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Review

Light at the End of the Tunnel: Mining Justice and Health

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ABSTRACT

The mining industry provides valuable mined commodities and financial support for communities worldwide. Mining has become safer for workers. Significant injustices, however, are created by mining companies for workers, local communities and the environment. Mining workers are amongst the world's most vulnerable because of the dangerous nature of their work, inherent health risks, and problematic, neo-colonial ways in which the industry is governed. Given the scope of these problems, solutions are often challenging, yet this article proposes various responses to global mining inequities. In this article, examples of safe and adequately compensated programs to improve workers' rights, environmental impacts, and social conditions related to mining will be discussed. Here, solutions to some problems caused by mining are examined, with a focus on workers' health and human rights through unions and cooperatives, targeted programs for improving mental well-being, the feminization of the mining workforce; the possibility of reducing demand for mining products through reuse and reducing consumption. Ameriolating mining governance is key, through enhanced implementation of human rights, safety, and labor standards, specifically applying the Universal Declaration of Human Rights (UDHR) to mining issues; mining justice organizations play a vital role, particularly in accountability and publicity of mining issues. Canada is spotlighted here as it houses approximately 75% of mining company headquarters, primarily due to favorable tax and investment conditions and the concentration of skilled labor. Greater unionization and cooperativization of mining workers hold great promise for improving health and safety conditions of miners. Feminizing the mining workforce promises to improve both productivity and profits. While mental health is often ignored, Australia's Mates in Mining program has improved mental well-being and reduced depression and suicide amongst mining workers. Expansion of such programs worldwide would positively impact workers, their families, and improve productivity. Moreover, third party certification for mining workers' rights, such as Fairmined, ought to be expanded while universal human rights declarations ought to be upheld. Social justice movements improve worker's rights, environmental impact and social conditions related to mining. In this article, the importance of improving larger socioeconomic and political conditions in which mining workers operate are also examined, such as reducing demand for mined commodities and recycling more effectively. Improving Indigenous land-based rights is another crucial aspect of creating more just mining practices. Mining offers many workers, particularly those in Canada and other high-income nations, a decent income and benefits. Equivalent wages and benefits ought to be paid to all mining workers worldwide. "It *is* possible to move from tunnel vision-profit-oriented mining practices which damage workers, communities and environment, to light at the end of the tunnel-- healthy workers, communities and environment".

Keywords
Mining; Human rights; Workers' rights; Workers' health; Australia.

INTRODUCTION

Worldwide, mining companies provide necessary minerals and gems[1] while offering work opportunities which have become safer[2] and adequately compensated,[3] at least in some places. They have also created injustices for centuries.[4] Mining companies have committed violence against communities upon whose lands their mines are based.[5] This includes accusations of murder.[6] The mining industry contributes to poisoning of water, soil and air, which results in erosion, sinkholes, deforestation, loss of biodiversity, and so forth.[7] As climate injustice continues, potable water shortages abound, partly promulgated by heavy water use in mining operations.[8] Extractive industries such as mining represent neocolonial forces in countries such as Canada as well as in Lower-

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and Middle Income Countries (LMICs).[9] Given the grave nature of socioeconomic and environmental injustices created by mining industries, finding a healthy, just way forward is essential.[10]

Canada, stewarded for millennia by indigenous communities, most of whom are currently governed by colonial forces, has a significant role to play in improving health, human rights and environmental conditions of the global mining sector, given that approximately 75% of mining companies are headquartered[11] in this otherwise humble, small player on the world stage. Canadian workers are protected by labour legislation which provides for health and safety. Favorable tax and investment conditions, combined with a concentration of skilled labor in this sector, make Canada a global mining haven.[12] Some Canadian governments have gone to great lengths to support mining companies through tax credits, subsidized financing, and favorable security laws; approximately 60% of world's mine financing goes through the Toronto Stock Exchange.[13] Many Canadians strive to decolonize mining and improve the health of mining workers, communities and the environment.

