world for workers and reported that 19 Colombian trade union leaders were murdered during 2017.¹⁷⁵ This was alarmingly more than any other country for 2017. The ITUC has also reported that the Colombian government frequently undermines collective bargaining.¹⁷⁶ One common complaint by unionists is that the current system does not allow workers to make anonymous complaints.¹⁷⁷

6.1.2: Indigenous and Minority Rights

Indigenous peoples, of what is now the Boyacá Province, mined emeralds in the area long before the arrival of the Spanish in the 15th century. As mentioned earlier in this report, there is evidence to suggest that natives in the area were mining emeralds as early as 1000 B.C. However, when the Spanish arrived, they claimed the mines for themselves and forced the indigenous people into slavery¹⁷⁸.

Currently, Colombia has legal protections in place to help prevent the exploitation of minority communities. Colombia has ratified ILO convention 169 on Indigenous and Tribal Peoples, which requires prior consultation with indigenous peoples regarding legislative proposals or projects that could potentially affect them. However, the results of this consultation are not binding. Law 70 recognizes afro-descendant communities and establishes mechanisms to protect these communities. Furthermore, in 1998 Colombia passed Decree 1320 which requires prior consultation specifically for natural resource mining in indigenous and Afro-Colombian communities.¹⁷⁹

¹⁷⁴ United States Department of State Bureau of Democracy, Human Rights and Labor. (2018). *Country Reports on Human Rights Practices for 2018: Colombia*

¹⁷⁵ International Trade Union Federation (2018). *2018 ITUC Global Rights Index: The World's Worst Countries for Workers*.

¹⁷⁶ *Ibid.*

¹⁷⁷ United States Department of State Bureau of Democracy, Human Rights and Labor. (2018). *Country Reports on Human Rights Practices for 2018: Colombia*

¹⁷⁸ Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology*, Fall 2017, Vol. 53, No. 3
<https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

¹⁷⁹ United States Office on Colombia (2013). *Large-scale mining in Colombia: Human rights violations past, present and future*.

Exclusion and Risk of Exploitation

LSM efforts have extensively undermined the rights of Afro-Colombians and Indigenous groups. It is Indigenous peoples and Afro-Colombians that are most directly harmed by the environmental, cultural and socio-economic damages of large-scale emerald mining.¹⁸⁰

As mentioned above, the Colombian government has passed legislation requiring that Indigenous and Afro-Colombian communities are consulted prior to the implementation of natural resource mining projects. However, there are several reported issues with the legal framework. While there are 102 indigenous groups in Colombia, the government only recognizes 87 of these groups¹⁸¹ Moreover, around 30% of the indigenous population live away from the government authorized reserves, instead, living on ancestral land that is unrecognized.¹⁸² The legal right to prior consultation of these indigenous communities is not being recognized. Similar issues are also reportedly affecting areas with large populations of Afro-Colombians. The government recognizes around 160 collective territories for the Afro-Colombian population. However, over half the population lives outside of the recognized territory and does not have the same legal rights over their land. There are reports that even minority populations living on lands legally recognized by the Colombian government, are not always adequately consulted.¹⁸³

Heightened Rates of Violence

In spite of prior consent laws, land displacement is one of the primary forms of violence against minority groups in Colombia. Both illegal mining and large scale legal ventures have shown to result in internally displaced peoples. Afro-Colombians and indigenous Colombians are disproportionately affected by displacement.¹⁸⁴ Research also

¹⁸⁰ *Ibid.*

¹⁸¹ Vicente, A., Martin, N., James Slee, D., Birss, M., Lefebvre, S., & Bauer, B. (2011, November). Mining in Colombia: At what cost? [Editorial]. *PBI Colombia*. Retrieved from https://www.peacebrigades.org/fileadmin/user_files/projects/colombia/files/colomPBla/111203_mining_in_colombia_web.pdf

¹⁸² United Nations High Commission on Refugees. (2012) Colombia Situation: Indigenous People. Retrieved from https://www.acnur.org/fileadmin/Documentos/RefugiadosAmericas/Colombia/2012/Colombia_Situation_-_Indigenous_people_2012.pdf

¹⁸³ Vicente, A., Martin, N., James Slee, D., Birss, M., Lefebvre, S., & Bauer, B. (2011, November). Mining in Colombia: At what cost? [Editorial]. *PBI Colombia*. Retrieved from

https://www.peacebrigades.org/fileadmin/user_files/projects/colombia/files/colomPBla/111203_mining_in_colombia_web.pdf

¹⁸⁴ United States Department of State Bureau of Democracy, Human Rights and Labor. (2015). *Country Reports on Human Rights Practices for 2015: Colombia*.

shows that Afro-Colombians and indigenous Colombians have the highest risk of forced labor and recruitment by illegal armed groups.¹⁸⁵

6.1.3: Women's Rights

Economic Opportunities

Article 43 of Colombia's constitution proclaims that women and men have equal rights and opportunities, and declares discrimination against women illegal.¹⁸⁶ However, women have traditionally been left out of the emerald mining industry in Colombia as it was considered bad luck for women to be in the mines.¹⁸⁷ According to Colombian legend, when women entered the mines, the emeralds hid. Women were also considered to lack the physical strength required to work in the mines. It was not until 2015 that women were allowed to enter the mines formally.¹⁸⁸¹⁸⁹ Due to this ban, women had limited economic opportunities in the mining communities until recent years. Prior to 2015, women only had the opportunity to find emeralds by searching the grit that was discarded from the emerald mines. According to one source, in Muzo, women were allowed to come sort through the rubble once a week to try and find small forgotten emeralds. Some of these women earned between 15,000 and 20,000 Colombian pesos (US\$7-10) in one work day.¹⁹⁰ Before 2015, women were allowed to work formally only in management positions. This left women with very few work opportunities, particularly women with less formal education.¹⁹¹ Now that women are legally allowed to participate in emerald mining, they are gaining economic opportunities and have access to more positions within the industry.¹⁹²

Multinational mining companies are also providing increased opportunities for women in the emerald industry. In 2018, Fura Gems, a Canadian mining company, launched the first all-women wash plant in Boyacá, Colombia. The women working at the wash plant

¹⁸⁵ *Ibid.*

¹⁸⁶ The Constitution of Colombia (1991). Retrieved from https://www.constituteproject.org/constitution/Colombia_2005.pdf

¹⁸⁷ Meers, C. (2018, November 19). Meet the All-Female Mining Team That's Breaking Down Barriers. Retrieved from

<https://robbreport.com/muse/fashion-jewelry/all-female-mining-team-breaking-down-barriers-2828065/>

¹⁸⁸ Colombianas vencen tabú machista y laboran en minas de esmeralda. (2018, January 16). Retrieved from

<https://www.debate.com.mx/mundo/Colombianas-vencen-tabu-machista-y-laboran-en-minas-de-esmeralda-20180116-0229.html>

¹⁸⁹ Meers, C. (2018, November 19). Meet the All-Female Mining Team That's Breaking Down Barriers. Retrieved from

<https://robbreport.com/muse/fashion-jewelry/all-female-mining-team-breaking-down-barriers-2828065/>

¹⁹⁰ Vicente, A., Martin, N., James Slee, D., Birss, M., Lefebvre, S., & Bauer, B. (2011, November). Mining in Colombia: At what cost?

[Editorial]. *PBI Colombia*. Retrieved from

https://www.peacebrigades.org/fileadmin/user_files/projects/colombia/files/colomPBIa/111203_mining_in_colombia_web.pdf

¹⁹¹ Navarrete, T. Mujeres, las víctimas silenciosas de la esmeralda en Boyacá. Retrieved from <https://verdadabierta.com/especiales-v/2016/mujeres-guerra/boyaca-mujeres-esmeraldas.html>

¹⁹² *Ibid.*

vary in age (30 - 55 years) and for many of them, it is their first formal employment¹⁹³ According to reports, many of the women who are now formally participating in the industry are single mothers or widows who have taken on the role of sole provider for their families.¹⁹⁴

Although women are starting to gain formal employment in the mines, there are reports that women are not always well received in these formal positions in the emerald mining industry. One source claimed that some men refuse to ride in the elevators descending into the mine if a woman is operating the machine.¹⁹⁵ There is still a lot of progress to be made before women have true equal economic opportunity in the emerald industry.

The Risk of Violence Against Women

Because of the lack of economic opportunities available to women in mining communities, many women are allegedly forced into prostitution in order to make a livelihood.¹⁹⁶ Information concerning the prevalence of sexual exploitation related to the emerald industry is lacking; however, there are reports that women are often “shipped into” mining communities and sexually exploited.¹⁹⁷

6.1.4: Children's Rights

While the exact number of children participating in activities related to mining is unknown, based on information from the National Household Survey in 2011, it was estimated that between 200,000 and 400,000 children, between the ages of 12 and 17, were working in artisanal mining. It is unclear what percentage of these children were working in emerald mining in particular.¹⁹⁸

Colombian law sets the minimum working age at 15 years old, however, the minimum age for hazardous work, including mining, is set at 18 years. Despite this law, there have been

¹⁹³ Le, K. T. (2018, November 27). Colombia embraces women in emerald mining. Retrieved from <https://www.iom3.org/materials-world-magazine/news/2018/nov/27/colombia-embraces-women-emerald-mining>

¹⁹⁴ Colombianas vencen tabú machista y laboran en minas de esmeralda. (2018, January 16). Retrieved from <https://www.debate.com.mx/mundo/Colombianas-vencen-tabu-machista-y-laboran-en-minas-de-esmeralda-20180116-0229.html>

¹⁹⁵ Mujeres vencen tabú machista y brillan en minas de esmeraldas de Colombia. (2018, January 14). Retrieved from <https://www.france24.com/es/20180114-mujeres-vencen-tabu-machista-y-brillan-en-minas-de-esmeraldas-de-colombia>

¹⁹⁶ Franco, I., Oliveira, J. P., & Ali, S. (2018). Peace with Hunger: Colombia's Checkered Experience with Post-Conflict Sustainable Community Development in Emerald-Mining Regions. *Sustainability*, 10(2).

¹⁹⁷ Colombia must focus more on tackling internal human trafficking-report | Women's Link. (2013, November 18). Retrieved from <https://www.womenslinkworldwide.org/en/news-and-publications/press-room/colombia-must-focus-more-on-tackling-internal-human-trafficking-report>

¹⁹⁸ International Labor Organization. (2001). El Trabajo Infantil en la Minería Artesanal de las Esmeraldas. Retrieved from <http://white.lim.ilo.org/ipec/boletin/documentos/lbesmeraldas.pdf>

reports of child labor used in illegal emerald mining. According to the U.S. Department of State's Human Rights Report on Colombia, laws prohibiting child labor are often ignored, and it is not uncommon to find children under the age of 18 working in illegal emerald mining, often with the insistence of their parents.¹⁹⁹

Violence Against Children

The Trafficking in Persons (TIP) report from 2018 found that there were higher levels of child sexual exploitation and trafficking in areas with extractive industry.²⁰⁰ No evidence of violence against children in legal emerald mining in Colombia was found during our research.

