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LITHIUM-ION BATTERIES: HOW TO IMPROVE DUE DILIGENCE GUIDELINES
TO ENSURE THE ENVIRONMENTAL HEALTH OF ARTISANAL COBALT
MINING COMMUNITIES IN THE DEMOCRATIC REPUBLIC OF CONGO

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INTRODUCTION

On 10 September 2018, California passed Senate Bill 100, which declares that the Public Utilities Commission, State Energy Resources Conservation and Development Commission, and State Air Resources Board should plan for 100 per cent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by 31 December 2045.¹ The bill also establishes the policy that eligible renewable energy resources and zero-carbon resources will supply 100 per cent of all retail sales of electricity to California end-use customers and 100 per cent of electricity procured to serve all state agencies by 31 December 2045 without increasing carbon emissions elsewhere in the western grid.² The bill requires the Public Utilities Commission and Energy Commission, in consultation with the State Air Resources Board, to take steps to ensure the transition to a zero-carbon electric system for the State of California.³ This will require incorporation of energy storage mechanisms for renewable energy into the grid, most likely from batteries.

In conjunction with these policy goals, California seeks to dramatically reduce carbon emissions from transportation.⁴ This sector accounts for 50 per cent of the state's greenhouse gas emissions, and 80 per cent of smog-forming pollutants.⁵ In January 2018, Governor Jerry Brown issued an executive order calling for a new target of at least five million Zero Emission Vehicles (ZEVs) in California by 2030 to reduce these pollutants.⁶

Similarly, other governments around the world are also looking to phase out petroleum and diesel.⁷ The UK announced plans in July 2017 to phase out sales of new petrol and diesel cars by 2040, while the EU tightened its carbon dioxide limits, thus incentivizing shifts to electric vehicles.⁸ Similarly, India plans to replace its entire car fleet with electric models by 2030, and China now offers subsidies to consumers of ZEVs, as well as a reward system for manufacturers.⁹

Resultantly, the market for ZEVs is exploding, which, in addition to government initiatives, is due in part to the increasing power and reliability of ZEV batteries.¹⁰ Lithium-ion batteries carry four to seven times the voltage of traditional rechargeable batteries, and some scientists estimate that future 'lithium-air' batteries may be able to produce enough power to rival petroleum.¹¹ Lithium batteries are expected to make up the vast majority of the total rechargeable battery market by 2025, both within the ZEV and renewable energy storage sectors.¹² Although there are a few promising new alternatives to these types of batteries, there are not yet any viable alternatives to this powerful battery.¹³ Subsequently, lithium-ion batteries are the batteries of choice for General Motors, Honda, Tesla, BMW, Ford, BYD and Nissan.¹⁴ Tesla alone is expected to produce 35 GWh worth of batteries in 2018, which is equivalent to the entire world production in 2013.¹⁵

The major parts of these batteries consist of several types of metals. As the demand for these metals

1 California Senate Bill 100 2018, s 1(b) https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100.

2 California Senate Bill 100 2018, s 5; California Public Utilities Code, s 454.53(a) https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100.

3 *ibid.*

4 Office of Governor Edmund Brown Jr., 'Governor Brown Takes Action to Increase Zero-Emission Vehicles, Fund New Climate Investments' (Gov.ca.gov, Jan. 28, 2018) <https://www.ca.gov/archive/gov39/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/index.html>.

5 *ibid.*

6 *ibid.*

7 Anthony King, 'Battery Builders Get the Cobalt Blues' (*Chemistry World*, 12 March 2018) <https://www.chemistryworld.com/news/battery-builders-get-the-cobalt-blues/3008738.article>.

8 *ibid.*

9 *ibid.*

10 Fred Lambert, 'Breakdown of Raw Materials in Tesla's Batteries and Possible Bottlenecks' (*Electrek*, 1 November 2016) <https://electrek.co/2016/11/01/breakdown-raw-materials-tesla-batteries-possible-bottleneck/>.

11 Andrew W Eichner, 'More Precious than Gold: Limited Access to Rare Elements and Implications for Clean Energy in the United States' (2012) U. Ill. J.L. Tech. & Pol'y 257, 264.

12 Lambert (n 10).

13 'New Battery Technology: Alternatives to Lithium Batteries' (*Sustaining Our World*, 25 January 2018) <https://sustainingourworld.com/2018/01/25/new-battery-technology-alternatives-lithium-batteries/>.

14 Lambert (n 10).

15 *ibid.*

increases due to policy shifts toward rechargeable batteries and renewable energy technologies, their prices will increase.¹⁶ However, deposits of these metals are located in a small number of countries around the world.¹⁷ The most expensive of these elements is cobalt, which is currently priced at \$27,000 per tonne.¹⁸ Currently, 65 per cent of this cobalt comes from the Democratic Republic of Congo (DRC), a country with a complicated history of corruption and political instability.¹⁹ Many artisanal, or small-scale, cobalt mines in the DRC are linked to human rights abuses, including child slave labor, and environmental destruction.²⁰ However, as of February 2016, no country legally requires companies to publicly report on their cobalt supply chains.²¹ Though regulations exist regarding other 'conflict minerals', such as diamonds, gold, tungsten, and tin, no legislation exists specifically addressing other minerals, including cobalt.²²

Some scholars have suggested that this issue must be addressed through existing human rights infrastructure, and that soft law, or law without legally binding force, may alone be insufficient.²³ Although these binding international law frameworks may help to address the consequences of these mines pertaining to human rights and labor law violations, they are reactive rather than preventative, and do not account for environmental destruction. Currently, the most directly relevant international laws are those concerning due diligence, which companies adhere to when trading in minerals from conflict zones, such as cobalt from the DRC.²⁴ Due diligence, similarly to corporate social

responsibility, is a soft law mechanism that companies, rather than national governments adhere to when doing business in the mining industry, which seek to prevent any adverse effects of mining at their source.

Accordingly, this paper focuses on improving these preventative soft law mechanisms for mining companies, as well as suggests hard law enforcement solutions to ensure that they effectively prevent adverse effects on the planet and people. As a solution, it proposes the addition of more specific language to the current UN and OECD due diligence guidelines. As stricter enforcement mechanisms, this paper also proposes that nations adhering to due diligence guidelines enact complimentary national legislation, such as the US Dodd Franck Act, as well as that they form and follow an international certification scheme modeled after the Kimberly Blood Diamond certification. To account for the health of both the environments and communities situated in and around artisanal mines for elements such as cobalt, minerals trade laws must expand the definition of 'conflict minerals' to include any minerals the mining of which causes adverse effects on the environment and health of populations working and living in and around mines, including low-conflict and non-conflict zones. Moreover, 'effects' must include environmental pollution and destruction, along with any other adverse health effects of mining activities. The addition of these criteria into due diligence frameworks, as well as expansion of the definition of conflict minerals, is vitally important to guarantee the health of miners for lithium-ion battery supplies as the world transitions into a new age of electric cars and energy storage, with the ultimate goal of simultaneously protecting human rights while reducing greenhouse gas emissions.

In addressing this issue, this paper will explore where international environmental law falls short in ensuring the health and sustainability of artisanal mining communities in the DRC. Part I will look at current due diligence guidelines of the OECD and the UN, and offer suggestions for incorporating language directed at reducing the environmental health risks of the mines for miners and surrounding populations. Part II will examine the Kimberly Blood Diamond Certification solution as an example of an internationally recognized system seeking to reduce and trace conflict minerals, and address how such a

16 *ibid.*

17 Eichner (n 11) 264.

18 Lambert (n 10); \$81,000 per metric tonne. King (n 7).

19 Lambert (n 10).

20 *ibid.*

21 John M Jacob, 'Amnesty International Wants Cobalt Included in Conflict Minerals Disclosure' (2016) 11(3) *Corp. Governance Guide* 411912 (C.C.H.), WL 41191232.