Within this ecosystem, workers' safety varies according to conditions such as the type of substance being extracted, and location of mine. In this article, no distinction along these lines is made, as efforts are devoted to examining the industry as a whole, shining a light on workers' well-being, environmental standards and community resilience.

Solutions will be examined to some problems caused by mining, with a focus on workers' health and human rights through unions and cooperatives, such as FENCOMIN, targeted programs for improving mental well-being, the feminization of the mining workforce; the possibility of reducing demand for mining products through reuse and reducing consumption. Ameriolating mining governance is key, through enhanced implementation of human rights, safety, and labor standards, specifically applying the Universal Declaration of Human Rights (UDHR) to mining issues; mining justice organizations play a vital role, particularly in accountability and publicity of mining issues. While it was aspirational to include an exemplar mine that illustrated reasonable working conditions, environmental impacts, and social relations with local communities, an exhaustive search proved futile, particularly for company-owned mines. Cooperatively owned mines, on the other hand, shed light on a brighter future.

OCCUPATIONAL HEALTH AND SAFETY ISSUES IN GLOBAL MINING

Despite noteworthy improvements, mining continues to be one of the most dangerous occupations in the world.[14] Approximately 40 million people work in illegal mines located mainly in LMICs. Data on mining accidents, injuries, and impacts on communities and the environment are lacking because of the unregulated nature of mining activities, particularly in LMICs,[15] exposing weak legislation or its enforcement.

Mining in Canada

In Canada, mining is the second most dangerous industry, with approximately 47 work fatalities per 100,000 workers.[16] Given the advanced state of technology and safety knowledge, one death in the mining industry is too many. There are virtually no reasons for people to die on the job in this industry any longer.

Furthermore, mining companies such as Nevsun Resources based in British Columbia, Canada, was found guilty of human rights abuses in their Bisha mines in Eritrea, because of complicity in inhumane acts that included violent abuse, enslavement and other crimes against humanity.[17] Similarly, in South Kivu, Democratic Republic of the Congo (DRC), many diggers fall prey to socioeconomic pressures that have led to exploitative working conditions.[18] Workers lack protections, highlighting the extremely dangerous conditions for miners in the Eastern DRC, which is fueled by persistent global consumer demand, silence based on ignorance and indifference, and corporate greed.

Threats Posed by Mining

Globally, mining organizers and union leaders have been threatened, violated, and in extreme situations, murdered by contract killers.[19] Countless reports, particularly from LMICs, describe local community protests related to mining activities which have been silenced by violent means. Canadian-based mining companies have been found lurking in the background of these human rights abuses. Recent court hearings have found mining companies to be guilty of environmental and human rights abuses.[20] Hudbay Minerals' security personnel, for example, admitted to raping women,[a] homicide, serious assaults on Indigenous activists in Guatemala at their (previously owned) Fenix mines.[21] Anti-mining activists are often threatened or attacked by mining companies in efforts to thwart people's rights to oppose mining.[22]

Mining generally poses significant risks to women and children, related to abuse, assault, and sexualized violence.[23] Misogyny is in the deoxyribonucleic acid (DNA) of rigger culture, which often festers in remote industrial camps. Toxic masculinity, heterosexism, disregard for personal well-being and lack of connection to local communities constitute other elements of rigger culture in mining.[24]

Mining Regulations

Global mining regulations vary, depending on local laws and circumstances. Canadian regulations are amongst the most protective, yet mining continues to pose risks to workers, communities and the environment.

