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Is the Extractive Industry Transparency Initiative (EITI) sufficient to generate transparency in environmental impact and legacy risks? The Zambian minerals sector.

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Abstract

Developing administrative and financial mechanisms to achieve transparency and compliance with legal frameworks related to mine operation and closure is a major challenge. Ensuring the appropriate level of disclosure, transparency, and accountability of all compliant and non-compliant parties, and accessibility of this information to external interested parties is a cornerstone of achieving a well-governed minerals sector. This research investigates mining company voluntary environmental disclosures in Zambia as an indicator of how the EITI may or may not achieve transparency and accountability. Our research findings drew on three sources: literature review, qualitative primary data with EITI and government officials and content analysis to compare public environmental reporting via company websites of a total of 27 mining companies operating in Zambia. Our analysis found that non-EITI and EITI selected companies disclose similar provisions for environmental liabilities at country, subsidiary, or multinational level. While EITI compliance may improve the environmental financial disclosure by mining companies, the detail and specificity of the voluntarily disclosed information is insufficiently transparent to third parties investigating whether governments and companies are compliant with the law in terms of environmental and governance considerations. We propose solutions to achieve transparency in practice by linking aggregated international voluntary initiatives (akin to the EITI) with mandatory jurisdiction-level reforms in mining financial securities and mine closure legislation accounted at the tenement level that is publicly available. Such reforms enable both independent accounting of financial transactions and improved national capacity for minerals sector governance that attracts international investment and incentivises an innovative, environmentally sustainable, and an economically beneficial mining industry.

Keywords: Extractive industry; minerals; transparency; environmental; legacy.

1. Introduction

The literature on high-achieving companies in terms of environmental disclosure and performance points to the benefits of using objective environmental performance indicators (voluntary disclosure theory) (Clarkson et al., 2008; Dye, 1985). Clear and informative disclosures about a mining activity's productivity, regulatory compliance, and environmental impact is deemed important for many investors when evaluating a company's value and future prospects, as well as opportunities and risks (Holm and Rikhardsson, 2008; Iatridis, 2013b).

It is widely assumed that companies disclosing voluntary environmental information tend to employ less environmentally harmful practices (Al-Tuwaijri et al., 2004; Clarkson et al., 2008). Yet Iatridis (2013b) highlights that voluntary disclosures would not necessarily reflect improved environmental stewardship. In regards to the relationship between disclosure and environmental

performance, socio-political theorists argue that negative associations between environmental performance and increased disclosure arise when poor environmental performers face greater political and social pressures, and attempt to increase discretionary environmental disclosure to change stakeholder perceptions about their actual performance (Clarkson et al., 2008; Gray et al., 1995; Patten, 2002)¹. Multinational mining companies who do adhere to ‘best practice’ principles of effective law enforcement and mechanisms to ensure an auditable accounting process², are likely to strengthen their local and international social licence to operate, reinforce their positive corporate governance performance with investors and stakeholders, and build a portfolio for other business opportunities (de Villiers and van Staden, 2010; Deegan and Blomquist, 2006; Holm and Rikhardsson, 2006; Rikhardsson and Holm, 2008; Simnett et al., 2009). One study found that the attributes of the company in question (size, the need for capital, profitability, and capital spending) are positively associated with environmental disclosure quality (Iatridis, 2013a). As such, there is a challenge to policymakers to ensure that all companies within their jurisdictions (including those that do not exhibit attributes that are positively associated with quality information disclosures) appropriately account for the benefits, whilst minimising negative consequences, of extractive industries. Understanding payments made by mining companies to governments directly or indirectly are important to this end.

In 2002 the campaign Publish What You Pay (PWYP) was launched by a coalition of NGO’s, such as Global Witness along with other founding members, CAFOD, Open Society Institute, Oxfam GB, Save the Children UK, and Transparency International UK (PWYP, 2014). The objective was to find a commitment for all extractive resource companies to disclose their payments to governments so as to foster a more accountable system for the management of natural resource revenues. In the same year, at the World Summit for Sustainable Development in Johannesburg, Tony Blair, United Kingdom’s Prime Minister at the time, launched the Extractive Industry Transparency Initiative (EITI) as the future global transparency standard. The EITI was established through a partnership of governments, industry, civil society and investors. The ultimate goal of the EITI is to lead to improved sustainable development outcomes through public debate over the effective allocation of resource revenues and public finances (Haufler, 2010). Franks (2015) who describes EITI as a kind of disclosure standard implemented by governments (e.g. rather than a voluntary standard for companies) considers it to have ‘made impressive gains for the transparency agenda’ (p118) but states that the challenge is now to turn what is essentially a reporting process, into better natural resource management.

Our overall objective for this research was to understand whether EITI improves voluntary environmental disclosures by mining companies and achieves transparency. To ensure contextual comparability we focused on the mining sector within one country, choosing Zambia because of its commitment to and uptake of the EITI. We established two aims for the research as follows.

The primary aim of the research was to measure the level of specificity of disclosure of environmental policies and outcomes of mining companies that operate in Zambia, and compare EITI reporting companies to similar non-EITI reporting companies. These disclosures were analysed from the perspective of whether they achieve transparency in practice with respect to interested third parties, and also in relation to company accountability. We follow the rationale of Fox (2007), that disclosure or transparency do not directly correlate with accountability, where the latter is aligned with the broader EITI goal for sustainable mining outcomes.

