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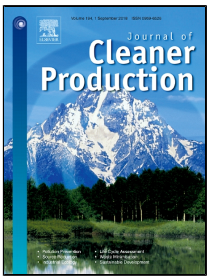

Exploring corporate social responsibility practice versus stakeholder interests in Nordic mining

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Title

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1. Introduction

Population growth, the speed of urbanization in Asia and the more sophisticated requirements of the developed world have led to an increased demand for metals (ICMM, 2013). Although mining activities may be good for the local economy, mining can also have a negative impact both on the local environment and society. In general, mining may cause conflict between corporations, the government and the communities affected by its activities, and these often concerns land ownership, unfair compensational practices, inequitable resource distribution, environmental degradation, mine induced poverty and conflicts over human rights abuses (Abuya, 2015). The negative impacts have generated a significantly increased stakeholder pressure over the last twenty years from non-governmental organizations, social movements and indigenous peoples (Kapelus, 2002).

Hence, stakeholder requirements and the expectations that a company will mitigate the negative aspects of its business and instead make a positive contribution to local society have increased (Thorén Hedin and Ranängen, 2017). Maintaining good relations with for example local authorities and politicians, neighbours, future employees and public opinion formers is important (Ranängen and Lindman, 2017; Ranängen, 2015). Corporate social responsibility (CSR) is often defined as the integration of social and environmental concerns in a company's business operations and its interactions with stakeholders on a voluntary basis (Dahlsrud, 2008). Although CSR is on the global agenda, the importance that is attached to it differs from country to country (Idowu and Leal Filho, 2009). For example, an international

organization might be faced with different aspects of CSR in its countries of operation. What is included in the concept of CSR in one country may have little or no significance in another. Stakeholder theory can be regarded as a CSR theory, because it provides a normative framework for responsible business towards society (Melé, 2008). Stakeholder management involves creating relationships and interactions with stakeholders in order to create value (Freeman et al., 2007).

The mining industry devotes serious attention to its environmental and social impacts by practicing CSR (Jenkins, 2004). Industries that utilize natural resources as part of their production are more likely to have a formal written code of ethics, environmental policies, a sense of social responsibility and associated practices (Reichert et al., 2000) and provide social and environmental disclosure (Jenkins and Yakovleva, 2006). The last two decades have been somewhat dramatic for the Nordic mining industry (Kurkkio et al., 2013). For example, Sweden is currently one of the EU's leading producers of ores and metals and major investments have been made regarding exploration (Haikola and Anshelm, 2016; SGU, 2016). The established Nordic mining companies have already started to implement CSR practice especially within labour practices and the environment, but are at different stages (Ranängen and Lindman, 2017). The question is if the CSR practice involves issues important for the stakeholders in the local mining community? Previous research has studied the Nordic mining industry's CSR practice. Ranängen and Lindman (2017) have developed guidelines for the Nordic mining industry's sustainability efforts. Beland Lindahl et al. (2016) have studied mining conflicts, stakeholder interests and ways to sustainability in a Swedish context and state that all local stakeholders cares for the local society and its future. Everyone wants to be able to stay, have a job and offer their descendants a future in the society. Everyone seeks sustainable development, but it means different things for different stakeholders. Thorén

Hedin and Ranängen (2017) also focus on the industry's CSR practice but omit the stakeholder view.

The concept 'social license to operate' (SLO) is based on the idea that mining companies need not only government permission (or permits) but also "social permission" to conduct their business. The most common definition of a SLO is that it is issued when a mining project is seen as "having the broad, on-going approval and acceptance of society to conduct its activities" (Prno and Slocombe 2012) which mean that the companies need to go above and beyond legal and regulatory requirements (Lesser et al., 2017). The social license consists of different parts, depending on the conditions in place (Mzembe and Meaton, 2013). As projects are situational and every community-company relationship is different, SLO is highly contextual (Prno 2013). SLO as a concept is both praised and criticized. Many companies have incorporated SLO into their sustainability reports and thus realized the importance of acquiring social acceptance (Bice, 2014). The criticism against the concept is that it is a cynical attempt by industry to reduce overt opposition to industry, rather than engagement for long-term development (Owen and Kemp, 2013) and for seeking acceptance and approval from stakeholders that can affect its profitability (Moffat and Zhang, 2014). In addition SLO, as the name suggests, indicates that the focus mainly is on the social dimension of mining projects with less attention paid to the environmental (Pedro et al., 2017). Nevertheless, the end result is that the industry has realized that they must operate in a more responsible manner in order to ensure that a community does not stop or hinder a project.