Imperial Metals' mine, for example, in Mount Polley, BC, created the largest mining waste disaster in Canada in 2014, unleashing massive amounts of polluted water into lakes and streams. Boil water advisories were only one of many repercussions, but others are yet to be known. United Steelworkers, the union representing some of the miners, went on strike partially because Imperial Metals was planning to lock out Canadian employees for three hours daily while replacing them with temporary foreign workers whose wages and benefits were significantly lower – illustrating the neocolonial reality of Canadian mining.[25] By March 2022, only $226,500 in combined fines had been issued by Engineers and Geoscientists British Columbia against two engineers who were no longer in the sector, while a third engineer required extra training and was briefly

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suspended. Environmental devastation remains. Both provincial and federal governments failed to take legal action within the statute of limitations, which allowed Imperial Metals to escape responsibility almost completely.[26] In 2020, the province of BC created stronger legal accountability mechanisms, which did not make a difference in this case but will hopefully avoid such devastation in the future.

Health Risks

Within this context, it is no surprise that Canadian mining workers suffer from occupational health conditions such as silicosis, arsenic poisoning, black lung, asbestosis, and various cancers including mesothelioma.[27] Asbestos miners, for example, have higher rates of lung cancer. Once the World Health Organization (WHO) declared asbestos a carcinogen, it took Canada thirty years to ban sale, importation, and use of products containing it,[28] illustrating conflicts between economic interests and health protection of Canadian workers.

While mining in Canada continues to pose significant health risks, some mines in LMICs display egregious health and safety standards, partly from pressure by Canadian-based mining companies and their hand-in-glove relationships with local elites.[29] Coltan mining in the DRC is a case in point, as workers in the mines, those who transport and sort the product and many others along the production line, suffer high rates of acute and chronic health conditions as well as mining-related violence; high rates of cancer, cardiovascular disease, respiratory conditions combined with physiologically excessive levels of toxic metals. Falling objects, explosions, slips and falls contribute to musculoskeletal injuries such as fractures, lacerations and muscle contusions.[30] Lax regulations outside of Canada and other High Income Countries (HICs) are partly to blame for such concerns.[31]

Artisanal miners are typically unrepresented by unions or other bodies so conditions are virtually unregulated. Artisanal mining has the potential to have greater worker control and sustainability because of its smaller scale.[32] On the other hand, in most LMICs where artisanal mines exist, productivity pressures, amongst others have thus far not minimized the use of toxic materials or improved safety.[33] Those who transport products out of the mines, for instance, often use bicycles or wheelbarrows, travelling for long distances on dangerous roads, sometimes experiencing motor vehicle accidents, which create further mortalities and morbidities. Coltan mining is considered far more dangerous than other types of mining because it entails massive explosions of large shafts which have led to landslides, flooding and drownings and dangerous falling debris. Widespread, unquestioned use of cell phones, which require coltan, continues to feed these corporate practices.[34]

Health outcomes of miners in LMICs, moreover, reveal increased rates of respiratory conditions based on dust and toxin exposure. Increases in blood pressure and heart rate are linked to higher rates of cardiovascular disease, atherosclerosis and stroke.[14]

MENTAL HEALTH ISSUES IN MINING

Globally, mental health issues in mining are often overlooked yet are rampant amongst miners, partly because the demand for profit creates stressful work environments and being away from home for significant amounts of time can lead to loneliness, isolation and other root causes of mental health problems.[35] High stress in the mining workplace is correlated with high rates of anxiety, depression, somatization, sleep disruption, poor memory and related conditions.[36] Lack of organisational support has been shown to create mental health problems for miners while positive workmate relationships foster well-being.[37] Women mining workers' mental health is significantly impacted by organizational sexism, personal sexism and lack of belonging.[38]

Sexualized violence in mining workplaces imposes steep barriers to women's participation.[39] Over half of Indigenous women who work in and around Canadian mines, for example, have suffered harassment and sexual violence,[40] often leading to mental health imbalances and physical health problems.