Section 2 examines the research context, and the following section includes data sources, and methods for evaluating environmental disclosures. The results are presented in section 4. Sections 5 and 6 (discussion and conclusion, respectively) examine the results in terms of improving mining company transparency and accountability alongside government capacity to facilitate approaches where jurisdictions can innovate towards an environmentally sustainable and economically beneficial mining sector that minimises future legacy risks.

¹ Although this research does not focus on the relationship between environmental disclosure and performance, the authors would like to acknowledge research by those who have pursued this goal.

² Including an appropriate level of information disclosure and clear analysis with the ability of third-party interrogation of primary data.

2 Research context

To place our research in context, we briefly consider Zambia's economy and mining sector (2.1), followed by an outline of the EITI and Zambia's EITI (2.2). We highlight the importance of environmental responsibility, financial securities for environmental rehabilitation and historical mining legacies (2.3), before explaining the Zambian Environmental Protection Fund (EPF) framework, in relation to cases of mine abandonment (2.4).

2.1 A snapshot of Zambia's economy and mining sector

Historically, the copper sector has dominated Zambia's mining industry, providing around 60-70% of domestic product and 90-95% of government revenue in the 1960s (Larmer, 2005). In 1969 Zambia was classified as a middle-income country with a per capita income higher than Brazil and South Korea. After the mid-1970s, Zambia's copper sector came under pressure from plummeting world copper prices, limited re-investment by the government-owned mines, with revenues largely used to subsidise social welfare and infrastructure as part of a humanist developmental philosophy (Lungu, 2008). Foreign borrowings and adoption of economic liberalisation policies promoted by the World Bank and the International Monetary Fund lead to major cuts in public expenditure, the introduction of user fees and the privatisation of over 250 parastatals companies that represented 85 per cent of the Zambian economy (Larmer, 2005). According to Lungu (2008, p409) "...The government sold the mines when the price of copper was low and the company was incurring year-on-year losses. This made it a buyer's market, and the assets given away cheaply with few strings attached. Second, the World Bank pushed the government to sell the assets quickly". In a relatively short period, the ownership structure of Zambia's copper mines change dramatically with the entry of private multinational companies (Fessehaie, 2012). Table 1 presents some of economic figures, and the relevance of natural resources in Zambia's GDP.

Table 1: Zambia population, GDP, inflation and total natural resources rents over time. Source: (Bank of Zambia, 2013; World Development Indicator, World Bank database).

Year	1990	2000	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total natural resources rents (% of GDP)	20.72	5.48	20.80	22.07	17.95	18.55	21.78	21.74	19.66	19.44	..
GDP growth (annual %)	-0.48	3.90	7.90	8.35	7.77	9.22	10.30	6.34	6.73	6.71	6.00
Population, total (millions)	7.8	10.1	11.7	12.1	12.4	12.8	13.2	13.6	14.0	14.5	15.0
Inflation rate (%)			8.2	8.9	16.6	9.9	7.9	7.2	7.3		

In recent years mineral and energy resources have opened a new investment boom, with China cancelling Zambia's bilateral debt in 2007 and announcing a US\$800M in new investment (Carmody, 2009). In 2013, Zambia and Uganda were the only African landlocked developing countries that had foreign direct investment inflow above US\$1,500M (United Nations Conference on Trade and Development (UNCTAD), 2014). Presently, Zambia is a service-oriented economy with the tertiary sector at 53.7% of GDP, manufacturing at 7.9%, agriculture at 9.9%, and mining at 12.9%. The export shares in 2012/2013 significantly constitute copper and related products (66.7%), followed by agricultural products (3.5%) and gold and precious stones (3%) (Bank of Zambia, 2013; World Bank, 2014).

2.2. A general overview of EITI and Zambian EITI

In early 2014 during the period in which the data analysis was undertaken, the EITI was a multi-stakeholder coalition composed of 89 extractive corporations, 94 institutional investors, 21 partner organisations, 8 members of international civil society, 27 compliant countries, and 17 candidate countries (EITI, 2014). Aaronson (2008) highlighted some improvements in the business climate (economic growth regulations) and, the voice and accountability scores (the ability of citizens to influence government and hold it accountable) improved significantly more for EITI than non-EITI countries on average. However, according to Demissie (2014) and Williams (2011) EITI participation appears to be negatively related to GDP growth.

The disclosure of revenue stream official payments and its disaggregation, that is often secret, inaccessible, and unpublished (Haufler, 2010), is an effective means of discovering major inconsistencies³ in revenue flow system and in the public supervision systems (Ölcer, 2009). National governments are attracted to the EITI as it is expected to escalate their prospectivity as a domestic and foreign investment destination (Aaronson, 2001), along with other incentives in the form of aid and diplomatic support as pledged by UK and other governments (Haufler, 2010).

The provisions of the EITI are voluntary, and the candidate countries are required to constitute a multi-stakeholder group (MSG), that with the support of a national secretariat meet regularly to monitor and oversee the disclosure and reconciliation process. An independent administrator who reconciles the payments from industry and the receipt of revenues to government leads this process. EITI requires that civil society be represented in the MSG, and that the composition process be open and transparent (EITI International Secretariat, 2013; Revenue Watch Institute, 2008).