22 OECD, 'OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition' (OECD Publishing, Paris, 2016) <http://dx.doi.org/10.1787/9789264252479-en>.

23 John Burchill, 'Out of the Heart of Darkness: A New Regime for Controlling Resource Extraction in the Congo' (2010) 10 *Asper Rev. Int'l Bus. & Trade L.* 99, 119; Josep F Mària SJ & Miho Taka, 'The Human Rights of Artisanal Miners in the DRC' (2012) 3(1) *African Journal of Economic and Management Studies* 137, 138.

24 OECD (n 22) 3.

system could help ensure the sustainability of cobalt supply lines. Finally, Part III will explore how national legislation such as the Dodd Frank Act, which is directed at reducing the amount of conflict minerals imported into the United States, can serve as an example for other nations to create similar legislation that addresses the rights of miners in low-conflict areas, as well as environmental destruction and pollution.

1

PART I: ROLE OF MINING COMPANIES: OECD DUE DILIGENCE GUIDANCE AND UN DUE DILIGENCE GUIDELINES

1.1 DRC Cobalt in Lithium-ion Batteries

Lithium-ion batteries have three major parts: the anode, cathode, and electrolyte.²⁵ Many different types of element formulations comprise the cathodes of lithium batteries, all of which contain various combinations of cobalt, nickel, manganese, and aluminum.²⁶ Over 40 per cent of cobalt is used to make rechargeable batteries, and this is expected to increase to 55 per cent by 2019.²⁷ Currently, total world cobalt production is around 100,000 tonnes annually, around 48,000 tonnes of which go to the battery industry.²⁸ By 2025, the battery industry alone will need about 127,000 tonnes of cobalt.²⁹ Although

ZEVs use a lesser percentage of cobalt in their battery cathodes than smartphones and laptops, they still necessitate 1000x more of this metal per battery, requiring between 10-20 kg (22-44 pounds) rather than 10-20 g of cobalt.³⁰ In order to meet its goal of 5 million ZEVs on the road, California alone will require as much as 100 million kg (around 220.4 million pounds) of cobalt by 2030, 65 per cent of which will likely come from mines in the DRC.^{31 32}

Approximately one fifth of the cobalt mined in the DRC is extracted by hand by artisanal miners, known locally as 'cresseurs'.³³ Within thousands of unofficial, unregulated, unmonitored mines in the southeast Katanga region of the DRC, men, women and children work in slave conditions.³⁴ In 2012, UNICEF estimated that 40,000 children as young as seven work in artisanal mines across the DRC, many of them carrying loads of cobalt in intense heat.³⁵

Cobalt exposure presents a variety of health risks, including damage to the heart, thyroid, lungs, and skin.³⁶ Although the World Health Organization reported that exposure to cobalt and breathing in its dust fumes can cause these long-term health problems, none of the cresseurs wear gloves or masks.³⁷ This causes health effects ranging from tumors to mysterious infections, metabolic and respiratory problems, burning sensations in eyes and throat, tumors, genetic deformations, and sterility.³⁸

25 Lambert (n 10).

26 The Tesla model S uses a nickel, cobalt, aluminum combination, comprised of 15 per cent cobalt, 5 per cent aluminum, and 80 per cent nickel, while, comparatively, the Tesla Powerwall uses 33.3 per cent cobalt, nickel, and aluminum. In contrast, an Apple iPhone uses a cathode comprised 100 per cent of cobalt, and the Nissan Leaf uses a cathode that is 100 per cent manganese. *ibid.*

27 *ibid.*

28 *ibid.*

29 *ibid.*

30 King (n 7).

31 Lambert (n 10).

32 This is also equivalent to 100,000 metric tons, 14,285 elephants, 500 blue whales.

33 Alex Crawford, 'Meet Dorsen, 8, Who Mines Cobalt to Make Your Smartphone Work' *Sky News* (28 February 2017) <https://news.sky.com/story/meet-dorsen-8-who-mines-cobalt-to-make-your-smartphone-work-10784120>.

34 *ibid.*

35 Artisanal Cobalt Mining in the Democratic Republic of the Congo. Escri. <https://www.arcgis.com/apps/MapJournal/index.html?appid=847b1b69cbee471ea75aa06ce5d6c90b>.

36 *ibid.* 751.

37 Crawford (n 33).

38 *ibid.*; Jeune Afrique, 'RD Congo : la pollution minière à Lubumbashi en pleine lumière' *Jeune Afrique* (12 August 2016) <https://www.jeuneafrique.com/348793/societe/rd-congo-pollution-mini-ere-a-lubumbashi-pleine-lumiere/>.

Furthermore, studies have confirmed that increased concentration of cobalt in the body directly correlates to proximity to cobalt mines.³⁹

One of the greatest sources of exposure for these populations is waterways.⁴⁰ Though forbidden by the Congolese mining code, cresseurs frequently rinse minerals in streams or rivers, effectively amplifying the cobalt exposure of local populations.⁴¹ Because these streams are often the only source of water for local communities, people have no choice but to drink contaminated water.⁴² Some mining companies attempted to build wells to provide residents with a clean water source, but locals report that the quality is often not good, and the wells are not well-maintained.⁴³ Not only does artisanal mining affect the miners themselves, but it also degrades riparian zones, and creates heavy erosion and water pollution.⁴⁴

39 A Belgian study conducted in the Katanga region compared the concentrations of cobalt in urine samples of people from between 3-10 kilometers away from mining sites to a control group of people 400 km from mining centers, along with the typical concentrations of this element within the United States, EU nations, and Japan. The results showed that 11 per cent and 53 per cent of the subjects residing moderately close and very close to pollution sites exceeded the occupational limit value, with 87 per cent of children in areas closest to mining and smelting sites containing cobalt levels exceeding the occupational limit. The study concluded that the single most important factor determining the variability in urinary excretion of metals was area of residence. Célestin Lubaba Nkulu Banza and others, 'High Human Exposure to Cobalt and Other Metals in Katanga, a Mining Area of the Democratic Republic of Congo' [2009] *Environmental Research* 109, 745, 747-50.

40 *ibid* 750.

41 Christophe De Brouwer and Myriam M Elenge, 'Identification of Hazards in the Workplaces of Artisanal Mining in Katanga' (2011) 24(1) *International Journal of Occupational Medicine and Environmental Health* 57, 61.

42 Andreis Zaragoza Montejano, 'In Search of Clean Water: Human Rights and the Mining Industry in Katanga, DRC' (Waterlex, IPIS, November 2013) < <https://reliefweb.int/sites/reliefweb.int/files/resources/In%20search%20of%20clean%20water%20-%20Katanga%20DRC.pdf> > 3.

43 ACIDH, *Unheard Voices: Mining Activities in the Katanga Province and the Impact on Local Communities* (Centre for Research on Multinational Corporations, November 2011) <https://www.somo.nl/wp-content/uploads/2011/12/Unheard-Voices.pdf>.

44 'Artisanal Cobalt Mining in the Democratic Republic of the Congo' (Escri. 2018) <https://www.arcgis.com/apps/MapJournal/index.html?appid=847b1b69cbee471ea75aa06ce5d6c90b>.