Protection from Danger

The Colombian Code of the Minor, article 245, prohibits the presence of children in any type of underground mine. The Colombian government has also embraced international standards related to child labor; they have ratified the United Nations Convention on the Rights of Child (CRC). This legislation is intended to protect all children eighteen years or below from any form of sexual exploitation, abuse, forced labor, or participating in any form of work that may be likely to harm the "health, safety or morals of children," such as mining.²⁰¹ However, regardless of the legal protection in place to protect children, there are still significant numbers of children working in illegal emerald mining in Colombia.

Attention to Developmental Needs

A study conducted by the ILO found that children who were working in the emerald mines worked, on average, 16.2 hours a week in the mines. This study also reported that over 80% of children working in emerald mining did not receive any type of monetary compensation.²⁰² Many children identified the physical effort required by this type of work as the most significant challenge they face concerning mining activities. Other risks include exposure to extreme temperatures, insect bites, and dust particles in the environment.²⁰³ All of these factors have the potential to negatively impact the health of the child miners.

¹⁹⁹ United States Department of State Bureau of Democracy, Human Rights and Labor. (2018). *Country Reports on Human Rights Practices for 2018: Colombia*.

²⁰⁰ *Ibid.*

²⁰¹ International Labor Organization. (2001). *El Trabajo Infantil en la Minería Artesanal de las Esmeraldas*. Retrieved from <http://white.lim.ilo.org/ipcc/boletin/documentos/lbesmeraldas.pdf>

²⁰² *Ibid.*

²⁰³ *Ibid.*

6.1.5: Freedom from Violence

Violence has always featured prominently in emerald mining in Colombia. Much of this violence is a result of land disputes, and reached its peak during the “Green Wars”. While violence is not occurring at the same level today as during the “Green Wars”, the emerald industry continues to be linked to illegal armed groups, drug trafficking, and violence.²⁰⁴

It is reported that conflict has intensified since the death of the “emerald czar” Victor Carranza in 2013. Carranza was a major player in the “Green Wars”, but also helped negotiate the peace agreements that occurred during the 1990s. His death, along with the increased presence of large multinational mining companies, has led to intensified violence in mining areas over the past few years. This is illustrated by the series of high-profile assassinations of major players in the emerald industry since Carranza’s death, reportedly a consequence of various groups trying to fill the “leadership void” that Carranza has left.²⁰⁵ The remoteness of the Muzo emerald mines also allowed Carranza to established cocaine laboratories, with many other players in the emerald business following suit. This has left a complex, lingering connection between cocaine trafficking and the emerald industry in Colombia.²⁰⁶

6.2: Zambia

6.2.1: Workers’ Rights

According to Zambian law, miners have the right to establish and join independent unions and conduct legal strikes. However, legislative restrictions regulate these rights. The Zambian government has clear authority to eliminate certain groups of workers from unionizing.²⁰⁷ The Zambian government, through the Ministry of Labor and Social Security, is responsible for organizing and managing labor disputes between employees and their employers. According to Zambian labor laws, the unjustifiable ending of employment contracts is illegal in Zambia. In cases relating to the unjustified dismissal of workers, the ministry settles disputes through social dialogue and any unresolved cases are sent to the Industrial Relations Court.

²⁰⁴ Gill, S. (2018, June 06). Colombia’s emerald industry continues to be tied to violence and organized crime. Retrieved from <https://colombiareports.com/colombias-emerald-industry-continues-to-be-tied-to-violence-and-organized-crime/>

²⁰⁵ Farah, Douglas *Emerald Wars: Colombia’s Multiple Conflicts Won’t End With the FARC Agreement*, Small Wars Journal <https://smallwarsjournal.com/jml/art/emerald-wars-colombia%E2%80%99s-multiple-conflicts-won%E2%80%99t-end-with-the-farc-agreement>

²⁰⁶ *Ibid.*

²⁰⁷ United States Department of State. Country Reports On Human Rights Practices - State.gov. Retrieved from <https://www.state.gov/j/drl/rls/hrrpt/2017/af/277061.htm>

Freedom of association and the right to collective bargaining are not respected in Zambia. Workers' unions are no longer influential because they suffer from political interference and fracturing. Many workers' unions choose to strike illegally to avoid lengthy and tiring procedural requirements. The International Labor Organization has reported allegations of anti-union discrimination, including unjustified dismissals of union members within the mining industry.²⁰⁸

Fair Compensation

Zambian law sets a minimum wage for employees and regulates working conditions. Minimum wage ranges from 700 kwacha (USD 74) to 1,445 kwacha (USD 154) per month for "protected employees" according to the work sector²⁰⁹. These regulations are effectively enforced, and the law prescribes penalties for violations of labor laws. However, many workers consider their wages low and often require additional income to make a living.

Zambians working more than 48 hours per week, by law, should be entitled to overtime. However, a Human Rights Watch report in 2013 found that miners were being paid less than they were entitled or receiving no overtime pay.²¹⁰

Safety of Working Conditions

According to the U.S. Department of State report on Human Rights Practices in Zambia, safety and health standards are ineffectively enforced in all sectors, including in the informal sector. Miners face risky health and safety conditions and are reportedly threatened by mining directors if they attempt to claim their rights. Miners in Zambia develop serious lung diseases, such as silicosis, due to poor ventilation and continuous exposure to dust and chemicals.²¹¹

Zambian mining companies state their commitment to abiding by work-related health and safety laws; however, the reality in the mines reportedly does not align with company guarantees. A Workmen's Compensation Fund Control Board Report (2015),

²⁰⁸ Ibid.

²⁰⁹ Working And Living Conditions Of Workers In The Mining ... (n.d.). Retrieved from <https://alrei.org/education/working-and-living-conditions-of-workers-in-the-mini>

²¹⁰ Ibid.

²¹¹ Country Reports On Human Rights Practices - State.gov. (n.d.). Retrieved from <https://www.state.gov/j/drl/rls/hrrpt/2017/af/277061.htm>

suggested that the highest work-related injuries occur in the mining industry, with an overall 462 injuries, representing 17.3 percent of the total injuries claimed between 2010-2014.²¹²

The Zambian government is working alongside mining companies to improve working conditions in the mines. By law, workers have the right to remove themselves from situations that endanger their health or safety without risking their employment. However, workers have reported not exercising this right, stating that those who have protested working conditions often lose their jobs. This suggests that authorities do not adequately enforce legal protections.²¹³

6.2.2: Indigenous and Minority Rights

Mining is often seen as a "leading sector," bringing investment to the region, improving the country's economy, and by association, the quality of life of its citizens. Nevertheless, mining activities often pose a disruptive dilemma for indigenous people in Zambia. While indigenous communities have in some instances welcomed mining as a vehicle for economic growth and increased job opportunities for their community²¹⁴, LSM endeavors run by foreign companies represent a threat to indigenous ways of life and livelihoods through negative social and environmental impacts.

According to recent mining laws in Zambia, small-scale mining (SSM) licenses cannot be granted to those who are not Zambian citizens or companies that are not "citizen-owned," meaning at least 50.1 percent of the company owned by Zambian citizens. Such laws empower local and indigenous people to work within their communities and decrease risks associated with foreign intervention. However, foreign companies can bypass this law because local ownership requirements do not apply to LSM companies in Zambia.²¹⁵

The primary goal of LSM companies is to obtain minerals acceptable for selling to buyers for further processing and profit. To attain this goal, LSM companies often seek unfettered use and access to the mineral resources of indigenous lands.²¹⁶ These priorities are different from those of indigenous people who desire sustainable development for their

²¹² Working And Living Conditions Of Workers In The Mining ... (n.d.). Retrieved from <https://alrei.org/education/working-and-living-conditions-of-workers-in-the-mini>

²¹³ Ibid.

²¹⁴ Mining & Indigenous Rights: The Emergence Of A Global ... (n.d.). Retrieved from <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/mining>

²¹⁵ ICLG, Zambia mining law 2019, <https://iclg.com/practice-areas/mining-laws-and-regulations/zambia>

²¹⁶ Mining, Minerals and Sustainable Development is a project of the International Institute for Environment and Development (IIED). The project was made possible by the support of the World Business Council for Sustainable Development (WBCSD).

communities. However, most emerald LSM companies in Zambia have corporate social responsibility programs to help indigenous communities surrounding the mines. Gemfields, owner of the Zambian Kagem mine, for example, regularly publishes reports on its support to the health and education of areas where it operates in Zambia and Mozambique. Gemfields still faces human rights abuse accusations, however. In 2019, Gemfields paid a legal settlement to community members residing near its mine in Mozambique who had raised concerns over the performance of the company and its position on indigenous people's rights.²¹⁷

6.2.3: Women's Rights

Economic Opportunities

The proportion of women involved in artisanal and small-scale mining in Zambia ranges from 25 – 30 percent.²¹⁸ Women are also engaged in informal employment providing services, such as the supply of food in mining communities, and—to a lesser extent—contribute to decision-making and consultative processes of exploration and mining companies.²¹⁹

Studies suggest that extractive industries are associated with negative impacts on women and society as a whole. The environmental issues arising from mining activities, in particular, severely affect women. Because women are traditionally responsible for satisfying the food and water needs of their household, pollution or degradation of food and water sources significantly increases the time and effort they must spend to provide for their families.²²⁰

In Zambia, men seem to profit more from the increased employment opportunities mining brings compared to women due to cultural beliefs and imbalances in literacy and skill-sets. Increased employment opportunities for men also translates to an increase in household incomes. This inadvertently has a negative effect and “potential to decrease

²¹⁷ Gemfields To Pay \$7.8m To Settle Human Rights Abuses ... (n.d.). Retrieved from <http://www.mining.com/gemfields-pay-7-8m-settle-claim-human-rights-abuses-mozamb>

²¹⁸ Banda, S. (2010) Challenges and Opportunities for Women Entrepreneurs in Small Scale Gemstone Mining: A Case Study of Itezhi-Tezhi District In Zambia, A Dissertation submitted in partial fulfillment of the requirements for the Masters Degree in Women's Law at the Southern and Eastern African Regional Centre for Women's Law, University of Zimbabwe

²¹⁹ A study on Impacts of Mining and other Extractive Industries on Women in Zambia, ActionAid 2015.