Community mental wellbeing is also negatively impacted by mining. Environmental destruction caused by mines furthers eco-anxiety and other mental health concerns that exist due to climate injustice and other issues.[41] Furthermore, family and friends of miners also worry about survival and the possibility that their loved one may be buried underground or may not emerge at the end of their shift.[42] This collective mental tension is everpresent in mining communities, particularly in LMICs.[43]

IMPROVING OCCUPATIONAL HEALTH AND SAFETY

Improving occupational health and safety in mines includes efforts to establish clear accountabilities for safety and health such as creation of occupational health and safety committees, setting targets for continued improvement that aim for zero harm.[44] Other measures include safety inspections, improving hygiene conditions, human and technical capabilities (including training specifically for hazard identification and prevention), support and investigations of work-related accidents.[45]

Initiatives for Health Promotion in Mining

The most important goal is to prevent injuries and health problems through identification of risks and hazards accompanied with measures and control. A global, uniform set of standards, based on Canadian regulations, would make a positive difference.

Many such initiatives exist around the world. Larger companies have implemented initiatives such as inclusive leadership courses, app-based mental health assistance, and family assistance programs.[46] In Chile, worker climate surveys are mandated and insurance companies rate mining companies on their workplace culture, which includes psychosocial working conditions. Companies which score poorly must create an action plan to remedy problems.[47]

Improving Mental Health in Mining Workforces

Addressing mental health concerns is possible through efforts to change organisational culture and specifically address root causes

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of mental distress. One such program, Australia's Mates in Mining, shows promising results, specifically related to suicide prevention for mining workers.[48] Mates in Mining provides a comprehensive suite of services including suicide counselling, relationship counselling, drug and alcohol help, life skills training, domestic violence counselling, as well as structural supports, such as legal assistance, financial counselling, industrial help, and so forth.[48] Mining workers receive training to understand mental health issues and reduce stigma, encouraging open conversations about mental health issues. A 24/7 helpline, access to social workers, and other supports are in place.[48] This kind of a program could be adapted to mining workforces in other countries, with efforts to make it gender inclusive.

Moving Towards More Responsible Mining Practices

Miners and community's well-being are the focus of Fairmined certification, a creation of the Association of Responsible Mining. Fairmined certification creates third party verified high standards for mining health and safety issues.[49] In the few countries where this certification exists, it has been proven effective, so ought to be expanded.[50]

The Extractive Industries Transparency Initiative is another body that encourages better governance practices for African economic prosperity.[51] When mining companies are legally required to create community benefits and provide environmental protection as a compulsory contractual obligation, possibilities for greater environmental and social justice exist.

UNIONIZATION OF MINING WORKERS

Increasing rates of unionization of mining workers generally improves human rights, occupational health and safety, pay rates, benefits such as paid sick days and vacations[52] and promotes diversity. While imperfections exist in many unions, societies with higher rates of unionization typically have more stable work forces, and blue-collar workers develop a sense of hope for their future and that of their offspring.[53] Unions have longstanding positive impacts on society such as lobbying for social security, retirement savings, protection of children through labour legislation, employment insurance, minimum wage laws, anti- harassment policies, wage raises for women and others, anti-racism policies for workers of color, and so forth.[54] Union-negotiated wage rates often set the standard for non-union workplaces. Unions bolster greater democracy as they increase voter turnout through providing candidate information and logistical support, so that members of unions are 12% more likely to vote than their non-unionized counterparts.[55]

In 1990, approximately 33% of Canadian workers were unionized and in 2018, with neo-conservative measures, that figure reduced to 26%.[56] The pandemic created an uptick in union organizing as workers increasingly recognize the importance of workplace safety and have turned to unions for protection. In 2020, unionization rates in Canada increased to 31%.[57] It is difficult to ascertain what percentage of mining workers are unionized but recent Statistics Canada data indicates that only ~18% of forestry, fishing, quarrying, oil, gas and mining workers are unionized.[58] Contracting out and the inclusion of white-collar professionals, who are not permitted to unionize, results in lower unionization rates in the mining sector.