The erosion often leads to the collapse of houses and the mines themselves.⁴⁵ Thus, artisanal mining directly contributes to the deterioration of health of the river systems, wildlife, and people.

Informal and artisanal mining in the eastern Katanga region⁴⁶ increased considerably after the two armed conflicts that occurred in the DRC between 1996 and 2002.⁴⁷ Starting in 2002, foreign mining companies began exploring, exploiting, and processing the trade of cobalt and copper in this province.⁴⁸ Some mining companies own the sites directly, and some merely have processing plants.⁴⁹ The former frequently relocate citizens working or living near the site or the plant, often triggering mass protests and violent exchanges,⁵⁰ and the latter merely buy the ore extracted by artisanal miners.⁵¹ The companies without sites operate in three basic models: (1) private companies buy ore from artisans, often seeking a monopoly of the ore in question, in exchange lending food and money to the artisans, and restricting the capacity of the artisans to sell ore at higher prices; (2) companies with storage capacities in their own plant negotiate with traders who then negotiate with artisans, normally involving an agent from the company and an agent from the trader, who normally accept lower prices to avoid transporting to a new facility; (3) partnerships between a company and an artisanal co-op for the exploration of a site, normally during which the company uses its technology to explore the site, and the co-op then sells the ore exclusively to the company.⁵² In the latter of these models, political parties and gangs control the

45 *ibid*.

46 It is important to note that in 2015 this province was divided into four separate provinces: Tanganyika, Haut-Lomami, Lualaba and Haut-Katanga. Many works of literature still refer to this region the single Katanga Province. For the purposes of this paper, I will be referring to these provinces, and the region collectively, as the Katanga region.

47 Mária and Taka (n 23) 144.

48 *ibid*.

49 Mária and Taka (n 23) 145.

50 In October 2004, there was a massacre of 28 individuals, both rebels and civilians, by the Congolese army near the site of Dikulushi, owned by Anvil Mining. During this conflict, Anvil's cars and planes transported Congolese soldiers, who were later accused of war crimes. *ibid* 145.

51 *ibid*.

52 *ibid* 146.

co-ops, often without the artisans' best interest in mind.⁵³

Despite the fact that artisanal mining raises serious challenges to the workers' human rights, the environment, and the greater population of mining sectors, this industry is vitally important to the livelihood of countless individuals in the DRC.⁵⁴ It is estimated that cresseurs constitute the largest segment of the DRC mining sector, with between 500,000 to two million workers, and, with an average of 4-5 dependents for each artisan, the number of people dependent on this activity is roughly 8-10 million.⁵⁵ Thus, it is essential that this sector continue to provide vital employment opportunities for these DRC citizens without putting their health and safety at risk.

1.2 International Due Diligence Standards: OECD Due Diligence Guidance

The most widely accepted international standards used by mining companies are based on the concept of due diligence. The first standard is a non-binding OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD Guidance), which recommend that OECD Members and non-Member adherents actively promote the observance and integration into corporate management systems of the OECD Guidance by companies in the mineral supply chain that supply or use minerals sourced from conflict-affected or high risk areas.⁵⁶ Its ultimate goals are to help companies respect human rights and avoid contributing to conflict through their mineral sourcing practices, to cultivate transparency and sustainable corporate engagement,⁵⁷ and to serve as a common reference for all suppliers and other stakeholders in the mineral supply chain.⁵⁸ The United Nations Security Council supports these recommendations.⁵⁹

The Due Diligence Guidance defines 'conflict-affected and high-risk areas' to include 'the presence of armed

conflict, widespread violence or other risks of harm to people', and areas of political instability or repression with widespread human rights abuses and violations of national or international law.⁶⁰ The guidance defines due diligence as 'an on-going, proactive and reactive process through which companies can ensure that they respect human rights and do not contribute to conflict'.⁶¹ Specifically, risk-based due diligence refers to the steps companies should take to identify and address 'actual or potential risks' in order to prevent or mitigate adverse impacts associated with their activities or sourcing decisions.⁶² These risks encompass the adverse impacts of a company's operations, such as harm to people, reputational damage, or legal liability, that result from its own activities or its relationships with third parties, including suppliers and other entities in the supply chain.^{63 64}

Regarding sourcing, the model policy states that the company will neither tolerate, nor profit from, contribute to, assist with or facilitate the commission by any party of any forms of human rights abuses, forced or child labor, or crimes against humanity.⁶⁵ It also states that the company will immediately suspend or discontinue engagement with suppliers linked to or committing these activities.⁶⁶ For artisanal miners,

⁶⁰ OECD (n 22) 13.

⁶¹ *ibid.*

⁶² OECD (n 22) 13.

⁶³ *ibid.*

⁶⁴ It offers a five-part due diligence framework for both OECD members and non-members alike, involving the following five steps: (1) establishing strong company management systems, (2) identifying and assessing risk in the supply chain, (3) designing and implementing a strategy to respond to identified risks, (4) carrying out independent third party audit of supply chain due diligence at identified points in the supply chain, and (5) reporting on supply chain due diligence. Within this framework, the guidelines consistently emphasize public communication and reporting, as well as the creation of a system of checks and controls over the traceability system, which is left to both the specific industry and individual companies. *ibid* 17-19.

⁶⁵ *ibid* 20-21.

⁶⁶ *ibid* 21. This section further references the Responsible Jewellery Council, Standards Guidance, 'COP 2.14 Artisanal and Small-Scale Mining', which provides that companies must 'supporting the wider community by locally sourcing the provision of as many goods and services as possible; eliminating child labor as a condition of engagement in the community; improving women's conditions in ASM communities through gender awareness and empowerment programs'. *ibid* 27.

⁵³ *ibid.*

⁵⁴ *ibid* 138.

⁵⁵ *ibid.*

⁵⁶ Mária and Taka (n 23) 9.

⁵⁷ *ibid.*

⁵⁸ *ibid* 12.

⁵⁹ *ibid* 3.

which include the DRC cresseurs, the guidance's model policy specifies that the company must minimize the risk of exposure of artisanal mining communities to 'abusive practices'.⁶⁷ This supplement distinguishes between artisanal and small-scale producers and enterprises,⁶⁸ stipulating that only enterprises are expected to carry out due diligence.⁶⁹

1.3 International Due Diligence Standards: UN Due Diligence Guidelines

In 2010, the UN published very similar non-binding Due Diligence Guidelines (UN guidelines) for the responsible supply chain of minerals from 'red flag locations' to mitigate the risk of providing direct or indirect support for conflict in the eastern part of the DRC.⁷⁰ Unlike the OECD Guidelines, these guidelines specifically apply to individuals and entities with supply chains in the DRC.⁷¹

The UN guidelines state that individuals and entities should adopt supply chain policies that require that individuals and entities will not tolerate any direct or indirect support for armed groups from the eastern part of the DRC or criminal networks and perpetrators of human rights abuses within the State's armed

forces.⁷² To assess the risk of supporting armed groups, the UN guidelines require adherents to compare the factual circumstances of their supply chains with the supply chain policy in the UN guidelines because they often indicate the risks of providing direct or indirect support to armed groups or sanctioned individuals and entities.⁷³

The UN guidelines recommend that, at a minimum, refineries and smelters be audited to examine due diligence processes to mitigate the risk of providing direct or indirect support to armed groups from the eastern part of the DRC.⁷⁴ The UN Guidelines also recommend that audit organizations act in accordance with international auditing standards.⁷⁵ Unlike the OECD guidance, the UN guidelines make no mention of the artisanal mining sector specifically.