²²⁰ Hinton, J. (2012) Guidelines for Mainstreaming Gender in the Minerals Sector International Conference on the Great Lakes Region (ICGLR)

women's social and economic status and relative power in the household and community relative to the status of men and, therefore, increases their vulnerability and insecurity."²²¹

The Risk of Violence Against Women

Zambian law criminalizes rape and other sexual offenses, giving courts the discretion to sentence convicted rapists to life imprisonment with hard labor. The Anti-Gender-Based Violence Act criminalizes spousal rape, and the penal code criminalizes domestic violence between spouses and among family members living in the same home.²²²

A gender-based violence (GBV) information management system was developed within the government's Central Statistics Office to strengthen the monitoring and reporting of cases of GBV. The system should allow for the effective and comprehensive reporting of GBV and improved support, including legal services, social support, economic assistance, and overall national planning.²²³

6.2.4: Children's Rights

Zambian law prohibits the employment of children under the age of 15 at any worksite. While the Employment of Children Act sets 18 as the minimum age for hazardous work, it does not clearly define the term "child." Likewise, Zambian legislation has inconsistent definitions of what constitutes a "child," which has implications on the employment and education of children. While the Labor Commissioner has efficiently enforced the minimum age requirements in the industrial sector, the government has only been able to occasionally implement minimum age standards in the informal sector, particularly in artisanal mining.²²⁴ Additionally, the increased traffic congestion caused by delivery trucks to the mines has continued to put communities around mines at high risk of traffic accidents, which disproportionately affect children.²²⁵

6.2.5: Freedom from Violence

Trafficking

According to the U.S. Department of State report on trafficking, over the past five years, Zambia has become a transit and destination country for women, men, and children

²²¹ A study on Impacts of Mining and other Extractive Industries on Women in Zambia, ActionAid 2015

²²² United States Department of State. Country Reports On Human Rights Practices - State.gov. Retrieved from <https://www.state.gov/j/drl/rls/hrrpt/2017/af/277061.htm>

²²³ Ibid.

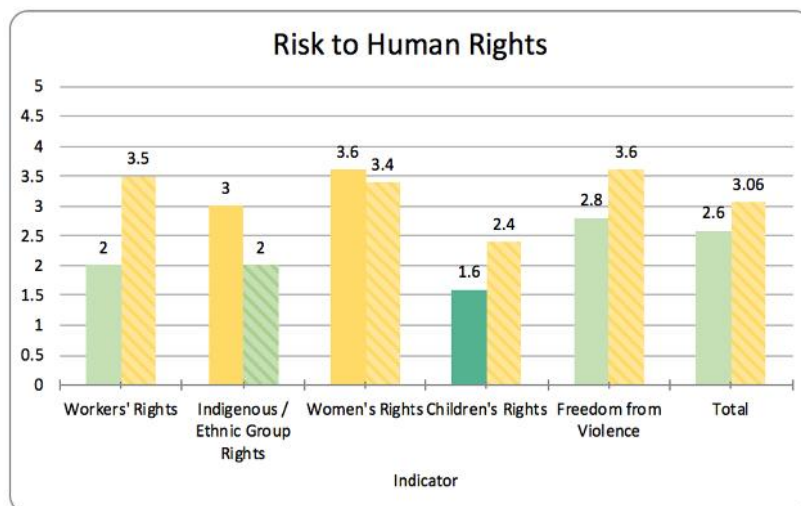
²²⁴ Ibid.

²²⁵ Study on Impacts of Mining and other Extractive Industries on Women in Zambia, ActionAid 2015.

exposed to forced labor. The majority of this cited trafficking occurs within Zambia’s borders and involves children and women from rural areas exploited in cities to become forced laborers in different industries, including mining. Zambian children may be forced into jerabo gangs which are affiliated with illegal mining in the Copperbelt Province²²⁶. While street children and orphans are the most vulnerable, children of wealthy village families are also at risk of trafficking.²²⁷

The Zambian Ministry of Labor and Social Security (MLSS) Child Labor Unit uses mediation with parents as the ordinary process for handling child labor cases and does not criminally investigate cases. The Zambian government also does not investigate or prosecute companies for labor trafficking in the mining sector and has an inadequate capacity to monitor them.²²⁸

6.3: Comparison by Sub-Indicator



The (JDI) scores for human rights for Colombia and Zambia demonstrate a comparable level of risk. In our scoring methodology, a score of 0 represents no risk and a score of 5 represents high risk in that specific category. Both nations are considered moderate risk, but Zambia scores slightly higher than Colombia with an overall average of 2.98 out of 5 compared to Colombia’s score of 2.6. These respective scores were created from scoring each country based on five separate categories: workers' rights, indigenous/ethnic

²²⁶ Ibid.

²²⁷ Ibid.

²²⁸ The Employment Status Of Zambians - Eth Z. (n.d.). Retrieved from <https://www.files.ethz.ch/isn/178644/afrobrieffno135.pdf>

group rights, women's rights, children's rights, and freedom from violence. In the workers' rights category, Zambia's higher score of 3.5 compared to Colombia's score of 2 reflects the lack of social security services to Zambian emerald miners and lack of enforcement of the minimum age limit for workers. While Zambia scored higher than Colombia in the children's rights category, with respective scores of 2.4 and 1.6, both countries demonstrated a low to moderate level of risk. In the freedom from violence category, Zambia scored higher than Colombia, with respective scores of 3.6 and 2.8, illustrating Zambia's increased levels of violence and human trafficking in communities surrounding mining sites. In regards to women's rights, the two countries obtained similar and relatively high scores—3.6 and 3.4 for Colombia and Zambia, respectively—demonstrating women's exclusion from participation in the mining industry and women's reduced access to economic benefits compared to men. The only category in which Colombia showed a significantly higher risk than Zambia, was the indigenous/ethnic group rights category, with respective scores of 3 and 2. This is due to Colombia's high number of indigenous people displaced by mining activities near their communities.

Chapter 7: Supply Chain Governance

Supply chains cover the aspects of the transport, handling, warehousing, and logistics of bringing raw materials from extraction to the final consumers. As with most minerals, the supply chain of an emerald begins in the ground, with mines created to extract the raw emeralds from the ground. These rough emeralds are then cut down for consumer use. The process by which these emeralds are extracted from the ground, brought to the cutters, provided to vendors, and then sold to the consumer can vary from country to country. This section will review and explain the supply chain process for emeralds in both Colombia and Zambia.

7.1: Colombia

The supply chain of emeralds from Colombia has a checkered past. The leadership of Don Victor Carranza, as explored in previous sections, saw much death and conflict in the emerald regions of Colombia. After his death, a significant decline in violence and a restructuring of emerald mining occurred. The restructuring of emerald mining has begun the process that would eventually lead to the near extinction of artisanal mining as large

mining groups and corporations have increased ownership of the mines. The decrease of artisanal mining due to LSMs has ended the source of income for a large segment of the population in Muzo.²²⁹ Even with the insertion of LSM companies, approximately 63% of emerald mining in Colombia remains informal.²³⁰

7.1.1. Methodology

In Colombia, almost all emerald mines are vertical mines that go deep underground from 300 to 500 feet down, and the La Rampa mine is almost 1,500 feet down.²³¹ The influx of international companies in Colombia for emerald mining, such as Canada-based Fura and US-based MTC, have had to tread lightly in the region for fear of triggering unrest among wary locals who fear being shut out of the tunnels where they hunt for gems and make a meager living.²³² Since the mines in Colombia do not follow the open pit mining style, the process of extracting emeralds and bringing them to the surface to be processed and sold becomes a longer process due to the inherent risks involved in deep underground mining. This method of mining creates several issues for corporations and informal miners. The wet climate of the mountain areas often results in considerable flooding of the mines, which only the larger corporations have enough funding and resources to handle.

In order to lessen the investment burden and risk, most Colombian mining operations involve partnerships where many individuals obtain mining concessions or licenses. In Colombian emerald mining, an association generally consists of the license owner who holds 50 percent of the utility and their partners who are responsible for putting up the capital for expansion and operations. These partners take 50 percent of the mine's production, which can be deducted from exploration and investigation operations as well as other work, all based on an agreement with the investors.²³³

7.1.2 Washing and Sorting

The process of washing and sorting gems in Colombia has changed with the presence of LSM companies. Furas has established an all-female wash plant for the Coscuez mines,

²²⁹ Franco, Isabel B.; Puppim de Oliveira, Jose A.; Ali, Saleem H. 2018. "Peace with Hunger: Colombia's Checkered Experience with Post-Conflict Sustainable Community Development in Emerald-Mining Regions." *Sustainability* 10, no. 2: 504.

²³⁰ Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology, Fall 2017, Vol. 53, No. 3*
<https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

²³¹ "Muzo". <http://www.muzo.co/en/millennial-legacy/muzo>

²³² Cobb, Julia Symmes and Taylor, Susan. "Company walks fine line to revive Colombia emerald mine." Reuters. 12 December 2018.

<https://www.reuters.com/article/us-colombia-fura-gems-emeralds/company-walks-fine-line-to-revive-colombia-emerald-mine-idUSKBN1OB1LF>

²³³ Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology, Fall 2017, Vol. 53, No. 3*
<https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

commissioned in June 2018. This plant will wash approximately 30 tons of emeralds per hour.²³⁴ Emeralds, once washed are then sent to jewelers at the Emerald Trade Center in Bogota or, in the case of small-scale miners, to the street vendors outside the Trade Center.²³⁵

7.1.3 Security

Security at Colombian mining sites can vary. In some cases, there are LSMs which have extensive security services to ensure the safety and security of the mines and miners, as well as oversight over miners to prevent the theft of emeralds. The need for security has increased given the unrest from local miners over LSMs entering the Colombian emerald mining industry. For example, in 2015, when MTC came to Muzo, and without Victor Carranza to protect MTC, local residents and LSM rivals began to revolt. On two separate occasions, armed villagers seized the company's mines. Security, riot police, and soldiers fought to control the crowds, but four people died from the events.²³⁶

7.1.3 Cutting and Selling

Colombian emeralds are sold in various forms, be it at the Emerald Trade Center or through the vender on the streets of Bogota, that ranges from small to large raw or cut stones. In some cases, license holders - smaller incorporated groups of organized miners - to stay competitive, mine the stones and take them through the entire wholesale value chain of treatment, cutting, and sales on the global market. By doing so, the emeralds are not changing hands so there are no markups added to the cost of the emeralds. A minimized supply chain by license holder miners allows the seller to provide a complete chain of custody, assures buyers of the legality of their purchase, and provides a documented supply chain, including awareness of the type of filler used during emerald treatment.²³⁷

The emeralds sold from Colombia are either cut and polished in Colombia or sold as raw emeralds to their buyers. Typically, the stones are between 3 and 20 carats and in some

²³⁴ Fura Gems. "Fura Gems' Flagship Colombian Emerald Mine Begins Production".

http://www.furagems.com/uploads/Fura_Gems_Inc_Colombian_Emeralds_Operational_Update.pdf

²³⁵ Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology*, Fall 2017, Vol. 53, No. 3

<https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

²³⁶ Cobb, Julia Symmes. "The Dangerous Search for Emeralds in Colombia". Washington Post. 9 August 2015.

https://www.washingtonpost.com/sf/world/2015/08/09/the-dangerous-search-for-emeralds-in-colombia/?noredirect=on&utm_term=.ebc905874261

²³⁷ Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology*, Fall 2017, Vol. 53, No. 3

<https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

cases one may be able to find a cutter polishing and cutting a large carat emerald.²³⁸ The notion of profitability is what drives individuals, be they jewelers or street vendors, to decide in what form to sell these stones to the consumer.