In the light of this development, studying the mining industry from a Nordic perspective enables us to learn important lessons for the future. The industry is in the fore front practicing CSR and is an important actor for the future demand for metals. Although mining activities may be good for the local economy, mining can also have a negative impact both on the local environment and society. The negative impacts have generated a significantly increased

stakeholder pressure. The industry needs to create value for their stakeholders in order to gain social acceptance and obtain the SLO.

This study takes a more comprehensive approach which includes the economic, social and environmental dimensions of sustainable development. The stakeholders' interests may include different parts, depending on the conditions in place. However, do the Nordic mining companies focus their CSR practice on the stakeholders' interests, or have they chosen completely different areas? This paper presents an exploratory study focusing on the Nordic mining industry and its stakeholders with the purpose to explore if CSR practice actually complies with stakeholder interests.

2. Research method

This chapter presents an overview of the different research methods used in order to explore if CSR practice complies with stakeholder interests; reviews of scientific literature and existing sustainability initiatives, guidelines and tools, a content analysis of sustainability reports and a stakeholder survey.

2.1. Building the sustainability criteria framework

Reviews of scientific literature and existing sustainability initiatives, guidelines and tools were conducted in order to identify prioritized sustainability criteria in the mining industry. A literature search was performed in 2015 in the Google Scholar, Scopus and Web of Science databases on the titles of articles, abstracts and keywords where the following terms were used; 'sustainability criteria', 'sustainability indicator', 'sustainable development indicator', 'sustainable development criteria', 'mining', 'metal' and 'extractive'. The review of sustainability initiatives, guidelines and tools included for example the UN Global Compact, the Global Reporting Initiative (GRI) framework, OECD's guidelines for multinational

enterprises and ISO 26000 for social responsibility. For more information, see Ranängen and Lindman (2017). The sustainability criteria identified in the reviews were listed and sorted into core subjects. The questions in the stakeholder survey are based on the criteria most commonly mentioned.

2.2 The mining companies

In this section, the mining companies operating in the Nordic countries when this project started are presented. General information is presented in Table I.

2.2.1 Agnico Eagle Mines Ltd.

Agnico Eagle Mines Ltd. has mines in Canada, Finland and Mexico, with exploration and development activities in each of these regions and also in the United States. The company's Finnish gold mine, Kittilä, is located in northern Finland (Agnico, 2015).

Sustainability appears to be important and the company's approach is presented on its website. It is stated that the company is committed to;

> "create value for shareholders by operating in a safe, socially and environmentally responsible manner while contributing to the prosperity of our employees, their families and the communities in which it operates" (Agnico, 2015).

This is translated into four fundamental values in a sustainable development policy: respect for our employees, protect the environment, operate safely and respect for the communities. The company's sustainability report is available on the website and the report from 2014 is included in this study.

2.2.2 Boliden AB

Boliden is a mining and metals company with core competences in the fields of exploration, mining, smelting and metals recycling. The mines are located in Sweden, Finland and Ireland

and produce complex ore containing zinc, copper, lead, gold and silver. The Swedish mines are Aitik, Garpenberg, Boliden area and Kylylahti in Finland (Boliden, 2015).

Boliden communicates its commitment to sustainable development clearly on its website. Under the heading 'sustainability', the company states its obligation to long-term sustainable development and to being the first sustainable link in the value chain of metals. This commitment is divided into social, environmental and economic responsibility, where the aim is to contribute to a positive economic and social development in the community. Boliden emphasises the importance of a dialogue with business partners. The sustainability report is available on its website and the report from 2014 is included in this study.

2.2.3 First Quantum Minerals Ltd.

First Quantum Minerals Ltd. is a mining and metals company that produces copper, nickel, gold, zinc and platinum group elements. The company's assets are located in Zambia, Spain, Mauritania, Australia, Finland, Turkey, Panama, Peru and Argentina. The Finnish mine, Pyhäsalmi, is situated in central Finland (FQM, 2015).

The company has a clear focus on sustainability and its CSR programme is divided into five key areas – governance, economics, the environment, social aspects and labour. The sustainability report is available on the website and the report from 2014 is included in this study.

2.2.4 LKAB

LKAB is an international minerals group and a producer of processed iron ore products. The Swedish mines, Kirunavaara, Malmberget, Mertainen, Leveäniemi and Gruvberget, are located in northern Sweden (LKAB, 2015). LKAB presents its strategy for sustainable development on its website, with the stated aim of becoming;

"one of the most innovative and resource-efficient mining companies in the world" (LKAB, 2015).