Globally, unions have supported mining workers. Chile, for instance, from 2000-2015, had a militant mining union movement that was strong partly because of connections with leftist social movements, miner solidarity and resolute identification as working-class people.[59] Peru's mining union movements, on the other hand, grew partly in response to authoritarian governments and high commodity prices which propelled their sector to a high place within the national economy. Collective action in homes, union halls, and workplaces continue in Peru despite geospatial changes over the past three decades. The shift from mining towns to short-term stints in mining sites has reduced unions' ability to strike and catalyzed shifts in union organizing to expand their geospatial influence.[60] In some LMICs, governmental and foreign pressure disrupt union organizing, creating untenable working conditions.

Finally, unions support job security for union activists. Mining unions have created scholarships, provided access to worker training, healthcare services, food, housing and schools for their members. Recognising the limited timespan of mining work, some unions provide training that is transferable to other sectors, which assists workers in finding jobs beyond mining.

ENGENDERING DIVERSITY IN MINING WORKFORCES

Gender equity in mining workforces include efforts to recruit, train and retain women workers at all levels of the production line, with a focus on executives. Feminizing mining workplaces, with targets and timelines to substantially increase women-identified employees, would enhance women's incomes and careers while increasing productivity and profits. This is a win-win scenario, with proven 3% higher profit margins for mining governance boards which are gender-diverse compared to all-male-identifying boards.[61]

Flexible work arrangements, opportunities to work from home, childcare on site, and other such initiatives, will assist mining entities in integrating women into their operations. Most importantly, transforming hyper-masculinized workforce culture through intensive training, monitoring, targeted hirings and so forth, will begin to create inclusive environments for gender-diverse workers.

Introducing gendered policies and regulation reforms to highlight the importance of women's participation in the mining sector will go a long way. Legislation to promote and protect women, followed-up by enforcement and monitoring, will be important for hiring and retention of women in mining workforces, including needs for mental and physical health.[62] Fortunately, training, mentorship, networking and other supports are provided by groups such as International Women in Mining.[62] Publicly available data, including ethnicity, about women's participation in all aspects of the mining workforce, which is regularly updated, would improve transparency.

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BY AND FOR DIGGERS: MINING COOPERATIVES PROFFER DECOLONIZATION

Created and owned by miners, mining cooperatives exist to extract, industrialize and commercialize mining products, share mineral wealth, promote social inclusion and other such aims through a collective approach. They typically represent small-scale mining operations in LMICs. Mining cooperatives such as Peru's Minera *La Poderosa De Ccapac Orcco Umabamba Distrito De Limbani Limi* successfully create jobs, foster connections between small producers and corporations and improve social development.[63] In some cases, mining cooperatives facilitate legal processes that are necessary for the work of miners to continue.

Miners are typically paid more when they are part of a cooperative than if they are on their own[64] so cooperatives have reduced poverty.[65] Mining cooperatives also foster worker traceability and security while improving registration and organization. Facilitating solidarity amongst workers is another benefit of cooperatives.

Bolivian cooperatives such as FENCOMIN are considered formidable challengers to governments, standing up for mining workers who would otherwise be formally excluded and living in poverty. Its strong organizational culture and robust mobilization capacity make it a proactive player in the economy. Its leaders are confident, trained in negotiation and aggressive when necessary.[66] These qualities are vital when confronting powerful mining corporations headquartered in Canada, which have a large number of mining operations in Latin America.[67]

Finally, mining cooperatives, owned by miners, offer promise for decolonization of this industry as foreign entities cease to control resources and manipulate governments. Table 1 portrays the differences between individual mining workers and cooperative mining workers' rights.