7.2: Zambia

Though dominant, Gemfields is not the only actor in Zambia's emerald industry. Individual miners operate alongside Gemfields in the Kafubu area. These individual miners engage in their prospecting activities. They have their niches in local and foreign markets through merchants in nearby villages or in Kitwe²³⁹. The industry continues to face various challenges and there remains a gap between its actual and predicted outcome. The potential of the industry is bottlenecked by the general lack of interest that the government has shown in capitalizing on this potential. Systematic information about the supply chain of small and medium sized mines remains limited due to their variation and informality and therefore limits our ability to analyze the risks they face at various points from production to distribution.

However, Gemfields continues to supply the majority of Zambia's and the world's emeralds. Locally-owned operations do not come close to the behemoth scale of operation that Gemfields leads in Kagem. Therefore, in contrast to countries like Colombia, artisanal, small-scale, and informal mining of emeralds in Zambia remains limited. In turn, Gemfields invests significantly in adequately running the operation in compliance with environmental and sustainability standards²⁴⁰. It has also invested significantly in equipment, technique, and training to increase capacity, allowing for the cleaning of the Kagem pit for the implementation of proper mining methodology. Gemfields also claims that it has been able to train and motivate local employees better than past management, increasing Kagem's efficiency and profitability.

Gemfields also maintains a level of transparency in its activities and allows us to examine Zambia's dominant supply chain of emeralds. This information can aid in

²³⁸ Cobb, Julia Symmes. "The Dangerous Search for Emeralds in Colombia". Washington Post. 9 August 2015. https://www.washingtonpost.com/sf/world/2015/08/09/the-dangerous-search-for-emeralds-in-colombia/?noredirect=on&utm_term=.ebc905874261

²³⁹ Silondwa, Whiteson. 2012 "Constraints to the growth of the emerald industry in Zambia: A case study of the Zambian Emerald Industry-Ndola Rural, Copperbelt Province, Zambia". LAP LAMBERT Academic Publishing.

²⁴⁰ AU-JDI Zambia Interview. Interview by Kritika Kapoor. (2019). [Telephonic]. Washington, DC.

understanding the the challenges faced by the industry at different stages of its supply chain that impede its achievement of optimal output.

7.2.1 Methodology

Zambia’s biggest emerald mine in Kagem follows the open-pit methodology that avoids the need for underground walls and shafts and allows for the exploration of every carat of emerald available.²⁴¹ While the alternative, underground methods of mining, is in its experimental stages, security concerns, visibility, and local conditions make open-pit mining more feasible. Gemfields uses its operating fleet to mine strategic areas or “zones” rich in emeralds. Any emeralds thus exposed are extracted entirely by hand tools used by chiselmens, specifically during daytime as that improves visibility and reduces the opportunities for theft. The extracted specimen is sent to the sorting plant, along with rubble from the area to verify the presence of emeralds that may have been missed by the eye. Supervisory and security staff from Gemfields are present at all times to prevent theft or another misdemeanor.

A challenge for mining operations in Zambia is the wet climate where large amounts of rain during the rainy season can fill pits with water and increase groundwater levels, another reason why open-pit mining is preferable. Substantial amounts of diesel fuel go into pumping water out of these pits so they can be mined. While large corporations like Gemfields can afford this, most smaller mining operations cannot afford the pumping equipment. As a result, they stop their mining operations during the rainy season from November to March.

7.2.2 Washing and Sorting

The ore extracted through mining is next transported to washing plants. Gemfields has the most efficient washing plants with the capacity of 40 tons per hour, with efforts to improve capacity to 150 tons per hour, at which rate the Kagem plant will be able to absorb the potential increase in ore supply from new pits. The next stop is the sorting house, where staff members recover pieces of emerald from other unwanted materials. Kagem has its own grading system based on Gemfields’ reference sets located in Zambia, India, and the U.K.

²⁴¹ Hsu, Tao et al. 2014. “A Visit to the Kagem Open-pit Emerald Mine in Zambia”. Gemological Institute of America <https://www.gia.edu/gia-news-research-kagem-emerald-mine-zambia>

Following this system, graders determine the quality of crystals to be presented at auctions. Color, clarity, and transparency are some determinants of quality.

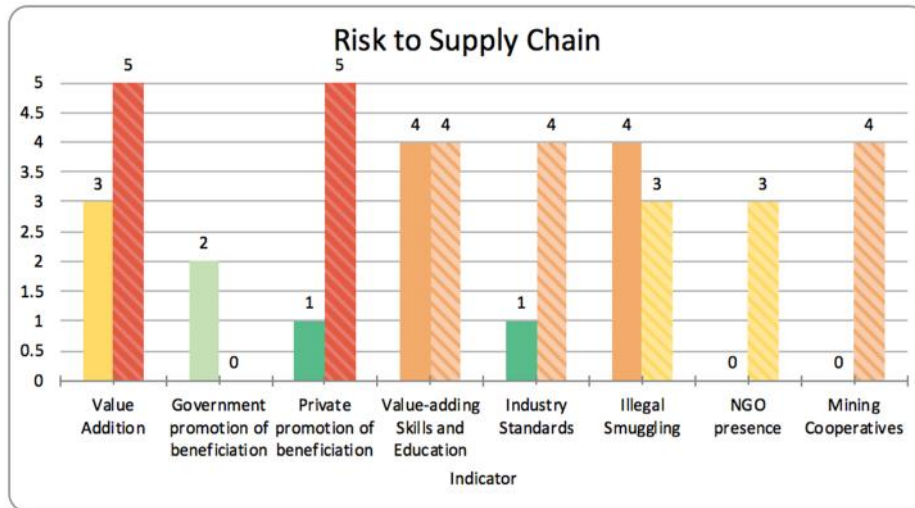
7.2.3 Security

With around 150 security guards and 50 security dogs, miners and chiselers in the Kagem pit are constantly watched over. Security checks are routine at the washing and the sorting plants, and mobile phones are not allowed anywhere. At this stage, Gemfields faces the challenge of illegal miners who attempt to pilfer emerald-containing ore from licensed areas. Under the Mines and Mineral Act, a license is required for any person who wishes to undertake the processing of any minerals under Section 38. In addition, under Section 13(2), a person may apply for a mineral trading permit, a mineral import permit, a mineral export permit, and a gold panning certificate. Unlicensed miners attempt to make profits through illicit emerald sales, circumventing these bureaucratic requirements that need time and resources,

7.2.4 Auctions

Rough gemstones are then auctioned off to generate revenue. Gemfields emphasizes the transparency of its auction sales; the results of auctions are publicly shared and accessible to the government and shareholders. The consistency resulting from robust grading standards by Gemfields results in successful auctions and customer goodwill. Information is limited on how artisanal, small-scale, and informal miners auction off their rough stones, which traditionally takes place through informal, sometimes illicit, networks of international traders. As mentioned above, the challenge at this stage for the industry is localizing value addition for emeralds; polishing and cutting are processes that should be carried out locally if the emerald industry is to create more value for the Zambian economy.

7.3 Comparison by Sub-Indicator

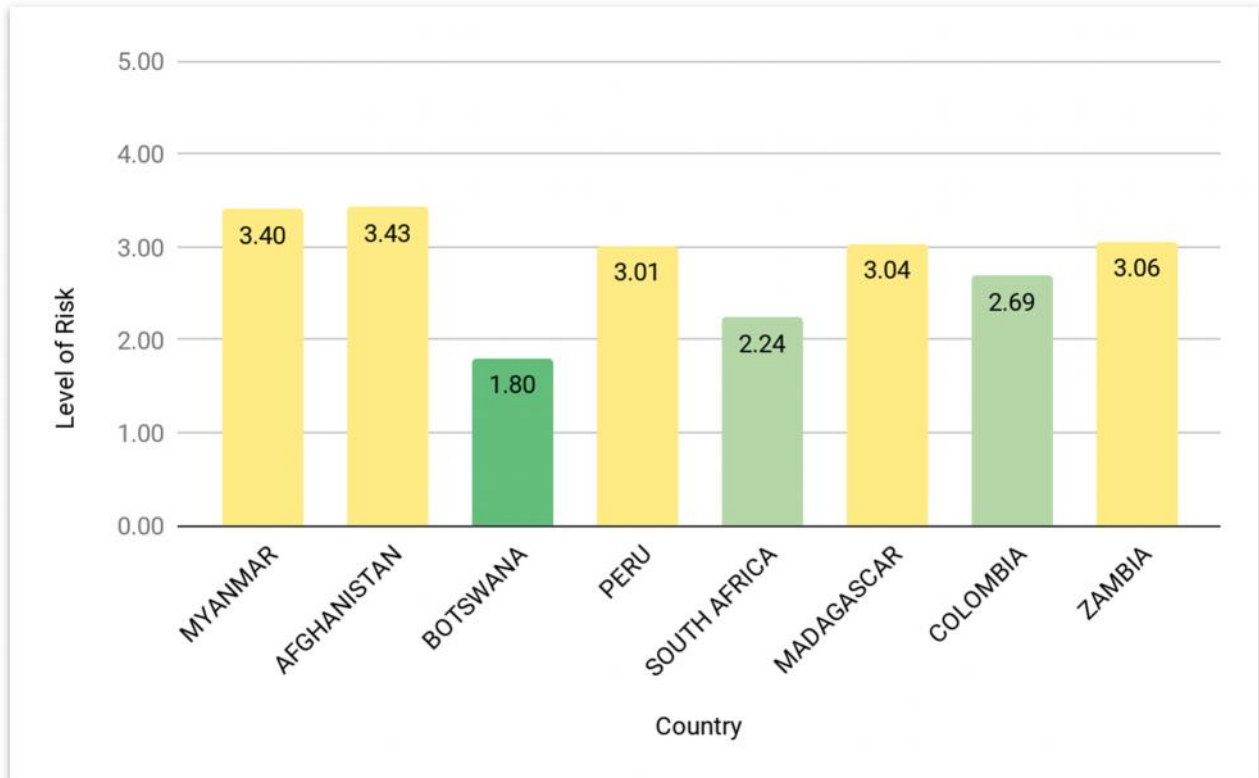


Mining in Colombia and Zambia are operationally different as the former relies on underground, vertical mining, while the latter mines through open pits. Open pit operations are preferred in Zambia due to climatic challenges of rain and flooding that Colombian mines often suffer from. Comparing scores in supply chain and beneficiation, we see that both countries struggle with the low levels of value-addition that takes place nationally and limits the potential of the industry, though Zambia is relatively worse off. Efforts by the government to promote value creation have been minimal in both countries, but in Colombia some efforts by the private sector have been made to promote value-addition activities. Lastly, the supply chains of emeralds of both countries are disrupted by smuggling and black market sales.