The strategic focus areas are; an attractive LKAB, attractive communities, responsible operations and resource-efficient production. LKAB presents a variety of policies on its website, for example personnel policy, environment and energy, work environment, code of conduct and communications policy. On its website the company highlights its work for occupational health and safety, quality and environment and the local communities. The sustainability report is available on the website and the last report from 2014 is included in this study.

2.2.5 Lundin Mining AB

Lundin Mining AB has operations and projects in Chile, Portugal, Sweden, Spain and the USA and produces copper, zinc, lead and nickel. The Swedish mine, Zinkgruvan, is located in south-central Sweden (Lundin, 2015).

Corporate responsibility is given prominence on the company's website and is divided into four focus areas: environmental responsivity, social responsibility, a safe, productive and healthy working environment, and corporate governance. Lundin mining highlights its responsible mining policy on the website with accompanying framework and guidelines. The sustainability report is available on the website and the report from 2013 is included in this study.

2.2.6 Outokumpu Chrome Oy

Outokumpu Chrome Oy is situated in Kemi, Finland and the mine produces chrome concentrates (Outokumpu, 2015). The company has a comprehensive communication about sustainability and states that;

> "sustainability always has been, and continues to be, a key element of their strategy" (Outokumpu, 2015).

Its focus areas are sustainable operations, sustainable products, climate change, product lifecycle and corporate responsibility. The last communicated sustainability report available on the website is from 2014.

2.2.7 Terrafame Ltd.

The Talvivaara mine, which was previously owned by Talvivaara Mining Company Plc., is currently operated by Terrafame Ltd. The Finnish mine is located in Sotkamo, Finland and produces nickel, zinc, copper and cobolt (Terrafame, 2015).

Terrafame's objective is to operate an environmentally sustainable, safe and economically viable mine. The mine's last annual report was produced by the Talvivaara Mining Company Plc. in 2013 and is included in this study.

Table I. The mining companies included in this study with active mines in the Nordic countries.

Mining companies	Mines	Sustainability report
Agnico Eagle Mines Ltd.	Kittilä gold mine	2014
Boliden AB	Aitik, Garpenberg, Boliden area (Kankberg, Renström, Kristineberg, Maurliden, Maurliden östra), Kylylahti	2014
First Quantum Minerals Ltd.	Kevitsa polymetallic mine, Pyhäsalmi zinc mine	2014
LKAB	Kirunavaara, Malmberget, Mertainen, Leveäniemi, Gruvberget	2014
Lundin Mining AB	Zinkgruvan zinc/lead/copper mine	2013
Outokumpu Chrome Oy	Kemi chrome mine	2014
Talvivaara Mining Company Plc [1]	Talvivaara nickel/copper/cobalt mine	2013

[1] The Talvivaara mine is currently operated by Terrafame Ltd. However, the sustainability report included in this study was produced by the former owner, Taivivaara Mining Company Plc.

2.3 Sustainability reports

The Nordic mining companies that had published sustainability reports were Agnico Eagle Mines Ltd, Boliden AB, First Quantum Minerals Ltd., LKAB, Lundin Mining AB, Outokumpu Chrome Oy and Talvivaara Mining Company Plc.[1] The reports from 2014 were

preferred but in two cases the report for 2013 have been used because reports from 2014 were not available.

A software application for qualitative text analysis called Leximancer was used to translate the content of the sustainability reports into a list of key sustainability criteria. Leximancer is a text analysis tool that can be used to analyse the content of collections of textual documents and to display the extracted information visually. Content analysis is a research tool for determining the presence of words or concepts in collections of textual documents and is used to break down the material into manageable categories and relationships for quantification and analytical purposes. Hence, this analysis provides information about which core subjects the reporting companies regard as important and which sustainability criteria are practised and communicated in each core subject.

The result of the content analysis was double checked in order to merge concepts with the same meaning or delete those that were not relevant for the study. The merged and deleted concepts are presented in Table II. The result of the content analysis is presented in section 3.

Table II. Merged and deleted concepts during the analysis of sustainability reports.