1.4 Due Diligence Guidelines: Improvements

Both guidelines fall short of addressing three important considerations regarding the sustainability of mining communities, thus neglecting a large portion of the population of cobalt miners.

First, the OECD definition of 'high risk area' focuses on areas that violate international or national law, as well as areas of conflict, which includes widespread violence or other risks of harm to people. Similarly, the UN guidelines emphasize not exacerbating conflict by providing support for armed groups or perpetrators of human rights abuses. Although it is important to not exacerbate and contribute to armed conflict, 'harm to people' also occurs in low-conflict areas, or areas outside of active war zones, notably within and around the artisanal mines for cobalt, through environmental pollution and land-grabbing⁷⁶ In the Katanga region, which is nowadays considered a low-conflict zone,⁷⁷ there are nearly 150,000 artisanal miners, and, with an average of 4-5 dependents per artisan, the number of

67 *ibid.*

68 The guidelines define Artisanal and Small-scale Mining Enterprises as 'Artisanal and small-scale entities that are sufficiently formalized and structured to carry out this Guidance'. It defines Artisanal and Small-Scale mining generally as 'formal or informal mining operations with predominantly simplified forms of exploration, extraction, processing, and transportation... a normally low capital intensive and uses high labor-intensive technology'. OECD (n 22) 65.

69 *ibid.* 64.

70 'Due diligence guidelines for the responsible supply chain of minerals from red flag locations to mitigate the risk of providing direct or indirect support for conflict in the eastern part of the Democratic Republic of the Congo (United Nations, 2013) < https://www.un.org/News/dh/infocus/drc/Consolidated_guidelines.pdf> Similarly to the OECD guidelines, the UN guidelines involve five steps: (1) strengthening company management systems, (2) identifying and assessing risks in the supply chain, (3) designing and implementing a strategy to respond to identified risks, (4) ensuring independent third party audits, and (5) publicly disclosing supply chain due diligence and findings. *ibid.* 1-8.

71 *ibid.* 1.

72 *ibid.*

73 *ibid.* 4.

74 UN (n 70) 5.

75 Specifically, ISO 19011:2002. *ibid.* 5.

76 See description of types of mining companies in beginning of this section: 'relocate citizens working or living near the site or the plant'. *ibid.* 5.

77 Mária and Taka (n 23) 144.

people dependent on the cobalt artisanal mining sector in this region is nearly 750,000.⁷⁸ The overall population of the four provinces in this region is over 10 million, nearly four million of which reside in the southern Haut-Katanga province,⁷⁹ which contains substantial cobalt deposits and mining operations.⁸⁰ Thus, because hundreds of thousands of people live in and around these low-conflict zones, focusing on only conflict-affected areas disregards not only the *cresseurs*, but also a substantial amount of the population that is adversely affected by cobalt mines.

To remedy this, some scholars suggest that company policies and due diligence standards should take into consideration different conflict levels, accounting for the human rights of workers both low and high conflict areas.⁸¹ For example, one suggestion is that companies introduce policies centered around peace-building in high conflict zones, while focusing on open and trustful dialogue between companies, local administrations, artisans, NGOs and local communities in low-conflict zones.⁸² In doing so, companies can both better understand and address localized issues, as well as adequately frame bottom-up policies around local populations.⁸³

Second, because mining operations rely on pollution prone technologies and the controls on the discharge of pollutants from mines and smelters are lax or non-existent, the air, water, soils and vegetation near the mining centers tend to be severely contaminated with toxic metals, which adversely affects the health of those living in the area.⁸⁴ As a solution, the guidelines must place greater emphasis on mitigating these effects by conducting frequent environmental assessments, including the health of the local communities, and providing miners with other sources of rinsing water besides streams and rivers in order to ensure that mining activities do not continue to harm local populations.

Finally, despite environmental regulations addressing this problem within the mining code,⁸⁵ there is a lack of effective government oversight and assistance to artisanal miners in enforcing these regulations.⁸⁶ In addition to environmental regulations, the Congolese mining code requires those working in the artisanal miners sector follow certain regulations relating to safety, environmental protection and hygiene, but there are no specifications regarding the equipment they must use, in line with International Labor Organization Conventions or recommendations.⁸⁷ Furthermore, SAESSCAM, the DRC government body created in 2003 to protect artisans, does not have enough resources or transparency, which effectively facilitates the exploitation of artisanal miners by traders, corrupted government officials, customary chiefs and armed groups in conflict areas.⁸⁸ Furthermore, as of 2018, the DRC is ranked 161 out of 180 in the corruption perception index, which makes it very difficult for DRC government bodies such as SQESSCAM to effectively enforce its mining code.⁸⁹

The International Labour Organization (ILO) primarily adheres to the 1999 Conclusions of the ILO tripartite sectoral meeting on small-scale mining, which puts primary responsibility of monitoring small scale mines on the local governments. Within the 1999 Conclusions addressing safety and health, child labor, and environmental issues in small-scale mining, the ILO concluded that it is the responsibility of government to establish appropriate legal and regulatory framework, including monitoring and enforcement provisions.⁹⁰ It also states that since there is a lack of data on occupational safety and health in

78 Escrí (n 44).

79 PopulationData.net, République Démocratique du Congo (November 2018) <https://www.populationdata.net/pays/republique-democratique-du-congo/>.

80 Geology for an economic sustainable development, Katanga Mining Sector (2013) <http://www.geco-project.org/?page=mining-sector>.

81 Mária and Taka (n 23) 147.

82 *ibid.*

83 *ibid.*

84 Banza and others (n 39) 745-6.

85 This code provides for only open-air mining, forbidding the use of explosives, requiring that the miners take care of vegetation and trees and rehabilitate every portion of the exploited area after the end of the activity. Mária and Taka (n 23) 143.

86 *ibid.*

87 *ibid.*

88 *ibid.*

89 'Corruptions Perceptions Index 2018' (Transparency international, 2018) <https://www.transparency.org/cpi2018>.

90 International Labour Organization, Note on the Proceedings: Tripartite Meeting on Social and Labour Issues in Small-scale Mines (1999) 21 https://www.ilo.org/wcmsp5/groups/public/—ed_dialogue/—sector/documents/meetingdocument/wcms_677992.pdf.

small-scale mines and their communities, governments should establish a regime for effective reporting on safety and health performance in small-scale mining, as well as for the frequency of the use of child labor.⁹¹ It also encourages the ILO to get increase its efforts to further encourage member States to ratify the Safety and Health in Mines Convention, which the DRC has still not ratified.⁹²

Thus, because the ILO puts primary responsibility on the DRC government to address regulation of small-scale mining, as well as the inability of the DRC government to effectively enforce its regulations, it is essential that mining companies follow guidelines that adhere to both the local mining code and international mining guidelines.

The UN and OECD guidelines should accordingly place greater emphasis on helping local governments improve their ability to enforce local mining regulations. Though the OECD guidelines emphasize that companies should utilize a third party audit system to ensure that they further due diligence efforts, they could be more effective by instead providing governments within mining communities with guidelines and training to monitor the environmental health effects of the workers, as well as to comply with the already rigorous environmental regulations of the Congolese mining code. One suggestion from a study of workplace hazards for artisanal miners is to introduce a ‘minimum of mechanization and modernization’ into these mines, which will help to ensure that they stay technologically up-to-date.⁹³ In essence, this would require companies to provide the tools and technologies to the mines necessary for workers to stay safe and healthy, as well as to continue to mine without destroying the environment. This excellent solution would help to ensure that workers in artisanal mines do not continue to needlessly suffer due to the extended use of outdated and unsafe mining tools and techniques, while also making up for the lack of effective oversight and assistance within artisanal mines.