Chapter 8: Eight Country Comparison

This chapter applies the modified methodology, detailed in the methodology section above, to compare mining in Colombia and Zambia with the six countries that have been researched by past practicum groups; Madagascar, South Africa, Botswana, Peru, Afghanistan, and Myanmar. This is an important step, as this report is just one part of a series contributing to building a standardized measure that can be applied in any country context.

Eight-country Comparison Results



Due to the evolution of the methodology over the past four iterations of this project, there are some limitations to this comparison. While our methodology is built off of the Fall 2018 methodology and has been applied in a similar form to both Madagascar and South Africa, the methodology applied to the other four countries was significantly different. We have translated the scores onto the modified methodology using the information provided in the prior reports, however it should be noted that no independent research has been conducted on the prior countries, as this was beyond the scope of this report. The scores provided for prior countries, particularly Botswana, Peru, Afghanistan, and Myanmar, should be viewed as estimates that were calculated based on the limited information available to us.

Despite limitations, the comparison presented below demonstrates the scalability of the modified methodology and serves as an example of how the JDI index can be used to compare different types of mining in various countries using a single tool.

Conclusion

This report is the fourth analysis of case studies that examine the impact and influence of the jewelry industry on various countries. In this report emerald mining in Colombia and Zambia were added to the past JDI research datasets with the aim of comparing the level of risk posed by the industry between both countries. The goal was to conduct a two-country comparison and improve upon a methodology which will create a scoring system for risk on past and future case studies for the JDI.

Through this project, a number of gaps were discovered in the available data for emerald mining in Colombia and Zambia; however, the countries were scored according to the level of risk posed in respect to the emerald mining industry according to available data. Through the methodology a moderate risk level was concluded for both Colombia and Zambia in relation to the emerald mining industry. Both countries are taking necessary steps to ensuring that their level of risk decreases based on the reforms and oversight of NGOs and government agencies in the countries.

Our group also created a scalable scoring system which was used to score the level of risk posed to the previous six countries examined through this project: Peru, Botswana, Afghanistan, Myanmar (Burma), South Africa, and Madagascar. The team acknowledges that in an attempt to render the methodology more scalable and widely applicable, the scope of the scoring and interview questions was broadened. However, these changes should give future researchers, academics, analysts, and industry professionals a more global view of the impact the mining industry has on a country.

The re-scoring of past case studies with the updated methodology have resulted in scores that are relatively similar to the scores given by the previous three teams working on this project. This data strongly supports the updated methodology as a strong and successful tool that can be scalable for use on future comparative case studies for the JDI. The hope is that this methodology will assist any future individual or organization working on the impact of the mining industry within a country, particularly in conflict and conflict-prone regions, to assist in the facilitation of conflict resolution and possibly conflict mitigation. Historically, the presence of precious minerals and gemstones in developing nations have helped initiate and prolong conflicts. We hope that our contribution to the JDI through this project will assist

in establishing a framework that will provide an overview of the risks associated with mining and help to ensure that current and future conflict associated with these types of resources can be prevented, resolved or mitigated.

Annex A. Two-Country Comparison Index

Governance Scores	Colombia	Zambia
Accountability Mechanisms	1.8	2.83
Transparency	1.11	2
Corruption Prevention	2.25	2.5
Industry Regulation	1.17	2.33
Criminal Organizations/Non-State Actors	3.75	3.75
Total Score	2	2.68
Economic Scores	Colombia	Zambia
Industry Employment	3.25	1.5
Fiscal Sustainability	1.2	3.6
Beneficiation	2.5	3.5
Smuggling and the Informal Economy	1	3
Criminal Non-State Actor and Terrorist Funding	4.33	1
Supply Chain	1.25	3.5
Total Score	2.41	2.8
Environment Scores	Colombia	Zambia
Environmental Regulatory Stringency & Enforcement	2.57	2.71
Existence and Extent of Pollution	3.43	4.14
Risk to Biodiversity	3	3.6
Post-production, Planning, and Remediation	4	2.33
Total Score	3.25	3.20
Health Scores	Colombia	Zambia
Human Health	2.91	2.91
Food Security	3	4
Water Security	3.6	4
Total Score	3.17	3.64
Human Rights Scores	Colombia	Zambia
Worker's Rights	2	3.5
Indigenous/Ethnic Group Rights	3	2
Women's Rights	3.6	3.4
Children's Rights	1.6	2.4
Freedom from Violence	2.8	3.6
Total Score	2.6	2.98
	Colombia	Zambia
TOTAL COUNTRY SCORE	2.69	3.06

Annex B. Questions used for Scoring

Governance Questions
Questions on Accountability Mechanisms
Are there formal institutions in place? (Y/N)
If yes, how effective are the institutions? (0-5)
Are violators of the rule of law in regards to industry held accountable? (0-5)
Are the locations of industry actors, such as mining companies, etc., physically accessible to the government? (Y/N)
Is there confidence that the government holds industry actors accountable? (0-5)
Are there informal institutions that monitor the industry on a micro-level? (Y/N)
Questions on Transparency
Is data about industry actors easily accessible and publically available
Is the government a participant member of the Open Government Partnership? (Y/N)
Are there any civil society actors focused on industry issues present? (0-5)
Is information about the issuing of prospecting and mining permits open and available to the public? (Y/N)
Does the government have a framework to ensure the traceability of the mined resources? (Y/N)
Are whistleblowers in the industry protected under the law? (Y/N)
Is the country a signatory to the Extractive Industries Transparency Initiative (EITI)? (Y/N)
Is the government a member of the OECD? (Y/N)
If non-member: Has the country been exposed to any OECD initiatives or guidelines? (Y/N)
If member: Are any of the OECD due diligence guidelines followed? (0-5) e.g. Responsible Business Conduct/OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas
Questions on Corruption Prevention
Are there anti-corruption laws specific to the industry? (Y/N)
Are anti-corruption laws enforced in relation to the industry? (0-5)

Do government officials publicly disclose their finances? (0-5)
Does rent-seeking have a presence in the industry? (0-5)
Questions on Industry Regulation
Is there a government body or structure that establishes industry regulations? (Y/N)
Does the government enforce industry regulations? (0-5)
Are there penalties for violating industry regulations? (Y/N)
Are industry actors incentivized, either in terms of financial returns or threat of prosecution, to abide industry regulations? (Y/N)
Is the process of obtaining permits or licenses related to the industry accessible? (Y/N)
Is the process of obtaining permits or licenses related to the industry timely? (Y/N)
Questions on Criminal Organizations/Non-State Actors
Is the illegal industry free of international criminal organizations? (Y/N)
Is the illegal industry free of terrorist organizations? (Y/N)
Is the illegal industry free of national or local criminal organizations? (Y/N)
Is the industry free of illegal or criminal government involvement? (Y/N)
Economic Questions
Questions on Industry Employment
Is the majority (more than 60%) of the industry formalized? (Y/N)
Is the potential income for most workers in the industry equal to or higher than the country average? (Y/N)
Do companies in the industry hire the majority (more than 60%) of their employees locally, i.e. employees are citizens of the country? (Y/N)
Does the work offered in this industry provide a reliable income? (Y/N)
Does the country's labor force have the capacity to take up other service-sector jobs in addition to primary/extractive/mining activities? (0-5)
Questions on Fiscal Sustainability
Does the government effectively collect taxes and royalties on the industry? (0-5)
Has the government reinvested revenue earned from the industry back into communities most affected by the industry? (Y/N)

Has foreign direct investment in the industry generally been rising or stable in the last five years? (Y/N)
Has global demand for the precious mineral or gem generally been rising or stable in the last five years? (Y/N)
Is there enough of the natural resource left to ensure production for at least another decade? (Y/N)
Questions on Beneficiation
Does the industry in the country include any higher value adding activities, e.g. refinement, manufacturing, stone cutting, jewelry crafting, etc. other than mining? (0-5)
Have there been any attempts by the government to create a national beneficiation strategy in this country? (0-5)
Have there been any attempts by the business sector to create beneficiation in this country? (0-5)
Is the country's labor force perceived as having the right skill sets and education levels necessary to pursue higher value adding activities than mining and refinement? (0-5)
Questions on Smuggling and the Informal Economy
What percent of the total industry is formal? Formal means that industry companies operate as legally recognized as businesses (0-5)
Are there regulations in place to prevent illegal exports? (Y/N)
Does the government tend to actively prevent illegal exports and smuggling? (Y/N)
Is the precious mineral or gem easy for regulatory export agents to identify in its raw form? (Y/N)
Questions on Criminal Non-State Actor and Terrorist Funding
How organized is the informal industry? (0-5)
Is the informal industry free of terrorist involvement? (Y/N)
Is the informal industry free of criminal organizations? (Y/N)
Questions on Supply Chain
Do LSM companies ever work together to set industry standards in terms of ethical mineral extraction? (0-5)
How significant is the illegal smuggling of commodities? (0-5)
Are there any local or international NGOs active in the country to ensure transparency and accountability in the supply chain process? (Y/N)
Do mining cooperatives have influence on the value chain? (0-5)

Environment Questions

Questions on Environmental Regulatory Stringency & Enforcement

Does the process to receive a permit to prospect or mine include environmental concerns, including interference with the area's biodiversity, pollution, remediation, etc? (0-5)

Does the government have the capacity to enforce environmental protections? (0-5)

Are there any environmental reserves which are protected from ANY mining activity? (0-5)

Are the protected areas in actuality free of mining by mining companies or informal industry actors? (Y/N)

Is the government enforcing regulations to limit or remediate air pollution? (0-5)

Is the government enforcing regulations to limit or remediate water pollution? (0-5)

Is the government enforcing regulations to limit or remediate soil pollution? (0-5)

Questions on Existence and Extent of Pollution

Does mining or refining of the gem cause air pollution? (0-5)

Does mining or refining of the gem cause water pollution? (0-5)

Are there regulations in place to limit or remediate air pollution? (0-5)

Are there regulations in place to limit or remediate water pollution? (0-5)

Does mining or refining of the gem cause soil pollution? (0-5)

Are there regulations in place to limit or remediate soil pollution? (0-5)

If regulations are in place, do enforcement mechanisms exist? (0-5)

Questions on Risk to Biodiversity

Does mining of gems cause deforestation? (0-5)

If mining causes deforestation, are reforestation initiatives in place? (0-5)

To what extent does mining of gems contribute to the country's overall deforestation? (0-5)

Does mining of precious gems cause erosion? (0-5)

Does mining take place in areas designated as highly biodiverse? (0-5)

Questions on Post-production, Planning, and Remediation

Are there regulations to ensure environmental remediation after a mine closes? (0-5)

Does the government ensure and enforce remediation? (0-5)