Sustainability reports	**Merged concepts**	**Common concept**	**Deleted concepts**
Boliden AB	reporting, report, reported, GRI	Reporting	areas, aspect, aspects, based, basis, during, order, period, significant, use, used, material aspect, company, development, performance
	Boliden, Boliden's, group	Boliden	
	employees, employee	Employees	
	work, working	Work	
LKAB	mining, mine, mines, ore, iron	Mining	amount, based, bene, cant, current, de, di, during, ed, million, percent, pro, SEK, sigri, ts, used, year, future, important, plan, companies, company, Kiruna
	LKAB, lkab's, board, group	LKAB	
	product, products	Product	
Lundin Mining AB	mining, mine, mines, pit, copper	Mining	including, potential, significant, total, use, year, site, sites, area, activities, process, during, areas, company,
	Lundin mining, Aqua blanca, Neves-corvo, Zinkgruvan, eagle	Lundin mining	

			development, performance
Agnico Eagle Mines Ltd.	Agnico Eagle, goldex, kittila, meadowbank, pinos altos community, communities mining, ore, mine, gold environment, environmental Employees, employees operation, operations	Agnico Eagle Community Mining Environment Employees Operation	Business, ensure, future, million, ounces, probable, reserves, tonne, tonnes, processed, development, performance
First Quantum Minerals Ltd.	First quantum, first quantum's, cobre panama, kansanshi, trident community, communities mine, mining sustainability, sustainable people, residents, families	First Quantum community mine sustainability People	area, better, build, company, development, ensure, future, life, site, team, time, use, Zambia
Outokumpu Chrome Oy	Outokumpu, outokumpu's, group, group's, plant, site, sites material, materials environment, environmental	Outokumpu Material Environment	areas, business, development, during, during, including, example, internal, issues, million, performance, process, related, results, shop, total, units, use, used, year, germany, sweden, tornio
Talvivaara Mining Company Plc.	talvivaara, talvivaara sotkamo, talvivaara's, board of directors, group, plant mine, mining, nickel risk, risks shares, share	Talvivaara Mining Risk Share	amount, area, company, COMPANY, company's, development, due, during, EUR, key, million, options, ore, period, price, process, related, reorganisation, significant, time, total, use, year, value, members, subscription

2.4 Stakeholder survey

The sustainability criteria identified in the reviews (see section 2.1) were listed and sorted into core subjects. The questions in the stakeholder survey are based on the criteria most commonly mentioned. In March 2016, an online questionnaire was sent by email to a total of 230 mining stakeholders in Finland, Norway and Sweden. The case study by Ranängen (2015) was used to identify the most relevant stakeholder groups in the Nordic countries, to which the survey was then sent. The case study identified Sami communities (the Sami members that participate in reindeer husbandry in a specific, geographical area), politicians, authorities, employees, capital markets, neighbours, owners, business partners, the media and public opinion makers as relevant stakeholder groups. Politicians and authorities included

county administrative boards, municipalities, county councils, the Mining Inspectorate of Sweden, the Swedish Environmental Protection Agency, the Sami Parliament (the representative body for people of Sami heritage in Sweden), the Geological Survey of Finland, the Finnish Safety and Chemicals Agency, the Centre for Economic Development, Transport and the Environment in Finland, regional state administrative agencies in Finland, regional councils (Finland), the Ministry of Trade, Industry and Fisheries in Norway, the Geological Survey of Norway and the Norwegian Environment Agency. Employees included union representatives. Capital markets consisted of international banks and investors and ethical funds. Neighbours included local folklore societies, athletic clubs, recreation, cultural, hunting and fishing associations. Business partners were both suppliers and customers. Public opinion makers included business associations, NGOs and labour unions.

The questionnaire was translated into each country's native language. The choice of an online survey was regarded as the best option due to the project's time frame and for easy access. The respondents were asked to circle the number that best matched their opinion for the various sustainability criteria on a scale of 1-5, where 1 symbolized 'not important at all' and 5 'very important'. The result is presented in section 3.

3. Findings

The result from the content analysis of the sustainability reports and the stakeholder survey is now going to be presented.

3.1 Core subjects and sustainability criteria in sustainability reports

The software for qualitative text analysis, Leximancer, was used to translate the content of the sustainability reports into a list of key concepts. The analysis provided information about which core subjects the reporting companies regard as important and which sustainability

criteria are practiced and communicated in each core subject. The importance is illustrated by the percentage relevance shown in descending order in Tables III-IX. Usually, a concept is linked to a specific core subject. However, sometimes a concept is linked to several core subjects. The results of the content analysis of the sustainability reports are presented below.

3.1.1 Agnico Eagle Mines Ltd.

The most relevant concepts in Agnico Eagle's sustainability report are presented in Table III. The text analysis shows that the core subject society has high relevance in the company's communication. Concepts concerning labour practices have a slightly lower percentage closely followed by the environment. The majority of the concepts relate to the core subjects of corporate governance, labour practices, society and the environment. For corporate governance, the concepts are 'stakeholders', 'system' and 'report'. The concept 'system' almost always refers to the responsible mining management system, which includes occupational health and safety and the environment. For labour practices, the concepts are 'health' and 'safety'. For the environment, the focus is on 'waste' and 'tailings'. Society is also communicated through 'communities'.