91 *ibid* 21-2.

92 *ibid* 29. International Labour Organization, Ratifications of C176 - Safety and Health in Mines Convention, 1995 (No. 176) https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11300:0::NO::P11300_INSTUMENT_ID:312321.

93 De Brouwer (n 41) 65.

2

PART II: CERTIFICATION: EXAMPLE OF THE KIMBERLY BLOOD DIAMOND CERTIFICATION SOLUTION, AND ITS POTENTIAL APPLICATION TO COBALT

2.1 Role of Major Corporations: Tesla and Apple

Many companies such as Apple and Tesla are working toward drastically reducing cobalt use in their lithium-ion batteries. Tesla stated in its 2017 conflict minerals report that it has not uncovered human rights abuses in its supply chains.⁹⁴ Additionally, it visited many cobalt mines and processing plants of its main supply chain, as well as potential future suppliers throughout the world, to discuss major human rights risks they face and the practices they implemented to mitigate these risks, including third-party audits and engagement with local communities to maintain a positive social license to operate.⁹⁵ Tesla CEO Elon Musk tweeted that Tesla’s next generation of car batteries will use no cobalt whatsoever.⁹⁶ Similarly, in March 2017, Apple announced that it would stop buying cobalt from artisanal mines until it was confident that ‘appropriate protections’ were in place.⁹⁷ Apple also issued guidelines to its suppliers for detailing its policies on human rights, environmental protections, and responsible business practices in its supply chain,⁹⁸ as well as conducts regularly auditing

94 Tesla, Tesla Conflict Minerals Report (2018) 6 <https://www.tesla.com/sites/default/files/about/legal/2018-conflict-minerals-report.pdf>.

95 *ibid*.

96 Elon Musk (@elonmusk), Twitter (13 June, 2018, 11:38 AM) <https://twitter.com/elonmusk/status/1006968985760366592>.

97 Todd C. Frankel, ‘Apple Cracks Down Further on Cobalt Supplier in Congo as Child Labor Persists’ *The Washington Post* (3 March 2017) https://www.washingtonpost.com/news/the-switch/wp/2017/03/03/apple-cracks-down-further-on-cobalt-supplier-in-congo-as-child-labor-persists/?noredirect=on&utm_term=.74c1160a0d68.

98 Apple, A Supply Chain that Empowers People and Protects the Planet (2018) <https://www.apple.com/supplier-responsibility/>.

of every smelter providing cobalt in its supply chain.⁹⁹ Apple reportedly may even decide to buy some of the mines to purchase cobalt directly from miners, rather than having to go through a third party supplier.¹⁰⁰ However, an international certification scheme could still be very helpful in order for companies such as Apple and Tesla to more easily verify the sustainability of their minerals supply chains, as well as to ensure that their cobalt suppliers indeed follow due diligence standards and their corporate visions of conflict-free cobalt supplies.

2.2 Kimberly Blood Diamond Certification: Overview

One of the most widespread international initiatives to ensure due diligence in the mineral trade realm is the Kimberly Blood Diamond Certification solution. This scheme, established in Kimberly, South Africa in 2003, seeks to curb the link between illicit trade in rough diamonds and armed conflict.¹⁰¹ Blood diamonds are rough, unpolished diamonds, the trade of which directly contributes to armed conflict in nations such as Angola, Liberia, Sierra Leone, and the DRC.¹⁰² In 2005, it was estimated that nearly 85 per cent of Congolese diamonds were smuggled out of the country, robbing approximately \$40 million from the DRC's gross domestic product.¹⁰³ The 74 countries that participate in the Kimberly certification scheme represent 98 per cent of global rough diamond trade and production.¹⁰⁴

The scheme requires each participating nation to enact legislation requiring that all imports and exports of rough diamonds are certified under the scheme, and

banning the trade in rough diamonds with non-participating countries.¹⁰⁵ Additionally, each import or export of rough diamonds must be transported in a tamper-resistant container and accompanied by a government-validated Kimberly Process Certificate.¹⁰⁶ The scheme also requires each nation to issue an official commitment reflecting and upholding the goals of the scheme, and to meet annually to discuss and monitor the progress of the program.¹⁰⁷ Countries that do not participate face 'isolation' from the diamond-trading world.¹⁰⁸ In this way, the Kimberly Scheme creates a market incentive by requiring nations to participate in the Kimberly scheme in order to fully participate in the international diamond trade.

The Kimberly Certification does not require each participating nation to provide any official means for enforcing this legislation, but several members enacted legislation to enforce the Kimberly scheme's restrictions.¹⁰⁹ For example, in 2003, US the Senate and House of Representatives passed the Clean Diamond Trade Act, which prohibits the importation of diamonds into the United States that do not meet the Kimberly Certification requirements.¹¹⁰

2.3 Broader Kimberly-Inspired Scheme for Conflict Minerals

An expanded version of the Kimberly Certification scheme could cover a large variety of minerals. Such a scheme should oblige suppliers to list the country and mine of origin, guarantee that the mine does not violate human rights or contribute to environmental destruction, include a uniform enforcement standard for participating nations with baseline national

99 Vivienne Walt & Sebastian Meyer, 'Blood, Sweat, and Batteries' *Fortune* (23 August 2018) <http://fortune.com/longform/blood-sweat-and-batteries/>.

100 Anthony Cuthbertson, 'Apple Faces Child Labor Scrutiny as it Looks to Take Charge of Cobalt Mines' *Newsweek* (23 February 2018) <https://www.newsweek.com/apple-faces-child-labor-scrutiny-it-looks-take-charge-cobalt-mines-815981>.

101 Burchill (n 23) 113.

102 Julie Fishman, 'Is Diamond Smuggling Forever? The Kimberly Process Certification Scheme: The First Step Down the Long Road to Solving the Blood Diamond Trade Problem' (2005) 13 U. Miami Bus. L. Rev. 217, 219.

103 *ibid* 220.

104 Burchill (n 23) 113.

105 Fishman (n 102) 225.

106 The Certificate reads, "These certificates seek to ensure that diamonds traded through the "diamond pipeline" are not the product of rebel groups, and that the diamonds in each 'shipment have been handled in accordance with the provisions of the Kimberley Process Certification Scheme'. It must be resistant to forgery and list the country of origin, tracking number, dates of issuance and expiration, issuing authority, identity of the importer or exporter, carat weight, US dollar value, and a description of the shipment's contents. *ibid* 225.

107 *ibid* 225.

108 *ibid* 226.

109 *ibid* 225.

110 *ibid* 231.

requirements, and apply to minerals originating in both conflict and non-conflict zones.