Is money set aside for remediation of closed mines appropriately distributed i.e., all the money collected for remediation from the mining company is used for remediation of the specified mine area? (0-5)

Health Questions

Questions on Human Health

Are safety measures taken by mining companies to provide protective equipment and training for miners? (Y/N)

If not, how widespread is the lack of safety measures in place for miners? (0-5)

Is the government contributing to healthcare facilities to combat diseases? (Y/N)

Are mining companies contributing to healthcare facilities to combat diseases? (Y/N)

Does the act of mining as it occurs in the country pose a risk of bodily harm or fatality? (Y/N) Y=5/N=0

If so, how widespread is the occurrence of bodily harm or fatality in the mining industry? (0-5)

Does a health and safety act exist? (Y/N)

Are mining companies held accountable for the health and safety of their workers? (0-5)

Do mine workers have health compensation provided by their employer? (Y/N)

Do miners have access to sanitation facilities in their workplace? (Y/N)

What level of access do they have to sanitation facilities? (0-5)

Questions on Food Security

Is food scarcity a problem for the country as a whole? (0-5)

Has food scarcity had an impact on the life expectancy of the average citizen? (0-5)

Are arable lands, i.e., lands previously used to grow crops, now being used for mining? (0-5)

After a mine is closed, is the community able to use the land for farming? (Y/N)

Are workers in the country's agricultural labor force leaving agriculture to work in the industry? (0-5)
Has mining had an impact on the availability of food for the population? (0-5)
Questions on Water Security
Is water security a problem for the country? (0-5)
Has the mining industry had an impact on the availability of clean water? (0-5)
Is the industry reusing, using, or purchasing gray water instead of using potable water for mining, refinement, and or manufacturing? (0-5)
Do workers in the industry have access to clean drinking water in their workplace and in their respective living accommodations? (0-5)
Does the industry require water for refinement and/or mining? (0-5)
Human Rights Questions
Questions on Workers' Rights
Is there a minimum working age in the industry? (Y/N)
Is there a limit of working hours in the industry? (0-1)
Are workers unionized and/or have they organized strikes collectively? (0-5)
Does the government provide compensation and resettlement package as prescribed in the law to individuals/families affected by mining? (0-5)
Do workers have any access to social protections i.e. social insurance, assistance, safety nets? (0-5)
Do the workers have legal protections from the government? (0-5)
Questions on Indigenous/Ethnic Group Rights
Are indigenous and/or ethnic groups ability to maintain and practice their culture negatively affected and/or inhibited by the presence or operations of the industry? (0-5)
Are certain and/or indigenous groups excluded from participating in the industry? (0-5)
Are indigenous and/or ethnic groups being displaced from their land by the industry? (0-5)
Are indigenous and/or ethnic groups barred from employment in this industry, formally and informally? (0-5)

Questions on Women's Rights

Are women able to participate in this industry equally to men? (0-5)

Do women receive economic benefits from this industry equal to men, e.g. in terms of wages or resettlement compensations? (0-5)

Are women free from violence in association with the industry? (0-5)

Are women able to profit from the industry independently of men? (0-5)

Are women/girls sexually exploited in direct or indirect connection, e.g. concentrated presence of miners in mining towns, with the industry? (0-5)

Questions on Children's Rights

Are children subject to forced labor in the industry? (0-5)

Are children denied education because of this industry? (0-5)

Are children's health or mental well-being threatened in some way because of this industry? (0-5)

Does the government have laws to protect children's rights in general and/or specific to the industry (including harmful practices based on tradition, culture, religion, or superstition)? (Y/N)

Are children sexually exploited in direct or indirect connection to the industry? (0-5)

Questions on Freedom from Violence

Has violence/conflict emerged as a result of the industry, e.g. from worker protests, illegal mining, etc.? (0-5)

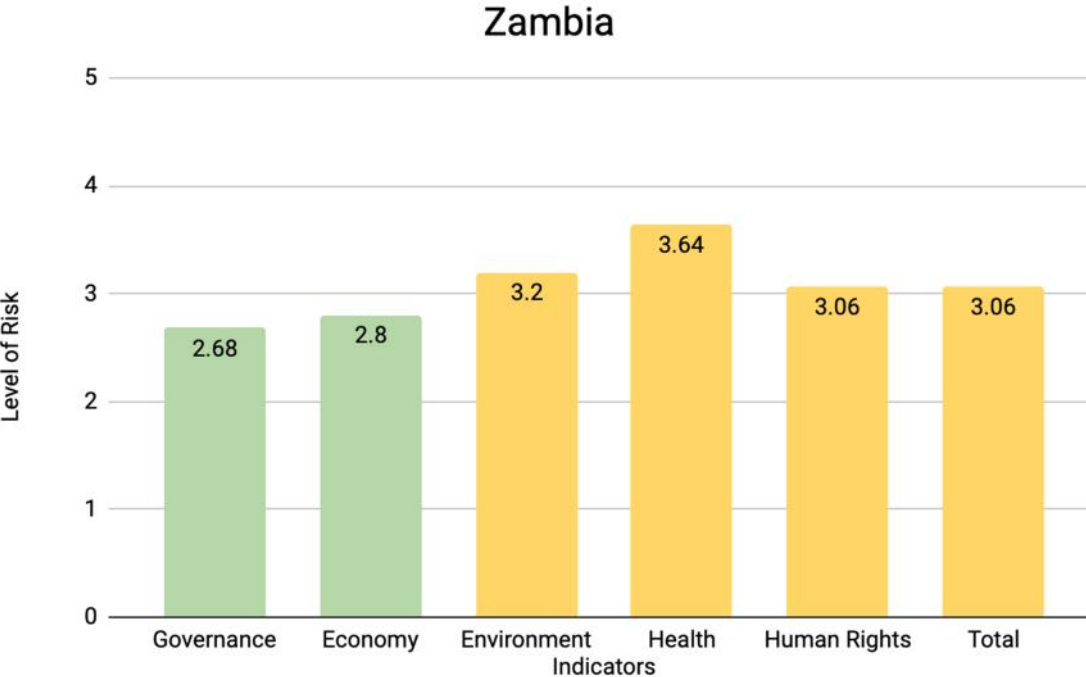
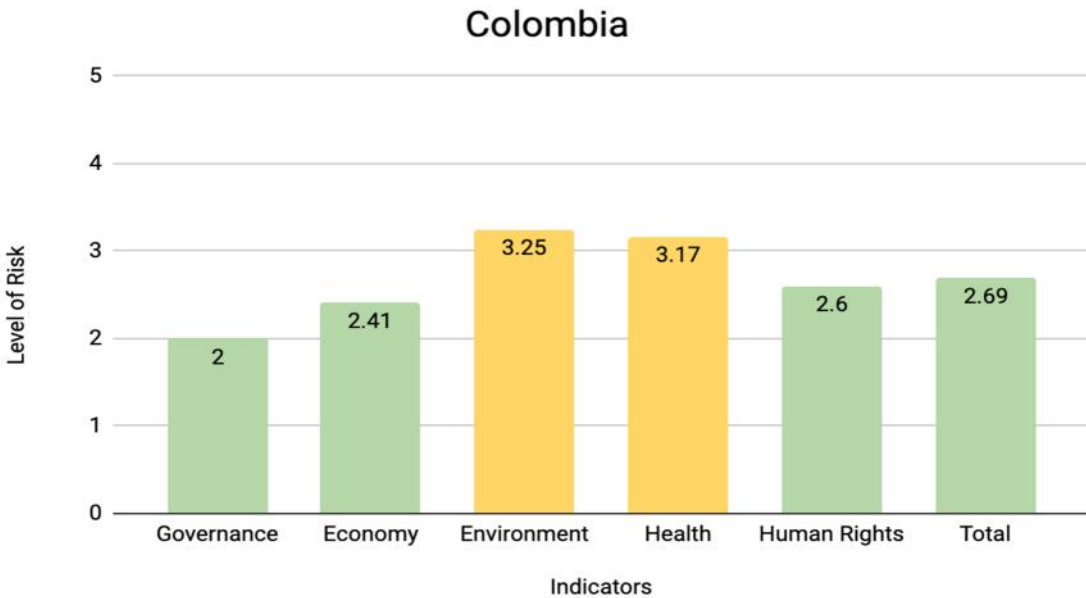
Has human trafficking increased as the result of this industry? (0-5)

Has domestic violence increased as a result of this industry, e.g. as a result of male miner's behavior at home and with "hot money"? (0-5)

Do communities in or around industry mining sites feel less secure? (0-5)

Does the government actively intervene to prevent or mitigate violence resulting from the presence of the industry? (0-5)

Annex C. Drivers of Risk – Colombia and Zambia



Annex D. Eight-Country Comparison Index

Indicator	Myanmar	Afghanistan	Botswana	Peru	South Africa	Madagascar	Colombia	Zambia
Governance Scores								
Accountability/State of Governance	3.25	2	1.2	3.2	2	3	1.8	2.83
Transparency	2.17	2.71	3.6	1.25	1.2	5	1.11	2
Corruption Prevention	5	5	3.67	3	1	3.5	2.25	2.5
Industry Regulation	3.8	3	.5	.75	2.75	3	1.17	2.33
Criminal Organizations/Non-State Actors	5	5	0	5	2.5	3.75	3.75	3.75
Total Average Scores	3.84	3.54	1.79	2.64	1.89	3.65	2	2.68
Economic Scores								
Industry Employment	.33	.25	0	1.6	0	1.6	3.25	1.5
Fiscal Sustainability	2.33	4.33	3.2	2	2.2	2.8	1.2	3.6
Beneficiation	2.91	4.5	2	1.25	3	2	2.5	3.5
Smuggling and the Informal Economy	3	2.04	.25	2	2.75	2.5	1	3
Criminal Non-State Actor and Terrorist Funding	3	3.67	0	3	5	1.67	4.33	1
Supply Chain	4	3.5	2.5	3	2.5	3	1.25	3.5
Total Average Scores	2.6	3.05	1.33	2.14	2.58	2.26	2.41	2.8
Environment Scores								
Environmental Regulatory Stringency & Enforcement	3.29	3.14	1.67	3.29	3.67	3.5	2.57	2.71
Existence and Extent of Pollution	4.14	3.14	1.71	4.29	2.83	2.17	3.43	4.14
Risk to Biodiversity	3.8	2.8	1.67	4.2	4	4	3	3.6
Post-production, Planning, and Remediation	3.67	4	1.67	3.67	2.67	3	4	2.33
Total Average Scores	3.72	3.27	1.68	3.86	3.29	3.17	3.25	3.2
Health Scores								
Human Health	4.36	4.36	1.33	1.73	2.5	2.75	2.91	2.91
Food Security	2.33	3.67	2.83	3.83	3.5	3.75	3	4