The participative role of civil society organisations, combined with press freedom, is expected to empower citizens to hold governments accountable for the management of revenues. In practice, developing countries can be characterised as having a weak and often persecuted civil society (Acosta, 2013), an ineffective communication with citizenry (Aaronson, 2011), and lack of capacity building to monitor transparency and accountability initiatives. Recognising this, in 2008, EITI++ was launched, and a multi-donor trust fund managed by the World Bank provides technical support to EITI implementing countries and civil society. Through technical assistance EITI++ aims to improve the entire chain of managing: regulatory capacity; local technical skills (governments and civil society organisations); operations monitoring; tax collection; economic management decisions, and; public management (World Bank, 2013).

From an industry perspective, although some authors suggest that EITI transfer all the pressure from companies to government disclosure (contrary to the PWYP campaign) (Hilson and Maconachie, 2008), the disclosure of revenue streams, and the mining contracts or cadastre, increases public awareness of ‘millionaire concessions’ and non-advantageous deals for the country. At the same time it demonstrates a poor capacity of governments to negotiate investment agreements. Importantly, it makes disclosure mandatory for the companies that match the criteria defined by the MSG, as well as ascertains the disclosure items consensually decided (industry included).

There are nonetheless, major criticisms of the EITI, which include: the limited, poor quality, and inconsistent data presented in the reports (Brynildsen et al., 2013; Hilson and Maconachie, 2008; Ölcer, 2009); the low impact on corruption rankings by EITI member states (Haufler, 2010; Ölcer, 2009) - albeit with some exceptions, including Azerbaijan, Liberia, Cameroon, Kazakhstan, and Mali (Aaronson, 2008); and a ‘soft’ effect on Highly Indebted Poor Countries (HIPC) rankings⁴ (Hilson and Maconachie, 2008). Some authors have emphasised that a broadening of scope of the EITI into areas of human rights, and linking to judicial institutions would give more credibility and help to enforce transparency and accountability (Ölcer, 2009). Franks (2015) suggests that it is now time to move towards getting mining companies to move beyond reporting alone and treatment of EITI as kind of ‘brand’ without much other substantive meaning and for them to start living up to explicit standards of performance.

In practice, EITI requirements and achievements are evolving and rely significantly on the national MSG dynamics, stakeholders, and political environments. The Revenue Watch Institute (2008, p23) published an expected path to EITI implementing countries, starting with EITI Basic, which considers the “disclosure of all payments by participants in oil, gas, and mining sectors; independent, third party reconciliation; reconciliation of payments reported, and discrepancies found to be publicly disclosed; and EITI reconciliation findings to be published regularly”. The mandate within EITI is also broadening in terms of the spectrum of scope, moving from reconciliation of

³ For example, in Nigeria the actual amount of oil produced is not known, and the tax assessments submitted by two companies do not match their own internal audited financial statements (Nigeria Extractive Industries Transparency Initiative (NEITI), 2012)

⁴ Several of Africa’s major solid mineral producers are also classified by the World Bank as HIPC, including Ghana (gold), Tanzania (gold), Guinea (bauxite), Zambia (copper), and the Democratic Republic of Congo (copper, cobalt, and coltan) (Hilson and Maconachie, 2008).

financial flows towards value-for-money investment analysis, project benchmarking and moving beyond revenues and regional and local supply chain allocations, distribution, receipt and usage (Revenue Watch Institute, 2008).

In 2007 the government of the Republic of Zambia requested support from the World Bank to carry out an EITI scoping study to assess stakeholder governance receptivity and provide practical guidance to the government on how to implement the programme (EITI, 2009). Zambia joined the EITI in 2009 as a candidate country and became compliant on the 19th September 2012, with the presentation of the first reconciliation report relative to 2008 results (pwc, 2011). Since joining Zambia has published four reconciliation reports, and an EITI bill is under evaluation by the government and by the Zambia Extractive Industries Transparency Initiative (ZEITI) Council (Moore Stephens LLP, 2014b). The establishment of the ZEITI arose from the tension among the major stakeholders (mining companies, the government, and civil society organisations) over the privatisation of mines in the early 1990s, the perceived lack of transparency in the negotiations of the mining agreements, exactly what amounts mining companies were paying to the government, and lack of multi-stakeholder dialogue (Zambia Extractive Industries Transparency Initiative (ZEITI), 2014). The companies' inclusion criteria are defined consensually by the MSG and may vary over time. The companies that fit the criteria are obliged to present their payments and all other additional information requested by the MSG. For example, in the 2008 EITI reconciliation process the MSG required that only companies with large-scale mining licences operational in 2008, and a quantum of mineral royalties paid over 200 million Zambian Kwachas (pwc, 2011: 16) would be approached by the independent administrator.