There have been some efforts to label minerals beyond diamonds as conflict free through ‘bagging and tagging’ programs. These usually apply within conflict zones for specific minerals, such as tin.¹¹¹ However, sometimes the people tagging the bags of minerals simply lie about the minerals’ origins, and companies do not always diligently comply with their own voluntary verification programs.¹¹² A broader internationally-backed scheme would eliminate this issue by requiring private companies and governments alike to work together to comply with the certification scheme in order to remain in the market for importing and exporting minerals.¹¹³

To obtain the certification, the company trading the minerals would have to first verify that the minerals neither contributed to armed conflict or the destruction of the environment. It would then be up to the importing country to verify that the certification was not forged, and that the mine of origin indeed complied with the certification’s requirements. The certification would have to pay special attention to nations with mineral monopolies, such as the DRC for cobalt, to be sure that they follow the guidelines despite their dominant presence and influence in the market.¹¹⁴

However, one of the biggest differences between diamonds and cobalt is that there are international councils for diamonds and jewelry, such as the World Diamond Council, World Federation of Diamond Bourses, and International Diamond Manufacturers Associations, which push for nations to adopt the scheme, and vow to expel traders found dealing blood diamonds in violation of the Kimberly scheme.¹¹⁵

No such international councils exist for minerals containing valuable metals, such as cobalt, likely due to the fact that diamonds themselves are the final product traded and bought, while cobalt makes up merely a piece of the final product (i.e. it is one of many different ingredients that compose smartphones and ZEVs). Thus, without this extra layer of both awareness and motivation to comply with a certification scheme, traders would have less to lose if they did not comply with a similar certification for cobalt. There are, however, international councils for the electronics industry, such as the Electronic Industry Citizenship Coalition, which founded a conflict minerals rule encouraging its members to avoid using conflict minerals as part of their codes of conduct.¹¹⁶ Accordingly, it would be up to the electronics and motor industries, notably those manufacturing lithium batteries, to look out for and refuse to do business with those who do not comply with the theoretical certification scheme’s requirements, as well as to ensure the effectiveness of third-party auditing.¹¹⁷

Additionally, the proposed minerals scheme should include a baseline monitoring and enforcement system for all participating nations to follow. Currently, there is still no international monitoring system for the blood diamond trade, nor is there a uniform enforcement and punishment requirement for participating nations to enforce the scheme.¹¹⁸ Without a uniform requirement for non-compliance among nations, as well as without an international watchdog system to police the trading of these minerals, illicit traders deal more frequently within the nations with softer punishments, thus defeating the Kimberly scheme’s goals of curbing the blood diamond trade.¹¹⁹ As a remedy, the scheme should require that all nations adopt the same baseline punishment mechanism, while calling on mining companies and participating nations with greater

111 Jonny Hogg, ‘Conflict-free’ Tags Help Revive Congo Minerals Trade’ *Reuters* (8 November 2012) <https://www.reuters.com/article/us-congo-democratic-mining/conflict-free-tags-help-revive-congo-minerals-trade-idUSBRE8A70PG20121108>.

112 Jenny McGrath, ‘Companies Want to Sell you Conflict-Free Phones, but Certification isn’t Foolproof’ *Digital Trends* (9 September 2018) <https://www.digitaltrends.com/cool-tech/conflict-minerals-responsible-mining/>.

113 Eichner (n 11) 265.

114 *ibid* 259.

115 Fishman (n 102) 226.

116 Chang-hsien Tsaia & Yen-nung Wu, ‘What Conflict Minerals Rules Tell Us About the Legal Transplantation of Corporate Social Responsibility Standards Without the State: From the United Nations to the United States to Taiwan’ (2018) 38 *Nw. J. Int’l L. & Bus.* 233, 236.

117 Harry D. Gobrecht, ‘Technically Correct: Using Technology to Supplement Due Diligence Standards in Easter D. R. Congo Conflict Mineral Mining’ [2011] *U. Ill. J.L. Tech. & Pol’y* 413, 427.

118 Fishman (n 102) 235.

119 *ibid* 236.

resources to help developing nations, such as the DRC, with enforcement. This will help ensure that all nations have sufficiently similar and harsh punishments to deter the trading of minerals from mines that do not comply with the mineral certification scheme.

As an additional check on compliance with the certification system, another solution is to allow individuals to take action in the local legal system. For the Kimberly scheme, some suggest that individuals should be allowed to bring a private right of action against companies found to be in non-compliance with the scheme.¹²⁰ Applied to cobalt, individuals directly affected by artisanal mines could bring suit within their home jurisdictions against companies in noncompliance with the scheme, which would encourage companies to comply with certification requirements in order to avoid prosecution.¹²¹ These individuals could also bring suit against the local government officials should there be evidence of either negligence or corruption in enforcing mining regulations. This is consistent with growing accord among scholars of the importance of allowing local populations to participate in a more meaningful and influential way in enforcement of the ethical trade of minerals originating in their soil.¹²²

Finally, it is essential that participating nations enact legislation to accompany the minerals certification scheme and to guarantee that all minerals from all parts of the nation are certified. Like the due diligence guidelines, the Kimberly Scheme focuses on curbing trade from areas where there is armed conflict, while, as discussed above, harm to people as a result of the mines occurs outside of war and high-conflict zones due to environmental destruction and pollution in surrounding communities. The link between the mines and the destruction of the health of surrounding ecosystems and communities will have to be concretely proven in order to incentivize nations to participate in and comply with such a broad certification, much like the work that was put into uncovering the contribution to armed conflict of the illicit blood diamond trade. Such proof could provide exactly the incentive necessary

to create an international certification scheme for all minerals.

3

PART III: ROLE OF NATIONAL GOVERNMENTS: EXAMPLE OF THE DODD FRANK ACT

3.1 Dodd Frank Conflict Minerals Overview

In addition to an international certification scheme to enforce the Due Diligence guidelines, governments should create national enforcement mechanism for the trade of minerals linked to human rights abuses. One example is the 2010 US Dodd Frank Act ('the act'), which addresses 'conflict mineral' trading. This act is one of many great examples of a sweeping legislative scheme by a national government that expands key concepts of the Kimberly Scheme to other minerals beyond diamonds, and can serve as an example for other nations to create and improve upon in their own conflict minerals regulations.

The 'Conflict Minerals' section of the act states that Congress was concerned for the exploitation and trade of conflict minerals originating in the DRC that finance conflict 'characterized by extreme levels of violence'.¹²³ Thus, the act seeks to promote peace and security in the DRC by supporting international efforts to monitor and stop commercial activities involving the natural resources of the DRC that contribute to the activities of armed groups and human rights violations.¹²⁴ It also aims to develop stronger governance and economic institutions to facilitate and improve transparency in the cross-border trade involving the DRC's natural resources, to reduce exploitation by armed groups, and to promote local and regional development.¹²⁵

120 *ibid* 235.

121 *ibid* 235.

122 Pacifique Manirakiza, 'Towards an African Human Rights Perspective on the Extractive Industry' (2013) 11 *Loy. U. Chi. Int'l L. Rev.* 1, 6.