Indicator	Myanmar	Afghanistan	Botswana	Peru	South Africa	Madagascar	Colombia	Zambia
Water Security	3.6	2.6	2.67	3.8	2.5	4	3.6	4
Total Average Scores	3.43	3.54	2.28	3.12	2.83	3.5	3.17	3.64
Human Rights Score								
Worker's Rights	2.83	2.83	2	2.83	.5	4.5	2	3.5
Indigenous/Ethnic Group Rights	NR	4.5	3.5	.25	1.75	3	3	2
Women's Rights	3.8	4.6	2	4.4	1.2	3	3.6	3.4
Children's Rights	3	4	.25	2.8	.4	1.4	1.6	2.4
Freedom from Violence	NR	3.6	.8	3	.8	2.4	2.8	3.6
Total Average Scores	3.41	3.76	1.91	3.31	.63	2.61	2.6	2.98
TOTAL COUNTRY SCORES	3.40	3.43	1.80	3.01	2.24	3.04	2.69	3.06

Works Cited

A

A look at the natural world of Colombia. (2017). Retrieved from <https://www.worldwildlife.org/magazine/issues/winter-2017/articles/a-look-at-the-natural-world-of-colombia>

A Zambia Chamber of Mines Initiative, "An ear to the ground: Mining companies are getting better at listening to communities." <https://miningforzambia.com/an-ear-to-the-ground/>

Adeler, Jorge. "Colombian Emeralds – From the mines of Coscuez, Colombia". 2004. <https://www.jorgeadeler.com/colombian-emeralds-from-the-mines-of-coscuez-colombia-set-2/>

Arnson, C., (2011) *The Social and Economic Dimensions of Conflict and Peace in Colombia* <https://www.wilsoncenter.org/publication/the-social-and-economic-dimensions-conflict-and-peace-colombia>

AU-JDI Colombia Interview. Interview by Samantha Rip. (2019). [Telephonic]. Washington, DC - Bogotá, Colombia.

AU-JDI Zambia Interview. Interview by Hannah Murray. (2019). [Telephonic]. Washington, DC - Copenhagen, Denmark.

AU-JDI Zambia Interview. Interview by Hannah Murray and Kritika Kapoor. (2019). [Telephonic]. Washington, DC – London, UK

AU-JDI Zambia Interview. Interview by Kritika Kapoor. (2019). [Telephonic]. Washington, DC.

B

Banda, S. (2010) Challenges and Opportunities for Women Entrepreneurs in Small Scale Gemstone Mining: A Case Study of Itezhi-Tezhi District In Zambia, A Dissertation submitted in partial fulfillment of the requirements for the Masters Degree in Women's Law at the Southern and Eastern African Regional Centre for Women's Law, University of Zimbabwe
Barnwal, Prabhat and von der Goltz, Jan. "Mines: The local wealth and health effects of mineral mining in developing countries," *Journal of Development Economics*, Volume 139, 2019, Pages 1-16.

Boocock, C. N. (2002). Environmental impacts of foreign direct investment in the mining sector in Sub-Saharan Africa. *Foreign Direct Investment and the Environment*, 19.

Burdette, Marcia M. "Nationalization in Zambia: A Critique of Bargaining Theory." *Canadian Journal of African Studies / Revue Canadienne Des Études Africaines* 11, no. 3 (1977): 471-96.

C

Caripis, L. (2017) *Combating Corruption in Mining Approvals* Transparency International https://www.transparency.org/whatwedo/publication/combating_corruption_in_mining_approvals

Cartier, L. E. (2010). Environmental Stewardship in Gemstone Mining: Quo Vadis? *InColor*.

Castellanos, A., Chaparro-Narváez, P., Morales-Plaza, C. D., Alzate, A., Padilla, J., Arévalo, M., & Herrera, S. (2016). Malaria in gold-mining areas in Colombia. *Memorias do Instituto Oswaldo Cruz*, 111(1), 59–66.

Charles Mkokweza, July 2018, <https://gettingthedealthrough.com/area/22/jurisdiction/50/mining-zambia/>
Cobb, Julia Symmes. "The Dangerous Search for Emeralds in Colombia". Washington Post. 9 August 2015. https://www.washingtonpost.com/sf/world/2015/08/09/the-dangerous-search-for-emeralds-in-colombia/?noredirect=on&utm_term=.ebc905874261

Cobb, J. S. (2018, December 14). Company walks fine line to revive Colombia emerald mine. Retrieved from <https://www.reuters.com/article/us-colombia-fura-gems-emeralds/company-walks-fine-line-to-revive-colombia-emerald-mine-idUSKBN1OB1LF>

Colombia. (2019). Retrieved from <https://epi.envirocenter.yale.edu/epi-country-report/COL>

Colombia must focus more on tackling internal human trafficking-report | Women's Link. (2013, November 18). Retrieved from <https://www.womenslinkworldwide.org/en/news-and-publications/press-room/colombia-must-focus-more-on-tackling-internal-human-trafficking-report>

Colombianas vencen tabú machista y laboran en minas de esmeralda. (2018, January 16). Retrieved from <https://www.debate.com.mx/mundo/Colombianas-vencen-tabu-machista-y-laboran-en-minas-de-esmeralda-20180116-0229.html>

Corso, Javier. (2017). "Into the green land: Emerald mining in Colombia." Al-Jazeera. 20 March 2017.

<http://www.aljazeera.com/indepth/inpictures/2017/03/green-land-emerald-mining-colombia-170306110821882.html>

D

DeMarco, Anthony. 2013. "Zambia Ruling A Blow For Emerald Ambitions Of Gemfields". Forbes

Digging for Ethical Gems. (2018). Retrieved from <https://www.greenamerica.org/green-living/digging-ethical-gems>

E

EITI Colombia (2019). Retrieved from: <https://eiti.org/colombia#mineral-production-in-tonnes>

Emerald Wars: Colombia's Multiple Conflicts Won't End With the FARC Agreement. (n.d.). Retrieved from

<https://smallwarsjournal.com/jrnl/art/emerald-wars-colombia's-multiple-conflicts-won't-end-with-the-farc-agreement>

F

Farah, Douglas *Emerald Wars: Colombia's Multiple Conflicts Won't End With the FARC Agreement*, Small Wars Journal

<https://smallwarsjournal.com/jrnl/art/emerald-wars-colombia%E2%80%99s-multiple-conflicts-won%E2%80%99t-end-with-the-farc-agreement>

Fortaleché, D. et al "Colombian Emerald Industry: Winds of Change", *Gems & Gemology*, Fall 2017, Vol. 53, No. 3

<https://www.gia.edu/gems-gemology/fall-2017-colombian-emerald-industry>

Franco, I., Oliveira, J. P., & Ali, S. (2018). Peace with Hunger: Colombia's Checkered Experience with Post-Conflict Sustainable Community Development in Emerald-Mining Regions. *Sustainability*,10(2).

Fura Gems. "Fura Gems' Flagship Colombian Emerald Mine Begins Production".

http://www.furagems.com/uploads/Fura_Gems_Inc_Colombian_Emeralds_Operational_Update.pdf

G

GBD Compare, Zambia, 2015, <https://www.cdc.gov/globalhealth/countries/zambia/default.htm>

Gemfields To Pay \$7.8m To Settle Human Rights Abuses Retrieved from <http://www.mining.com/gemfields-pay-7-8m-settle-claim-human-rights-abuses-mozamb>

Gilberthorpe, E., Agol, D., & Gegg, T. (2016). 'Sustainable mining'? Corporate social responsibility, migration and livelihood choices in Zambia. *The Journal of Development Studies*, 52(11), 1517-1532

Gill, S. (2018, June 06). Colombia's emerald industry continues to be tied to violence and organized crime. Retrieved from <https://colombiareports.com/colombias-emerald-industry-continues-to-be-tied-to-violence-and-organized-crime/>

Gravgaard, Anna-Katarina. "Regulating Colombia's Mining Industry" *The Pulitzer Center*. 18 October 2011.

<https://pulitzercenter.org/reporting/regulating-colombias-mining-industry>

-guide.pdf

H

(Hanco) Zwaan, J., Seifert, A., Vrána, S., Laurs, B., Anckar, B., & (Skip) Simmons, W. et al. (2005). Emeralds from the Kafubu Area, Zambia. *Gems & Gemology*, 41(2), 116-148.

Hinton, J. (2012) Guidelines for Mainstreaming Gender in the Minerals Sector International Conference on the Great Lakes Region (ICGLR)

Hsu, Tao et al. 2014. "A Visit to the Kagem Open-pit Emerald Mine in Zambia". Gemological Institute of America

<https://www.gia.edu/gia-news-research-kagem-emerald-mine-zambia>

I

ICLG, Zambia mining law 2019, <https://iclg.com/practice-areas/mining-laws-and-regulations/zambia>

Institute for Health Metrics and Evaluation, © 2018 University of Washington, <http://www.healthdata.org/zambia>

International Food Policy Research Institute. (2012). "Food Security Portal." <http://www.foodsecurityportal.org/colombia/resources>

International Labor Organization. (2001). El Trabajo Infantil en la Minería Artesanal de las Esmeraldas. Retrieved from <http://white.lim.ilo.org/ipecc/boletin/documentos/lbesmeraldas.pdf>

Investigativa, U. (2013, May 18). Los nuevos 'zares' de las esmeraldas. Retrieved from <https://www.eltiempo.com/archivo/documento/CMS-12809002>

Investigativa, U. (2014, May 17). Crimen en gallera, una advertencia al grupo de Carranza. Retrieved from <https://www.eltiempo.com/archivo/documento/CMS-14002421>

J

Journal of Health Economics, Volume 31, Issue 6, December 2012, Pages 797-812. <http://dx.doi.org/10.1016/j.jhealeco.2012.07.007>

K

Kapesa, R., Mwitwa, J., & Chikumbi, D. C. (2015). Social Conflict in the Context of the Development of New Mining Concessions in Zambia. *Southern African Peace and Security Studies*, 4(2), 41-62.

Kaunga, E.C. 1994. "Privatization: The Zambian Experience". United Nations. <http://unpan1.un.org/intradoc/groups/public/documents/aapam/unpan028227.pdf>

L

La Fleche, E. R. (Ed.). (2016). *The Mining Law Review* (5th ed.). Law Business Research. Retrieved from <https://m.hklaw.com/files/Uploads/Documents/Articles/MiningLawReviewColombiaChapter2016.pdf>

Lavaux, Stéphanie. (2006) "Natural Resources and Conflict in Colombia: Complex Dynamics, Narrow Relationships." *International Journal*, vol. 62, no. 1, pp. 19-30. *JSTOR*, www.jstor.org/stable/40204242.