2.3. Mine abandonment, historical legacies, and provisioning

Mining activity can have a significant impact on the environment and societal dimensions of human life for the entire mining life cycle, including the legacies of prematurely closed and abandoned mine sites. Although during our interviews it was stated that officially there were no recorded abandoned mines in Zambia, we visited one abandoned dump site where efforts were being made to rehabilitate it. Clearly, the available literature outside official reports in relation to mine abandonments and environmental considerations shows a contradictory record. For example, according to the World Bank (2011), the mining sector in Zambia has over 70 years of operation, and during the 1980-90's the poor economic performance of the mining sector was associated with inadequate handling of environmental issues, and was exacerbated during privatisations since new investors were unwilling to accept legal responsibility for historical environmental liabilities. The World Bank reported that the mining-induced environmental and public health liabilities in Zambia's Copperbelt and Kabwe include copper smelters emitting 300,000 to 700,000 tons of sulphur dioxide (SO₂) per annum, affecting health of residents in adjacent communities, particularly in terms of respiratory health. The SO₂ emissions were generating sulphuric acid (H₂SO₄), acidifying soils and causing vegetative loss downwind. Additional environmental contamination was due to NO_x and organic acids entering streams and affecting aquatic fauna. The mining operation chemicals and oils with polychlorinated biphenals (PCBs) and other hazardous wastes (including uranium tailings) further contributed to local contamination. The impact of water pollution from leaking waste rock dumps and tailings dams extended as far as the Kafue River, its tributaries, and wetlands. The risk of catastrophic tailing mining dam failure also presents a major risk with poor maintenance combined with proximal settlements. In addition to copper mining issues on the Copperbelt, ZCCM-IH⁵ faces serious liabilities related to lead and zinc mining in Kabwe. About 50,000 residents (including 9,000 children) were affected by high lead levels in the soil, due to a combination of naturally occurring mineralisation and smelting and mining operations (World Bank, 2011). According to Blacksmith Institute and Green Cross Switzerland (2013), back in 1902 rich deposits of lead were discovered, leading mining and smelting operations to run almost continuously for over 90 years without the government adequately addressing the dangers of lead and associated heavy metals contaminating the surrounding areas.

⁵ Zambia Consolidated Copper Mines – Investment Holdings, is a successor of ZCCM. The Company's majority owned by the Government of the Republic of Zambia (GRZ) with nearly 90% shareholding.

As a consequence of these historical legacies, in 2000, the Government of Zambia received a US\$19M loan and a US\$21M grant from the World Bank and a US\$10.8M loan from the Nordic Development Fund to address mining environmental liabilities and improve future compliance with environmental and social regulations (World Bank, 2011). The funds were earmarked for six Copperbelt towns Ndola, Kitwe, Chingola, Mufulira, Luanshya, in addition to Kabwe; one of the world's most polluted towns. These loans impacted directly on communities' health and conducted to important reforms such as the Environmental Protection Fund (EPF) and other social regulations, but our interviewees expressed some apprehension about the framework impact in practice. These apprehensions included: an inadequate capacity to enforce the law, limited numbers of inspectors and expertise, inefficient and ineffective monitoring, lacking standards and guidelines for mine closure procedures, large numbers of artisanal miners unaware of the EPF, environmental and political interference (overruled by other ministries), bond securities requests to be domiciled in foreign bank accounts abroad, historical liabilities when new owners are asked to fulfil the environmental protection regulations, and non-compliance with EPF payments.

Environmental audits and pollution control practices need to be implemented in a regular basis, in a sector that requires more qualified staff and a substantially bigger budget (Lindahl 2014). Being able to monitor the environmental impacts of mining activities will allow an evidenced-based analysis of environmental impact assessment reports and other important documents submitted by mining companies, and a close intervention with local authorities if environmental offences are reported.

A proactive and preventive approach to protect the environment that engages local stakeholders, the Mine Safety Department, the Mining Advisory Committee and the Zambia Environmental Management Authority and mining companies, may result in better compliance and more effective interventions addressing mining environmental liabilities, especially when a license is completed or a mine is derelict.

2.4. Zambian Mine closure provisioning and the Environmental Protection Fund

The specific provisions for mine closure, such as the mine closure plans focused on ecological, social and safety aspects, as well as financial provisioning are important instruments for all the parties engaged or impacted by mining activities. In Zambia three directors within the Ministry of Mines, Energy and Water Development (MMEWD) are responsible for administering the provisions established in the Mines and Minerals Development Act (MMDA) of 2008 (Government of Zambia, 2008; International Council on Mining & Metals (ICMM) and Chamber of Mines Zambia (CMZ), 2014). They comprise the Mine Advisory Committee (MAC), along with a representative each from the ministries responsible for environment and lands, and one person nominated by the Attorney-General (MMDA, s88(1)). The MMDA states the conditions for the grant or renewal of a licence shall include “the rehabilitation, levelling, regressing, reforesting or contouring of such part of land over which the right or licence has effect as may have been damaged or adversely affected by prospecting operations, mining operations or mineral processing operations” (MMDA, s116(c), p130). In Zambia mine closure planning and/or rehabilitation regulations are included in The Mines and Minerals (Environmental) Regulations, Statutory Instrument 29 of 1997 and Statutory Instrument 102 of 1998.