123 Dodd Frank Act 2010, s 1502(a) <https://www.govtrack.us/congress/bills/111/hr4173/text>.

124 Dodd Frank Act 2010, s (c)(1) (B)(i)(II) <https://www.govtrack.us/congress/bills/111/hr4173/text>.

125 Dodd Frank Act 2010, s (c)(1) (B)(i)(II) <https://www.govtrack.us/congress/bills/111/hr4173/text>.

The Conflict Minerals section provides guidance to commercial entities seeking to exercise due diligence when assessing the origin and chain of custody of conflict minerals used in their products. It also lists punitive measures that could be taken against individuals or entities whose commercial activities support armed groups and human rights violations in the DRC.¹²⁶ The act further requires that any person must annually disclose whether conflict minerals that are necessary to the functionality or production of a product manufactured by the person originated in the DRC or an adjoining country.¹²⁷ If so, the person must submit a report describing the measures they took to exercise due diligence on the source and chain of custody of such minerals, including a certified independent private sector audit.¹²⁸

The act defines ‘conflict minerals’ as cassiterite, columbite-tantalite (tantalum), gold, wolframite (tungsten), or their derivatives, or any other minerals or their derivatives determined by the U.S. Secretary of State to be financing conflict in the Covered Countries.¹²⁹ Cobalt has likely not been added to the list yet because the Secretary of State has not made such a finding for this metal or, subsequently, the minerals from which it is derived. ‘Covered countries’ are the DRC and adjoining countries, or countries that

share an internationally recognized border with the DRC.¹³⁰

Though there are no specified punitive damages within the Dodd Frank Act, the U.S. Attorney General has discretion to bring a civil action under the Foreign Corrupt Practices Act.¹³¹ This act applies to any individual who uses ‘any means or instrumentality of interstate commerce’ to influence foreign officials to gain an advantage, influence a decision, or influence illegal action, and upon a proper showing, a permanent injunction or a temporary restraining order shall be granted without bond.¹³² Similarly, for any domestic concern other than an issuer, any officer, director, employee, agent, or stockholder may be fined up to \$2 million for entities, \$100,000 for individuals who are US citizens, and \$10,000 for individuals who are not US citizens.¹³³ Thus, in the event that bribery or coercion within the conflict minerals trading realm is discovered under the Dodd Frank Act, the person or entity could be liable under the Foreign Corrupt Practices Act for monetary and punitive damages.

In addition to the Dodd Frank Act, similar regulations now exist within other nations. The European Union’s Conflict Minerals Regulation will come into effect on January 1, 2021.¹³⁴ This act similarly defines conflict minerals as those used to finance armed groups, fuel forced labor and other human rights abuses, and support corruption and money laundering, and it specifically covers tin, tungsten, tantalum and gold.¹³⁵ It will require that EU companies in the supply chain for these minerals ensure they import from responsible and conflict-free sources only.¹³⁶ These legislations will

126 Dodd Frank Act 2010, s (c)(1)(B)(ii) & (iii) <https://www.govtrack.us/congress/bills/111/hr4173/text>.

127 Dodd Frank Act 2010, s 1502(p)(2)(B) <https://www.govtrack.us/congress/bills/111/hr4173/text>.

128 Dodd Frank Act 2010, s 1502(p)(1)(A)(i) & (ii); s 1502(p)(1)(B) <https://www.govtrack.us/congress/bills/111/hr4173/text>.

129 Dodd Frank Act 2010, s 1502(e)(4) <<https://www.govtrack.us/congress/bills/111/hr4173/text>>. Under the Act, the Secretary of State must produce and update every 180 days a ‘Conflict Minerals Map’, of mineral-rich zones, trade routes, and areas under the control of armed groups in the DRC and adjoining countries. Dodd Frank Act 2010, s (c)(2)(A)(i) & (c)(2)(C). The Secretary of State also must add minerals to the list ‘as appropriate’ by publishing in the federal registrar notice of intent to declare a mineral as a conflict mineral. Dodd Frank Act 2010, s (c)(2)(D). The Secretary of Commerce must report the accuracy of the private sector audits and other due diligence processes, recommend ways to improve accuracy of such audits, and list all known conflict mineral processing facilities worldwide. Dodd Frank Act 2010, s (c)(3).

130 Covered countries include Angola, Burundi, Central African Republic, the Republic of the Congo, Rwanda, South Sudan, Tanzania, Uganda, and Zambia. Dodd Frank Act 2010, s 1502(e)(1). <https://www.govtrack.us/congress/bills/111/hr4173/text>.

131 According to Investopedia, an issuer is a legal entity that develops, registers and sells securities to finance its operations, which may be corporations, investment trusts, or domestic or foreign governments. Adam Hayes, ‘Issuer’ *Investopedia* (2018) <https://www.investopedia.com/terms/i/issuer.asp>.

132 United States Code 1998, s 78dd-1 (a).

133 United States Code 1998, s 78dd-2 (g).

134 European Commission, The Regulation Explained (2018) <http://ec.europa.eu/trade/policy/in-focus/conflict-minerals-regulation/regulation-explained/>.

135 *ibid*.

136 *ibid* 150.

hopefully also serve as effective models for legislation that diminish and expose conflict within the international minerals trade.

Notably, in December 2015 China adopted the Due Diligence Guidelines for Responsible Mineral Supply Chains, based on the OECD Guidance, but it has not yet enacted national legislation to back this up.¹³⁷ China has invested considerably in the African minerals trade, especially regarding cobalt. Eight of the 14 largest cobalt miners in the DRC are Chinese-owned, and China produces more than 80 percent of the production of cobalt chemicals needed to make batteries.¹³⁸ Most recently, the Chinese companies China Railway Engineering Corporation ('CREC') and Sinohydro, established a \$9 billion joint Sino-Congolese venture, named Sicomin, designed to provide the DRC with \$6 billion of infrastructure in exchange for copper and cobalt mining concessions, and \$3 billion in developing new mining areas.¹³⁹ However, this deal was scrutinized under allegations of corruption when the \$23 million signing bonus for Gecamines, the Congolese partner involved, disappeared.¹⁴⁰ These sorts of allegations are standard in Chinese-financed programs that typically lack transparency, despite generally increased adherence of Chinese companies to corporate social responsibility principles.¹⁴¹ Thus,

as China's presence in the African minerals trade grows, it is particularly important that it enact additional national legislation to increase transparency and decrease corruption in the cobalt trade.

3.2 Dodd Frank Act: Improvements

The Dodd Frank Act has the potential to serve as an example for future national legislation. However, there is much room for improvement within the future legislation of other nations. Much like the due diligence guidelines, the act focuses mostly on areas of high conflict, and makes no mention of damage to the environment or people living in the surrounding communities of the mines. The definition of 'conflict minerals' also only includes four minerals and excludes many important minerals involved in lithium battery production, such as cobalt. This is one reason why some critique the Conflict Minerals section as being too vague, which creates additional obstacles to effective and efficient compliance.¹⁴² Without defining 'conflict minerals' to include any minerals coming from both low and high conflict regions, there is no check on the environmental destruction and health effects of minerals from artisanal mines coming into the United States. As a solution, the language could be expanded to allow national governments to add to the list of conflict minerals if they fund conflict, violate local laws, and/or causes harm to the environment and surrounding communities.

Furthermore, although the Dodd Frank Act has the potential to expose and hold liable corporations for bribery and coercion within the mineral trading sphere,¹⁴³ there are no punitive damages or injunctions for the environmental destruction and adverse health effects that result from artisanal mining operations. Because some criticize the conflict minerals section as placing an unrealistic burden on the SEC to regulate human rights abuses, an area outside of the SEC's traditional scope or regulation,¹⁴⁴ creating liability for environmental destruction and subsequent health effects in the mining context could be much more

137 OECD, OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (2018) <http://www.oecd.org/fr/daf/inv/mne/mining.htm>.

138 Jack Farchy & Hayley Warren, 'China Has a Secret Weapon in the Race to Dominate Electric Cars' *Bloomberg* (2 December 2018) <https://www.bloomberg.com/graphics/2018-china-cobalt/>.

139 Jeremy Kelley, 'China in Africa: Curing the Resource Curse with Infrastructure and Modernization' (2011) 12 *Sustainable Dev. L. & Pol'y* 35, 38.