Le, K. T. (2018, November 27). Colombia embraces women in emerald mining. Retrieved from <https://www.iom3.org/materials-world-magazine/news/2018/nov/27/colombia-embraces-women-emerald-mining>

M

McIntyre, Neil et al. "A Framework for Assessing the Impacts of Mining Development on Regional Water Resources in Colombia," *Water*. 10(3). 4 March 2018. <https://www.mdpi.com/2073-4441/10/3/268/pdf>

Meacham, C., Farah, D., Lamb, R. D., & Center for Strategic & International Studies. (2014, March). Colombia: Peace and Stability in the Post-Conflict Era. Retrieved from https://csis-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/140304_Meacham_Colombia_Web.pdf

Meers, C. (2018, November 19). Meet the All-Female Mining Team That's Breaking Down Barriers. Retrieved from <https://robbreport.com/muse/fashion-jewelry/all-female-mining-team-breaking-down-barriers-2828065/>

Millennial Legacy - The mine. (2016, March 10). Retrieved from <http://www.muzo.co/en/millennial-legacy/the-mine>

Mining: A hazardous work. (2015, March 23). Retrieved from https://www.ilo.org/safework/areasofwork/hazardous-work/WCMS_356567/lang--en/index.htm

Mining & Indigenous Rights: The Emergence Of A Global ... (n.d.). Retrieved from <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/mining>

Ministry of Health Zambia, EQUINET (2018) Mining and Public Health in Zambia Meeting report, 10 April 2018, Lusaka, Zambia. <https://www.equinetafrica.org/sites/default/files/uploads/documents/Zambia%20mining%20and%20public%20health%20Mtg%20Rep%20April2018.pdf>

Ministry of Labour and Social Security. 2018. "An Analysis of the Informal Economy in Zambia". ILO. Retrieved from: http://www.ilo.org/wcmsp5/groups/public/---africa/---ro-addis_ababa/---ilo-lusaka/documents/publication/wcms_671567.pdf
Ministry of Mines and Energy. (2016) "Política Minera de Colombia"
<https://www.minminas.gov.co/documents/10180/698204/Pol%C3%ADtica+Minera+de+Colombia+final.pdf/c7b3fcad-76da-41ca-8b11-2b82c0671320>.

Mission and Vision. Retrieved from https://www.anm.gov.co/english/Mission_and_Vision

Mukanga, Chola. 2013. "Zambia's Lost Gemstones". *Zambian Economist*.

Multinationals move in to Colombia's emerald mountains. (2018, January 06). Retrieved from <https://www.economist.com/the-americas/2018/01/06/multinationals-move-in-to-colombias-emerald-mountains>

"Muzo". <http://www.muzo.co/en/millennial-legacy/muzo>

N

Nachiyunde, K., Ikeda, H., Okuda, T., & Nishijima, W. (2013). Assessment of dissolved heavy metal pollution in five provinces of Zambia. *Journal of Environmental Protection*, 4(01), 80.

Navarrete, T. Mujeres, las víctimas silenciosas de la esmeralda en Boyacá. Retrieved from <https://verdadabierta.com/especiales-v/2016/mujeres-guerra/boyaca-mujeres-esmeraldas.html>

Neate, R. (2013). Emerald miner loses fifth of market value on Zambian anti-corruption plans. Retrieved from <https://www.theguardian.com/business/2013/apr/08/emerald-miner-gemfields-zambia-anti-corruption>

O

Occupational Health And Safety Institute Jobs In Zambia ... (n.d.). Retrieved from <https://jobwebzambia.com/jobs/occupational-health-and-safety-institute-jobs-in-z>

OECD (2012), *OECD Investment Policy Reviews: Zambia 2012*, OECD Investment Policy Reviews, OECD Publishing, Paris, <https://doi.org/10.1787/9789264169050-en>

OECD (2014). Environmental Performance Review: Colombia (Highlights) Retrieved from <https://www.oecd.org/countries/colombia/Colombia%20Highlights%20english%20web.pdf>

OECD. (2015). *OECD Reviews of Health Systems: Colombia 2016*, OECD Reviews of Health Systems, OECD Publishing, Paris, <https://doi.org/10.1787/9789264248908-en>.

Office of Child Labor, Forced Labor, and Human Trafficking. (2018). List of Goods Produced by Child Labor or Forced Labor. Retrieved from <https://www.dol.gov/sites/default/files/documents/ilab/ListofGoods.pdf>

Okonjo-Iweala, N. & Osafo-Kwaako, P. "The Role of Civil Society in Supporting Fiscal Transparency in African Countries"
https://www.r4d.org/wp-content/uploads/Ngozi-CSO_Paper_Revised_Version.pdf

P

PROCOLOMBIA (n.d.). Manual of Environmental Licensing in Colombia. Retrieved from https://www.investincolombia.com.co/images/Manual_of_environmental_licensing_in_Colombia.pdf

Q

R

R Kapesa, et al., 2015 - [saccps.org http://www.saccps.org/pdf/4-2/4-2_all.pdf#page=44](http://www.saccps.org/pdf/4-2/4-2_all.pdf#page=44)

Republic of Colombia, Minister of Mines and Energy (2006). Plan nacional para el Desarrollo Minero: Vision al ano 2019. Retrieved from https://www.minenergia.gov.co/documents/10180/412670/PNDM_2019_Final.pdf

Richer La Flèche, E. (October 2017) *The Mining Law Review*, The Sixth Edition, p.61
<https://www.hklaw.com/files/Uploads/Documents/Articles/Colombia-Mining.pdf>

Ringsrud, R., *A Blog About Emeralds* <http://www.emeraldmine.com/>

S

'Selective and Silent': The New 'Green War' for Colombia's Emeralds. (2017, October 06). Retrieved from <https://www.insightcrime.org/news/analysis/selective-and-silent-the-new-green-war-for-colombias-emeralds/>

Shoko, P. M., & Mwitwa, J. (2015). Socio-economic impact of small scale emerald mining on local community livelihoods: the case of Lufwanyama district. *Int. J. Educ. Res.*, 375-388.

Shortell, P., & Irwin, E. (2017). *Governing the Gemstone Sector: Lessons from Global Experience*. National Resource Governance Institute. Retrieved from https://resourcegovernance.org/sites/default/files/documents/governing-the-gemstone_sector-lessons-from-global-experience.pdf

Sichalwe, N. (2014). Zambia's Emerald Conundrum. Retrieved from <https://www.aljazeera.com/indepth/features/2014/02/zambia-emerald-conundrum-201424124739676466.html>

Silondwa, Whiteson. 2012 "Constraints to the growth of the emerald industry in Zambia: A case study of the Zambian Emerald Industry-Ndola Rural, Copperbelt Province, Zambia". LAP LAMBERT Academic Publishing.

South African Development Community. "Zambia". <https://www.sadc.int/member-states/zambia/>

Study on Impacts of Mining and other Extractive Industries on Women in Zambia, ActionAid 2015.

T

"The republic of Zambia" The Common Market for Eastern and Southern Africa <https://www.comesa.int/the-republic-of-zambia/>

Transparency International - Zambia. (2019). Retrieved from <https://www.transparency.org/country/ZMB>

The Constitution of Colombia (1991). Retrieved from https://www.constituteproject.org/constitution/Colombia_2005.pdf

The Employment Status Of Zambians - Eth Z. Retrieved from <https://www.files.ethz.ch/isn/178644/afrobriefno135.pdf>

The Nature Conservatory. "Colombia: Protecting Water at the Source". <https://www.nature.org/en-us/about-us/where-we-work/latin-america/colombia/stories-in-colombia/colombia-water/>

U

UN Environment: Colombia. (n.d.). Retrieved from <https://www.unenvironment.org/explore-topics/disasters-conflicts/where-we-work/colombia>

United Nations High Commission on Refugees. (2012) Colombia Situation: Indigenous People. Retrieved from https://www.acnur.org/fileadmin/Documentos/RefugiadosAmericas/Colombia/2012/Colombia_Situation_-_Indigenous_people_2012.pdf

United States Department of State. Country Reports On Human Rights Practices - State.gov. Retrieved from <https://www.state.gov/j/drl/rls/hrrpt/2017/af/277061.htm>

United States Department of State Bureau of Democracy, Human Rights and Labor. (2017). COLOMBIA 2017 HUMAN RIGHTS REPORT. Retrieved from <https://www.state.gov/documents/organization/277563.pdf>

United States Department of State Bureau of Democracy, Human Rights and Labor. (2018). *Country Reports on Human Rights Practices for 2018: Colombia*.

United States Office on Colombia (2013). *Large-scale mining in Colombia: Human rights violations past, present and future*.

USAID. (2016). "USAID Assistance for Plan Colombia". <https://www.usaid.gov/news-information/fact-sheets/usaid-assistance-plan-colombia>.

USDA (2015). "International Food Security Assessment, 2015-2025", https://www.ers.usda.gov/webdocs/publications/37264/53198_gfa26.pdf?v=0

V

Veraar, D (May 2018) *Company Formation: How to Set Up an Emerald Mining Company in Colombia* BizLatinHub <https://www.bizlatinhub.com/how-set-up-emerald-mining-company-colombia/>

Vicente, A., Martin, N., James Slee, D., Birss, M., Lefebvre, S., & Bauer, B. (2011, November). Mining in Colombia: At what cost? [Editorial]. *PBI Colombia*. Retrieved from https://www.peacebrigades.org/fileadmin/user_files/projects/colombia/files/colomPBla/111203_mining_in_colombia_web.pdf

Vives, L. (2019). Emeralds, Rubies Could Make Zambia Rich - IDN-InDepthNews, Analysis That Matters. Retrieved from <https://www.indepthnews.net/index.php/the-world/africa/2476-emeralds-rubies-could-make-zambia-rich>

W

Watson FGR, Becker MS, Nyirenda MA (In press) Human encroachment into protected area networks in Zambia: Implications for large carnivore conservation. *Environmental Change*.

Working And Living Conditions Of Workers In The Mining Retrieved from <https://alrei.org/education/working-and-living-conditions-of-workers-in-the-mini>

World Bank Group. (2017). "How can Zambia borrow without Sorrow"
<http://documents.worldbank.org/curated/en/782221512459934813/pdf/WP-P157243-PUBLIC-WorldBankthZambiaEconomicBriefDecemberFinalWEB.pdf>

World Health Organization. (2016). <https://www.who.int/countries/zmb/en/>

World Health Organization, (2017). <https://www.who.int/csr/don/11-december-2017-cholera-zambia/en/>

World Health Organization (2018). *The health of refugees and migrants: Regional situation analysis, practices, experiences, lessons learned and ways forward*. <https://www.who.int/migrants/publications/PAHO-report.pdf?ua=1>

X

Y

Z

Zambia. (2019). Retrieved from <https://www.state.gov/e/eb/rls/othr/ics/2017/af/269795.htm>

Zambia does a Botswana on emeralds. (2013). Retrieved from <https://www.ft.com/content/401eb438-9493-3777-b233-df1de1e09879>

Zwaan, J., Seifert, A., Vrána, S., Laurs, B., Anckar, B., & Simmons, W. et al. (2005). Emeralds from the Kafubu Area, Zambia.