The Mines Safety Department (MSD) is the regulator agency responsible for enforcing the relevant legislative and statutory instruments on mine closure planning, environmental, and safety issues, including the Mines and Minerals (Environmental) Regulations, Statutory Instrument 29 of 1997 and Statutory Instrument 102 of 1998. The MSD has the responsibility to monitor and undertake remediation activities for environmental legacies, from the small-scale mining and exploration sectors, and administer the EPF (financial security) (Lindahl, 2014). The EPF assures funds for the rehabilitation of mining areas where a holder of a mining licence fails to do so. Although the EPF was a statutory entity established by the 1995 Mines and Minerals Act (MMA) (Government of Zambia, 1995), it was only operationalised in 2007 under the World Bank's Copperbelt Environment Project (World Bank, 2011). The Regulations Statutory Instrument 29 (1997), part VIII obliged the developer to contribute to the EPF (s65(1)), and “the contribution shall be deposited with the Fund over a period of five years beginning the year the prospecting, exploration or mining operations are commissioned

in the case of new ones or when the developer submits an approved [Environmental Impact Statement] in the case of existing mines...” (s66(3)).

Based on interviews held with MSD representatives, the EPF is currently managed by the Ministry of Finance, in coordination with the Department. A Fund Manager is expected to be hired in the future, to be responsible for the EPF, once sufficient contributions have been made. Table 2 shows the cash contributions and bond system of the estimate costs of closure in the Environmental Impact Statement (EIS), relating it with the mining operation phase (from category 1 to category 3). It is estimated that the developer contributions to the EPF successively decreases over the five-year implementation period, depending on how quickly the project moves from environmental category 3 to 1. According to the World Bank (World Bank, 2011) the amount collected from 30 mining companies was US\$8 million below the projected and expected required amount. Zambia is the only country disclosing this financial security for environmental rehabilitation in EITI’s final reporting template, starting it in the first report published in 2012.

Table 2: Fund contributions according to the categories in which the project stands and needed intervention, under the MMA (Environmental) Regulations Statutory Instrument 29 (1997) - Eleventh Schedule, Regulation 66).

Category 1		Category 2		Category 3	
Basis: Actions taken to rehabilitate		Basis: Environmental compliance capability		Basis: Operational and strategic environmental protection requirements	
<ul style="list-style-type: none"> • ‘Progressive rehabilitation carried out; • Whether rehabilitation has been properly monitored; and • Whether the annual rehabilitation audits show progress to meet the target of the environmental impact statement to manage environmental pollution’ 		<ul style="list-style-type: none"> • ‘The financial capability to complete the rehabilitation of the mine area; • The materials in place for total mine area rehabilitation; • Whether suitable expertise is provided for the organisational structure; and • Whether the developer or the person who holds a mining licence or permit has an approved EIS or project brief’ 		<ul style="list-style-type: none"> • ‘An approved EIS or project brief; • Discharges of mining operations are permitted or licenced; • Post-mining land use and slope and profile design, allowing stable land rehabilitation within the mining or permit area; and • A water management system is in place or designed to contain, treat, discharge or dispose of contaminated water.’ 	
Cash contribution	% bond of estimate costs of closure in EIS	Cash contribution	% bond of estimate costs of closure in EIS	Cash contribution	% bond of estimate costs of closure in EIS
5%	95%	10%	90%	20%	80%

3. Materials and Methods

This research draws on a literature review, document analysis, and qualitative primary data (interviews) in Zambia (Kitwe) in March and April 2014, with Zambian government representatives from the Mine Safety Department (regulator agency on mine closure), and included a visit to one abandoned mine. The two interviews enabled us to better understand the Zambian mining regulatory framework, governance, mining provisions for closure and issues faced to enforce the financial securities for mine closure (EPF). Additional, a telephone interview was performed with a representative from the Zambia EITI National Secretariat, in order to understand better the EITI in-country experience, the EPF and challenges faced by the Secretariat. The Environmental Protection Fund is the only environment payment disclosed in Zambia’s EITI reports.

Comparing and measuring the level of environmental data disclosure and its extensiveness in Zambia relied heavily on mining company websites. To build the case study sample we drew upon two sources: Zambia’s EITI reporting companies and a sample of companies listed in the mining

cadastre. In Zambia's EITI reports⁶ from 2008, 2009, 2010, 2011, a cumulative list of thirty-two reporting companies was evident, but just seventeen of these had a website. Six subsidiary companies belonged to three different holding groups (China Nonferrous Metal Mining Co., Ltd, First Quantum, and Glencore), so the final number of EITI reporting companies within our sample was fourteen. In the analysis of the Zambian mining cadastre the existence of several permits and licenses were found: 902 active prospecting permits/licenses; 190 active small-scale gemstone; 377 active small-scale mining; 79 active large-scale mining, and; 8 active large-scale gemstone. Focused solely on operation active licenses/permits, we concluded that when comparing the EITI selection and the mining cadastre lists, the EITI mining companies are generally large-scale operators based on a combination of the physical size of operations and quantum of mineral royalties paid to the government. From a total of 50 companies with active large-scale mining licenses and six holding active large-scale gemstone licenses, by excluding the EITI reporting firms already accounted for in our sampling, 13 non EITI reporting mining companies remained for inclusion in the research. Table 3 presents the two lists of mining companies sampled in the research.

Table 3: Sampled companies operating in Zambia.