140 *ibid* 38.

141 *ibid* 38. Corporate social responsibility requires that companies meet legal requirements and stakeholder expectations in order to contribute to a better society through workplace actions and public policy advocacy. Almost all Chinese business leaders in Africa surveyed in 2010 were familiar with CSR and generally described CSR 'in terms of contributing to local economic growth and job creation, complying with local laws and caring for the environment, and making philanthropic donations to support schools and hospitals'. *ibid* 40. EITI compliance requires each country needs to implement EITI compliant regulations and establish a multi-stakeholder group of civil society, government, and private industry representatives to oversee implementation. Kelley (n 139) 39.

142 Karen E Woody, 'Conflict Minerals Legislation: The SEC's New Role as Diplomatic and Humanitarian Watchdog' (2012) 81 *Fordham L. Rev.* 1315, 1332.

143 Burchill (n 23) 127.

144 Woody (n 142) 1332.

feasible because they can be more directly traced to the mining activities rather than actions of third-party groups and broader civil unrest in the nation in question. This is still an ongoing problem in the cobalt trade that must be addressed by national legislature in order to ensure that no more people are harmed in the making of lithium-ion batteries. Thus, expanding liability within national legislature to any damage to the environment, and subsequently human health, is vital to ensuring that artisanal mines will neither exacerbate environmental destruction, nor continue to cause adverse health effects for local populations situated in and around the mines.

As another improvement to any future national legislation modeled off of the Dodd Frank Act, some scholars suggest that legislation should require companies trading in conflict minerals to create different regulations for individual minerals, rather than simply lumping them all together under the same scheme.¹⁴⁵ For example, since gold is so much more valuable than other currently listed conflict minerals, smugglers tend to fly their supplies over borders to avoid dealing with land-based regulations.¹⁴⁶ Encouraging companies to create specific strategies for each mineral could help ensure that illegal mines and minerals do not fall through the cracks due to generalized protections that allow for loopholes to trade uncertified minerals.¹⁴⁷

Specifically regarding China, Chinese companies typically do not consider the development of social indicators beyond economic growth, such as socio-political development, as preconditions for economic development assistance and sustainable development.¹⁴⁸ Thus, because it is poised to be a dominant player in the mining industry, particularly in politically tumultuous nations such as the DRC, it is essential that China creates national legislation for its businesses to compliment the due diligence guidelines, and the Dodd Frank Act can serve as a valuable example of such legislation. In particular, Chinese legislation must seek to enhance transparency and strengthen both the socio-political development and economies of the DRC and all other nations known for corruption.

¹⁴⁵ Gobrecht (n 117) 426.
¹⁴⁶ *ibid* 427.
¹⁴⁷ *ibid* 426.
¹⁴⁸ Kelley (n 139) 36.

3.3 Complimentary Legislature: Tax Incentives

In addition to punitive damages, some suggest that tax incentives designed to reward technological innovation with reduced rare minerals can help corporations to diversify supply chains for rechargeable batteries and, ultimately, to curb their dependence on conflict minerals.¹⁴⁹ Currently, since almost all existing technologies rely on rare elements in order to function, increasing incentives to develop technologies that depend on more abundant elements will help ease the pressure put on mines to produce rare and expensive conflict minerals.¹⁵⁰ Similarly, tax incentives can help encourage companies to design recycling mechanisms for lithium-ion battery minerals in order to curb dependence on cobalt from artisanal mines, such as those in the DRC. Currently, there is very little recycling of rare minerals, and the majority are simply thrown away at the end of the battery's life.¹⁵¹ Tax incentives can help to bring more attention this issue, as well as to encourage governments and businesses to continue to develop green technologies with less dependence on rare minerals from conflict nations.¹⁵²

However, legislation must also address the impact of reducing trade of conflict minerals on the artisanal miners job security and livelihoods. One article found that diminished corporate interest in the Congolese mineral trade is devastating for local communities because in most mining communities, artisanal mining is the only paid employment available.¹⁵³ Often, there is no other work available except subsistence agriculture or joining a militia.¹⁵⁴ In order to avoid leaving affected populations with no safe alternatives to support themselves, as well as perpetuating conflict, some suggest providing monetary assistance to affected mining communities, hiring displaced workers as taggers or otherwise involving them in a minerals tracing program (such as the theoretical program

¹⁴⁹ Eichner (n 11) 281.

¹⁵⁰ *ibid* 280.

¹⁵¹ *ibid* 274.

¹⁵² *ibid* 274.

¹⁵³ Brian Stuart Silverman, 'One Mineral at a Time: Shaping Transnational Corporate Social Responsibility through Dodd Frank Section 1502' (2014) 16 *Or. Rev. Int'l L.* 127, 150.

¹⁵⁴ *ibid* 150.

discussed above), as well as collaborating with local participants to implement Dodd Frank's Conflict Minerals requirements.¹⁵⁵

CONCLUSION

In order for the world to sustainably transition into an age of ZEVs and energy storage without causing further harm to the environment or to people, the international regulations surrounding the trade of minerals for lithium-ion batteries require expansion and precision. The OECD and UN due diligence guideline must incorporate language that accounts for areas where environmental pollution from artisanal mines adversely affects the health of surrounding communities.¹⁵⁶ Specifically, 'harm to people' must include people residing in low-conflict areas, or areas outside of active war zones, notably within and around the mines for cobalt, whose health is at risk due to pollution from the mines. In order to adequately encompass harm to the environment upon which these populations depend, guidelines should require companies to conduct environmental assessments of artisanal mines, regardless if they own them, to ensure that they do not pollute nearby rivers and waterways. In addition, due diligence standards must also require that companies guarantee effective local government oversight of these issues by providing them with resources to monitor the environmental and health effects around the mines, as well as to comply with the local Congolese mining code.¹⁵⁷

As enforcement mechanisms for these voluntary soft law schemes, an international certification scheme such as the Kimberly Blood Diamond Certification could incentivize companies trading minerals such as cobalt to follow through with due diligence efforts. Similarly, this certification must not only encompass high conflict areas, but also low-conflict areas that suffer from environmental destruction and pollution from the mines. In addition, the certification must also encourage participating nations to enact legislation such as the Dodd Frank Act or the upcoming EU Conflict Minerals Regulation, if they have not already done so. All legislation should include punitive damages for

companies that do not follow through with due diligence or otherwise continue to not meet the certification's requirements.

Further research is needed to concretely connect the polluted water in communities surrounding artisanal mines with cobalt mines, as well as to determine whether and which mining companies are already taking environmental destruction into account when issuing their due diligence reports. Alternatives to lithium batteries, especially cobalt, will be essential looking forward, as well as more ways to efficiently recycle these batteries and minerals.¹⁵⁸ However, it is also essential to find a balance between reducing dependence upon conflict minerals for future technologies and the maintenance of the job security and livelihood of local populations who depend on artisanal mining to survive.¹⁵⁹

In the meantime, legislature and guidelines protecting against human rights abuses and damage to the environment will ensure that artisanal mining communities in low-conflict zones receive the attention that they deserve. In doing so, the world may adopt increasingly rigorous climate change policies that no longer lead to suffering and environmental destruction.

¹⁵⁵ *ibid* 151.

¹⁵⁶ Mária and Taka (n 23) 147.

¹⁵⁷ Mária and Taka (n 23) 143; De Brouwer (n 41) 65.

¹⁵⁸ Eichner (n 11) 274

¹⁵⁹ Silverman (n 153) 150.

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