Table 1. *Benefits of Mining Cooperatives for Workers and Communities*

Individual Mining Workers	Co-operative Mining Workers
Individual diggers work for themselves	Collectively–owned Cooperatives employ diggers
Individual work– no profit or risk sharing	Collective work–sharing risk and profits
Sometimes illegal work	Potential for legalizing work
Challenges in selling gems and minerals	Creation of reliable supply chains and marketing mechanisms
Often poorly enforced occupational health and safety standards	Commitment to continuously developing and enforcing high standards of health and safety
Less workplace sponsored training	Regular informal and formal training
Minimal benefits for communities	Royalties, taxes and social benefits for communities
Typically less supported by government	Supported by government
Poor participation by women	Increased women's participation[68]
Deleterious environmental impacts	Reduced environmental impacts[69]

Source:This table is an adaptation from Alves et al[70]

In most cases, as illustrated by Table 1, mining cooperatives are a robust mechanism to uphold health and human rights for mining workers and their communities. They also have a better track record with respect to the environment than company-operated mines. Being locally owned, they offer communities an opportunity to decolonize mining. Current structures of mining are rooted in exploitive relationships between Higher Income Countries and LMICs. Cooperatives upend this relationship. Combining efforts to create more mining cooperatives with other liberatory struggles for the environment and human rights promises to improve lives for workers, communities and the environment. Unfortunately, in some settings, mining cooperatives have been manipulated by corporations to improve their bottom line. Shirking occupational health and safety regulations by placing all responsibility on part of the workers is one way in which mining cooperatives are currently distorted.[71]

With some exceptions, therefore, mining cooperatives effectively support small-scale miners' rights and could be introduced in more nations with leadership from Bolivia, Brazil, Peru and other nations with strong mining cooperatives.

IMPROVING OCCUPATIONAL HEALTH AND SAFETY FOR MINING WORKERS BASED ON CANADIAN STANDARDS

Mining company profits are high and could be shared more equitably with workers all around the world. The average mining salary in Canada is $74, 683 CAD per year, or $38.30/hour.[72] Comparable wages and benefits for mining workforces ought to be distributed around the world. Mining workers everywhere have a right to fair working conditions, bolstered by unions or cooperatives. This includes the right to strike.

REDUCING DEMAND FOR AND REUSING METAL PRODUCTS—EFFORTS TO REDUCE THE IMPACTS OF MINING

Due to continued reliance on minerals such as copper, nickel, gold, silver, tin, aluminum, iron, etc. mining efforts will continue all over the world. Some communities have called for an end to mining due to significant health, environmental, and socioeconomic harms created by careless mining practices. While this may be desirable, it is quite unlikely to occur. Most people in the world rely upon minerals or gems for activities of daily living. For example, most people use items such as keys, cutlery, cooking pots, electronic items and so forth. Contemporary life without extractive products would require massive social changes.

To eliminate mining, therefore, we need to recycle existing minerals, and/or create alternative sources of such substances. Recycling aluminum cans, for example, only requires 5% of the original energy output as producing aluminum from raw bauxite ore (which is energy intensive and environmentally damaging).[73] Recycling one ton of aluminum avoids ~ten cubic meters of landfill space, saves 14,000 kWh (Kilowatt hours) and 40 petroleum barrels.[74] Thus, changing practices amongst manufactures and consumers along these lines will benefit the environment and communities.

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GOVERNANCE FOR EQUITABLE MINING EFFORTS: HUMAN RIGHTS, SAFETY, COMMUNITY AND ENVIRONMENTAL PROTECTION

Human rights (HR), safety, labor and employment rights and environmental protection issues ought to form the basis of mining governance structures. The UDHR incorporates 30 articles such as the right to desirable work and to join trade unions, equality, fair public hearing, and free movement.[75]