Non-EITI sampled companies	EITI selected companies
Caledonia Nama Limited	BHP Billiton World Exploration Inc
Dangote Quarries Zambia Limited	Chambishi Metals Plc
Enviro Processing Limited	CNMC Luanshya Copper mines Plc
Jagoda Gems Limited	Denison Mines Zambia Limited
Lions Group Quarries Limited	First Quantum Mining and Operations Limited
Lubambe Copper Mine Limited	Kagem Mining Ltd
Macrolink Resources Limited	Kariba Minerals Ltd
Mwembeshi Resources Limited	Konkola Copper Mines
Neelkanth Lime Limited	Larfarge Cement Zambia Plc
Peco Limited	Maamba Coleries Limited
PLR Projects Zambia Ltd	Ndola Lime Company Limited
Redrock Resources Limited	Sable Zinc Kabwe Limited
Tamarisk Investments Limited	Universal Mining and Chemical Industries Limited
	Zambezi Portland Cement Limited

The mining companies websites were selected as the source for environmental disclosures, and we gave special attention to the annual sustainably reports; nevertheless the content analysis was extended to corporate statements, press releases, corporate magazines, videos and further information displayed in their websites. The data content was analysed and classified into an 'Environmental information disclosure index', which was based on research interests, the Global Reporting Initiative Guidelines (Global Report Initiative, 2015) and Wiseman index (1982). Environmental disclosure items on websites of mining companies operating in Zambia were classified into four categories related to:

- Biodiversity - Category 1;
- Emissions and water - Category 2;
- Company environmental policy and compliance – Category 3, and;
- Total environmental protection expenditures and investments - Category 4.

The 18 checklist criteria arising from these four categories that were used as the basis of the disclosure assessment are provided in Table 4.

⁶ Mining company payments are received by the Zambia Revenue Authority. The names of these companies are not publicly disclosed, thus the other source for selecting mining companies was the mining cadastre. The Zambian mining cadastre (<http://www.flexicadastre.com/zambia>) was determined to be the most suitable alternative option attainable.

Table 4: Environmental disclosure criteria

Biodiversity (Cat. 1)	
1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
2	Biodiversity value characterised by: The attribute of the protected area or high biodiversity value area outside the protected area (terrestrial, freshwater, or maritime ecosystem)
3	Description of significant impacts of activities, products and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas
4	Habitats protected or restored
Emissions & Water (Cat. 2)	
5	Direct greenhouse gas emissions (CO ₂)
6	NOx (nitrogen oxides), SOx (sulphur oxides), and other significant air emissions
7	Percentage and total volume of water recycled and reused
Company Policies & Compliance (Cat. 3)	
8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations
9	Environmental audit mentioned
10	Firm's environmental protection policies, strategies and goals
11	One of senior management entrusted with environment responsibility
Total environmental protection expenditures & investments (Cat. 4)	
12	Land rehabilitated
13	Remediation costs
14	Prevention and environmental management costs
15	Total number and volume of significant spills
16	Air emission information
17	Water discharge information
18	Solid waste disposal

A codification was defined according to the methodologies used by Wiseman (1982) and Sumiani et al. (2007) to the degree of specificity reported on the website of the firm; 1) Non-disclosure; 2) general information; 3) qualitative information; 4) quantitative information, 5) combination of two types of information; denoted as: 'NONE', 'GEN', 'QUA', 'QUAN', 'COMB', respectively. The level of specificity of environmental disclosures was used to determine whether it achieves transparency in practice. Identification of jurisdictional options for improved transparency was addressed from information and ideas gleaned through the overall research effort (i.e. literature, document analysis and interviews alike).

Our research was limited to mining companies operating in Zambia with freely publicly available websites, meaning that our sample is not necessarily representative of the entire sector of large-scale miners and it specifically excludes the many small scale operators active in the country. A further limitation of the research stemmed from mining company constitutions; i.e., where a subsidiary and foreign subsidiaries websites could not be found, the company constitution or joint ventures were searched, and subsequently the search took place on the holding company and multinational corporation web resources, respectively.

4. Results: EITI document analysis in Zambia

Table 5 shows EITI sampled companies reporting levels are low even when obligations to report exist. Only five out of fourteen EITI reporting companies addressed their commitment with the initiative regardless of their environmental disclosure performance. This stresses their lack of engagement with transparency 'best practice'. In all, EITI companies disclosed slightly more general information (19% vs. 5%), and published significant more materials related to direct greenhouse gas emissions (CO₂), other air emissions, and water discharge than non-EITI companies. The qualitative and quantitative content is very poor in most cases (around 4%).

Table 5: Relationship between environmental information disclosed in corporate websites (non-EITI and EITI selected companies).