Virtually every one of these articles is applicable to mining operations worldwide. Here, just a few are highlighed. Article 23, the Right to Desirable Work and to Join Trade Unions declares: (1) Everyone has the right to work, to free choice of employment, to just and favorable conditions of work and to protection against unemployment. In addition to these rights, mining workers ought to be entitled to learn the more complex aspects of mining, particularly if they are engaged in menial tasks. Diggers' rights to training for competency in a safe workplace ought to be enshrined in workplace culture. (2) Everyone, without any discrimination, has the right to equal pay for equal work. Women mining workers deserve pay equity–equal pay for work of equal value. Furthermore, changing workplace culture so that women have opportunities for work besides cleaning, laundry, cooking and other stereotypical duties. Women's work in the home is unpaid and typically undervalued. Domestic burdens ought to be shared and women mining workers ought to be incentivised to take on typically male jobs. Moreover, genuine efforts to incorporate women workers requires thoughtful planning. Gender–specific facilities such as restrooms, breastfeeding stations, childcare and sleeping quarters accommodate women workers' needs. Preventing sexual harassment and exploitation of women workers through policy and legally binding contractual arrangements is key. Training sessions about gender equity issues help to change workplace culture. Not only would these initiatives promote gender equity in the workplace but improve productivity and profits. (3) Everyone who works has the right to just and favorable remuneration ensuring for himself (sic) and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection. Living wages ought to be implemented for all mining workers so that basic needs can be met.

There is no need to expound upon Article 25, Right to Adequate Living Standard because it speaks for itself: (1) Everyone has the right to a standard of living adequate for the health and well-being of himself (sic) and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

International agreements have been signed worldwide, yet minimal enforcement of these rights is in place, diminishing accountability and penalization for infractions. In extreme cases, the International Criminal Court has the right to prosecute against four types of crime: the crime of genocide; crimes against humanity; war crimes; and crimes of aggression. Depending on the definitions used for crimes against humanity, and crimes of aggression, mining related injustices could be taken up within these clauses due to the systemic nature of mining related murder, torture, rape, persecution and other inhumane acts.[76]

These processes are exceedingly slow, mired in red tape and bound by limited scope. A functional global body such as the UN could create higher performing, active legal accountability processes to prosecute HR violations and fine mining companies. Currently, this may appear farfetched but it does not diminish its value. That being stated, preventing reckless behavior is preferable to after- the-fact prosecution.

Currently, many communities feel disenfranchised by mining operations, resulting, in some cases, in 80% of community members resisting the creation of a mine.[77] Land dispossession in communities around the world has almost never resulted in long-term benefits, so this practice must end. Likewise, environmental degradation can be prevented rather than the remediation efforts–which are the current status quo.

MINING JUSTICE ORGANIZATIONS WORLDWIDE: MAKING A POSITIVE DIFFERENCE

Social justice movements are vocal critics of mining companies' unjust practices including disregard for Indigenous peoples, the earth, health and mining issues and human rights violations. Organizations such as Amigos de la Tierra (Argentina), Benchmarks Foundation (South Africa), and Mining Justice Alliance (Canada) strive to foster socioeconomic and environmental justice with respect to mining activities. Their work includes actions to safeguard water, improve mining practices, promote environmental planning, ensure corporate accountability and so forth. Others, such as Comité Ambiental del Valle de Siria in Honduras, work to decriminalize actions by environmental protection groups. La Tierra Respira in Mexico advocates for sustainable development and preservation of Indigenous culture, gender equality and human rights.[78] Because mining activities often occur on Indigenous lands, organizations such as Articulation of Indigenous Peoples of Brazil (APIB) are leaders in protecting human rights and environmental protection. APIB filed a case in the International Criminal Court against the Bolsonaro administration for mining injustices including violence, environmental degradation and the potential for genocide.[79]

As they are rooted in communities, these organizations are equally important as efforts to govern mining companies better. They are not reliant upon the good will of the extractive sector's bosses. These kinds of organizations are directed by peoples' needs and will continue to struggle for their rights as long as these injustices exist.[80] Sustainability of social justice groups is often challenging, partly because they are typically fuelled by volunteer labor. Social justice groups address determinants of health such as safety, income and rights. They effectively publicize injustices, giving voice to mining communities, and holding mining companies to account.

Social justice movements call for full participation of all stakeholders in extractive industry processes. Genuine efforts to

move towards mining justice involve many stakeholders: communities, unions, cooperatives, governments, industry, researchers, environmental protection agencies and social justice movements. Authentic change requires consulting all these stakeholders, followed by their involvement at each stage of mining projects. Equitable mining processes engage all stakeholders, monitor plans, with penalties for poor adherence.

All in all, social justice movements, the feminization of the mining workforce, unions and cooperatives offer solutions to many mining injustices, as depicted in Figure 1.

CONCLUSIONS: MINING JUSTICE AND IMPROVED HEALTH ARE POSSIBLE

The world needs mined materials. Almost everyone relies on minerals to meet basic needs. Mining activities, while they have become safer for workers and offer important financial benefits, have perpetrated suffering and fatalities within global ecosystems, impacting all life. Often, national and other levels of government consort with mining companies, wreaking havoc on communities and ecosystems all over the world. Mining workers, often limited by choices for other work, pay high health tolls. Given that Canada houses more mining company headquarters than any other country in the world, Canadian activists and governments ought to be paving the way for mining justice. Like many globalized issues, mining crosses the borders of many countries.

Many potential solutions to these grave problems exist. Greater unionization and cooperativization would further improve workers' health and community wellbeing. Setting higher occupational health and safety standards and changing mining workplace legislation to at least at the same standard as Canada, would make a positive difference. Paying attention to workers' mental health through programs such as Australia's Mates in Mining would prevent depression, suicide, and other serious but neglected health problems.[48] Integrating more women workers, particularly in the upper rungs of mining operations, would improve productivity and profits. Third party certification mechanisms to verify fair labor practices and community benefits, such as Fairmined, ought to be expanded worldwide.

Reducing demand for minerals and recycling metal products would make a positive difference. HR legislation that is monitored and enforced would also prevent and mitigate mining-related abuses. An international criminal court that actively persecutes crimes perpetrated by mining companies (and governments that collude with them) would act as a deterrent for such crimes. Equitable governance structures, based on the main HR articles of the UN declaration, would help communities to benefit from mining activities. Myriad documents discuss the importance of mining companies performing environmental impact assessments, partnering with communities and being good corporate citizens. Governments in many parts of the world echo these kinds of sentiments, calling for mining companies to be transparent. Moving from rhetoric to reality is the next step.

The Extractive Industries Transparency Initiative is another body that encourages better governance practices for African economic prosperity.[51] When mining companies are legally required to create community benefits and provide environmental protection as a compulsory contractual obligation, possibilities for greater environmental and social justice exist.

Despite the plethora of documentation about good governance in the mining sector, however, very few examples of successful such initiatives appear to exist, and no retrievable sources were written by community members--attesting to the reality that they actually benefited from mining efforts on their land. Thus, at this point, notions of good governance for mining appear fanciful. Furthermore, governance structures alone will not rectify power imbalances between communities and mining companies, particularly given hand-in-glove relationships between governments and mining enterprises. Despite an exhaustive search, it proved virtual-

Figure 1. *From Tunnel Vision to a Brighter Future for Mining Workers, Communities, and the Environment (Created by Julia Heineman)*

ly impossible to provide even one example of a mine that is well-governed, treats workers and communities well and has minimal environmental impact.

Worldwide, mining justice movements address socioeconomic and environmental harms caused by mining companies. These movements, many of them rooted in communities, act on the social determinants of population health and may, in the long run, make the greatest impact on health status.

Health problems in mining communities occur partly due to pre-existing social hierarchies between human beings and partly due to the impact of mining on the environment and human health. A comprehensive public health approach that takes into account political, socioeconomic, and environmental issues is urgently required. Better health for mining workers, communities and the environment are possible.

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DEDICATION

This work is dedicated to the greater wellbeing of Indigenous, rural and other communities worldwide, particularly women and children, and the lands upon which mining occurs. In particular, the Secwepemc nation and the T'exelc Williams Lake Indian Band and Xat'sull Soda Creek First Nations, upon whose land the Mount Polley mining disaster occurred.

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