#	Environmental data disclosed / Level of Extensiveness	Non-EITI Mining Companies (n= 13)					EITI Mining Companies (n= 14)				
		NONE	GEN	QUA	QUAN	COMB	NONE	GEN	QUA	QUAN	COMB
Biodiversity (Cat. 1)											
1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	12	0	1			13	1			
2	Biodiversity value characterised by: The attribute of the protected area or high biodiversity value area outside the protected area (terrestrial, freshwater, or maritime ecosystem)	12	0	1			12	1	1		
3	Description of significant impacts of activities, products and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	13					12	1	1		
4	Habitats protected or restored	13					11	2	1		
Emissions & Water (Cat. 2)											
5	Direct greenhouse gas emissions (CO ₂)	13					7	5	1	1	
6	NOx (nitrogen oxides), SOx (sulphur oxides), and other significant air emissions	13					12	2			
7	Percentage and total volume of water recycled and reused	12	0	0	1		11	3			
Company Policies & Compliance (Cat. 3)											
8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	11	0	1	0	1	11	3			
9	Environmental audit mentioned	11	0	1	0	1	10	3	0	0	1
10	Firm's environmental protection policies, strategies and goals	6	6	1			6	5	0	0	3
11	One of senior management entrusted with environment responsibility	12	0	0	1		12	2			
Total environmental protection expenditures & investments (Cat. 4)											
12	Land rehabilitated	11	2				11	3			
13	Remediation costs	9	2	0	1	1	9	2	0	3	
14	Prevention and environmental management costs	11	2	0			12	2			
15	Total number and volume of significant spills	12	0	0	1		12	1	0	1	
16	Air emission information	11	1	0	1		10	4			
17	Water discharge information	11	0	0	1	1	8	4	1	1	
18	Solid waste disposal	13					10	3	1		

Table 5 also shows the items of information that EITI selected companies are reluctant/unwilling to disclose on their websites as non-EITI companies:

- operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas, and;
- prevention and environmental management costs.

In both cases, companies prefer to disclose selective environmental information, highlighting their achievements in a particular project or country, and aggregating data describing the environmental impact of all their (foreign and local) subsidiaries. For the non-EITI sampled companies, the least environmental information items reported were the description of significant impacts of activities, products and services on biodiversity in protected areas (and areas of high biodiversity value outside protected areas), habitats protected or restored, direct greenhouse gas emissions (CO₂), nitrogen oxides, sulphur oxides, and other significant air emissions. In contrast, it was clear that both the non-EITI and EITI companies are disclosing more information related to their environmental protection policies, strategies and goals, and remediation costs. This is likely due to shareholder support and potential investor interest related to the statement of financial position. In terms of mine closure, companies used various terminologies to make reference to mine closure provisions, such as restoration costs (Dangote Quarries Zambia Limited, in financial report 2012 and 2013), environmental bonds (Peco Limited, in Annual Report 2011 and 2013), restoration provisions (Kagem Mining Limited, in Annual Report 2011 and 2014; First Quantum Mining, in Financial Report 2013; Tamarisk Investment Limited, in Report and Accounts 2010 to 2013) and provisions for environmental liabilities (Lafarge, in Annual Report 2010 to 2013). Overall, no significant qualitative variances between specific environmental disclosures of information were provided by non-EITI and EITI selected companies operating in Zambia, except the general data provided by EITI reported firms. The authors note that these disclosures are irrelevant for a country and project level analysis, as is measuring the level of compliance with environmental standards and national legislation.

5. Discussion: Linking international transparency with local environmental innovation

As presented in the previous section, the level of specificity of disclosure of environmental policies and outcomes of mining companies clearly falls short. Additionally when we look to international transparency initiatives such as EITI, and the disclosure of environmental payments and policies on the country's reconciliation reports, the findings also fall short. Based on the country's reconciliation reports published on the EITI's website in 2014, only Mongolia and Zambia have presented disclosure information on environmental payments. Mongolia reported four environmental payments in the 2012's reconciliation report (Fee for air pollution; fee for water use; contribution at rate of 50% to environment protection budget⁷; and expense for environment protection) (Moore Stephens LLP and Dalaivan Audit LLC, 2013). Zambia's reconciliation report presents the payments made to the EPF, which is in the top 10 list of payments, representing 0.4% of total revenues collected (approximately, A\$5,216,601) (Moore Stephens LLP, 2014a). Crucially, these financial security payments cannot be considered as revenues, and therefore fall outside the scope of EITI⁸. Nevertheless, its inclusion stresses the evolving dynamics of EITI's standards, the innovations⁹ and diversity proposed by the national multi-stakeholders group from each compliant country. This is particularly so when voluntary codes of conduct are an attractive alternative to direct regulation

⁷ "If a company performs rehabilitation of environment, that amount is refunded. If not, the authorities will hire specialists to rehabilitate damaged land, and invoice the company" (Correspondence via email with Mongolia-EITI).

⁸ EITI's requirement (n. 4): "The production of comprehensive EITI Reports that include full government disclosure of extractive industry revenues, and disclosure of all material payments to government by oil, gas and mining companies" (EITI International Secretariat, 2013, p10)

⁹ "Multi-stakeholder groups are encouraged to explore innovative approaches to extending EITI implementation to increase the comprehensiveness of EITI reporting and public understanding of revenues and encourage high standards of transparency and accountability in public life, government operations and in business (...) In reviewing the workplan, the multistakeholder group should consider extending the detail and scope of EITI reporting including addressing issues such as revenue management and expenditure (3.7-3.8), transportation payments (4.1.f), discretionary social expenditures (4.1.e), ad-hoc sub-national transfers (4.2.e), beneficial ownership (3.11) and contracts (3.12)." (EITI International Secretariat, 2013, p14-15)).

(Aaronson, 2001), carry political pressure, and have the ability to expose defaulters to government institutions/regulators and/or ‘watchdogs’.

While the EITI is an internationally recognised good governance and accountability initiative with some challenges to overcome, it has achieved a diversity of outcomes in different countries, differing according to the political environment, the role of MSG members, and the international community (EITI International Secretariat, 2013; Revenue Watch Institute, 2008). A major limitation of the EITI at present is that it misses the opportunity to require the inclusion of legislated mine rehabilitation and closure information and company compliance to them. Achieving a level of enhanced transparency by making publically available the details of mine site data at a high precision down the tenement level¹⁰ (in terms of land disturbance and associated rehabilitation liability) can mitigate the presently high level of uncertainty of actual historical and present environmental liability that past and present mining companies may be incurring.

In the context of the ZEITI, this will enable the Zambian government (and other jurisdictions) to accurately quantify direct and indirect financial impacts arising from the various mining activities, and also assess if the total environmental liability is able to be covered by the financial securities being implemented. This level of transparency cannot be achieved without mining companies complying with periodic reporting of the level of environmental rehabilitation liability. The associated financial implications of rehabilitation to either the company or the government (in the case of a company not complying with legislation) must be able to be reasonably estimated by indicative costs of the type of disturbance and the total area disturbed during the operation. Such high precision reporting exists with comparable legislation and fund-based financial security mechanisms (as opposed to unconditional performance bonds), and may be a cost-effective means for companies to administer, with inherent incentives ongoing rehabilitation throughout the mine life (Gorey et al., (in review). Such mechanism payments to the fund are tied to actual disturbed land types and areas for each tenement with a high level of precision.

As the present level of mining sector environmental disclosure clearly falls short of what is broadly considered to be ‘transparent’ to civil society, we suggest that better outcomes could be achieved with linking voluntary international transparency commitments from governments with mandatory monitoring, analysis, and enforcement of compliance with jurisdictional laws. Such mandatory measures must be clear and publically available down to the level of each tenement, and any associated financial security payments be designed to both incentivise innovation in mining operations towards international ‘best practice’, and improve the institutional capacity of governments to reinforce compliance to the law. In contexts characterised by weak law enforcement, limited government resources and capacity, and conflicts of interests, the adherence to transparency mechanisms anchored in a tri-party agreements (government, industry and civil society), and the inclusion of detailed environmental disclosure, (regardless of whether the mechanism entails revenues or not), holds the government and mining companies more accountable. This may lead to improvements in enforcement of financial and environmental law. However, a weak civil society, poor government institutional capacity, and very limited voluntary environmental reporting by mining companies, renders close monitoring of financial and environmental impacts of mining activities and any gaps between actual impacts and what is disclosed practically impossible. Therefore, we argue that the onus on mining companies to become transparent in practice in terms of environmental payments, requiring disclosure of actual disturbed land types and areas (on a ha basis) with a high level of precision annually. Such information instruments should be tied to legislation and financial security mechanisms to incentivise companies to adhere to and provide incentives for ongoing rehabilitation and disturbance minimisation throughout the mine life. The security mechanism payments provide ongoing funds to support administrative requirements and ongoing local capacity to enforce compliance.

6. Conclusions

In this research we set out to understand whether EITI improves voluntary environmental disclosures by mining companies and achieves transparency. We did this through a combination of

¹⁰ Some countries such as Ghana, Indonesia, Timor Leste and Solomon Islands are already disclosing in EITI’s report the revenue flows at project level.

literature review and document analysis to compare public reporting via company websites for 13 non-EITI and 14 EITI mining companies operating in Zambia. Interviews with government officials and EITI responsibility in Zambia shed further light on our investigation.

Based on our analysis in Zambia, EITI does not improve voluntary disclosure by companies, even when industry, government and civil society make consensual decisions about the type of information that should be disclosed. The current level of information disclosure in the Zambian minerals sector as an EITI compliant country is insufficiently transparent and further it lacks dedicated specialist capacity and enabling funding to determine compliance. Therefore, the current arrangements are unlikely to be transparent to civil society organisations. The arrangements undermine the notion of a multi-stakeholder group tasked with monitoring and oversight of disclosure and reconciliation in EITI processes.

The Zambian case study provides an example where the legal mechanisms and financial provisions for mine closure, and its inclusion in EITI reporting goes some way to improve the level of information disclosure. It appears, however, that it is currently impossible to de-couple financial payments from environmental impacts. To achieve true transparency in the mining sector the ultimate value of a mining activity to a society would be expressed as the financial value minus the full costs (including environmental rehabilitation liabilities). In contrast with, for example taxes and royalties, the financial payments from companies to governments associated with mining securities are a unique transaction (in the Zambian case through the EPF, but elsewhere this is commonly through a mining bond mechanism). This transaction is amenable to being used creatively by policymakers to enable civil society to easily account for and analyse payments to governments, company performance, and compliance with mining laws (McHenry et al., 2015).

An ideal EITI system would also reinforce compliance with environmental and mine closure legislation related to mining financial guaranties, and provide sufficient and clear level of transparency (as opposed to simple disclosure of information) to enable civil society both locally and internationally to scrutinise both government performance and mining company compliance. The continued evolution from the EITI at an aggregated national/company level to a project/tenement scale would improve the current lack of transparency for local communities, civil society organisations, and also local governments, regarding environmental liabilities and associated payments. At this time local entities and communities are enduring the costs of the environmental legacies without an effective means to access relevant, clear, and transparent information.

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