Table III. Concepts found in the analysis of Agnico Eagle's sustainability report.

Concept	Count	Relevance (%)
Mine	123	100
Agnico Eagle	97	79
communities	59	48
employees	51	41
environmental	36	29
operations	36	29
Health	31	25
Safety	31	25
Work	24	20
production	22	18
Waste	21	17
Local	20	16
stakeholders	16	13
System	15	12
Report	15	12
Tailings	15	12

contractors	12	10
programs	12	10
Project	12	10

3.1.2 Boliden AB

The most relevant concepts in Boliden's sustainability report are presented in Table IV. The text analysis shows that the core subject corporate governance is of relatively high relevance in the sustainability report. Concepts concerning labour practices have a slightly lower percentage followed by the environment. Most of the concepts are related to the core subjects of the environment, labour practices and corporate governance. For the environment, the concepts are 'environmental', 'emissions', 'water', 'waste' and 'energy'. For labour practices, the concepts are 'employees', 'health', 'safety' and 'gender'. The most prominent concepts in corporate governance are 'reporting', 'management' and 'legislation'. The concept 'management' is connected to the criteria risk management, management systems and skills management.

Table IV. Concepts found in the analysis of Boliden's sustainability report.

Concepts	**Count**	**Relevance**
reporting	136	35%
employees	128	33%
Work	96	25%
operations	76	20%
Impact	57	15%
environmental	55	14%
management	51	13%
business	47	12%
Process	44	11%
Value	41	11%
emissions	41	11%
Local	39	10%
sustainability	37	10%
production	34	9%
Metals	32	8%
Water	31	8%
Waste	29	7%
Health	28	7%
Safety	27	7%
Rights	26	7%
Gender	25	6%

Energy	25	6%
Human	24	6%
legislation	21	5%

3.1.3 First Quantum Minerals Ltd.

The most relevant concepts in this company's sustainability report are presented in Table V. The text analysis shows a clear focus on the core subject society in the sustainability report. Concepts concerning the environment have a much lower percentage, in relation to society, closely followed by labour practices. Most of the concepts are related to the core subject of society by 'people', 'community', 'local', 'project', 'programme', 'resettlement', 'farming', 'education', homes', 'health', 'school' and 'social'. For labour practices, the concept is 'health' (even though most of the time the concept refers to society). For the environment, the focus is on 'species' and 'water'.

Table V. The concepts identified in the content analysis of the sustainability report for First Quantum Minerals Ltd.

Concept	Count	Relevance (%)
Mine	131	85%
People	120	77%
Community	100	65%
Local	54	35%
sustainability	47	30%
Project	47	30%
Program	39	25%
resettlement	35	23%
Impact	35	23%
conservation	33	21%
environmental	32	21%
Farming	31	20%
Education	28	18%
Economic	27	17%
Homes	27	17%
Work	27	17%
responsibility	26	17%
Health	26	17%
School	26	17%
Species	26	17%
Social	25	16%
Water	25	16%
construction	23	15%
Government	21	14%

Report	19	12%

3.1.4 LKAB

The most relevant concepts in LKAB's sustainability report are presented in Table VI. The text analysis shows that the core subject economic aspects have high relevance in the company's communication. Corporate governance has a much lower percentage, in relation to economic aspects, closely followed by labour practices and the environment. The majority of the concepts are related to economic aspects, including 'financial', 'value', 'assets', 'income', 'market', 'costs',' liabilities', 'investments' and 'growth'. Others are more related to descriptions of the operations by 'ore', 'production', 'products', 'operations', 'work' and 'plant'. The concept of 'management 'is used extensively and covers a number of different areas. The most frequent area is 'risk management', followed by 'asset management'. Other used areas are sustainability, environmental, waste, energy and competency management. Environmental 'emissions' and issues related to 'employees' seem to be of less importance in the communication with stakeholders.

Table VI. The concepts identified in the content analysis of LKAB's sustainability report.

Concepts	Count	Relevance
Ore	492	92%
Financial	255	48%
Value	227	42%
Assets	201	38%
Production	185	35%
Income	182	34%
Products	176	33%
Market	142	27%
Operations	114	21%
Liabilities	106	20%
Costs	88	16%
investments	86	16%
management	84	16%
Customers	80	15%
Risk	80	15%
Impact	79	15%
Work	71	13%
Growth	67	13%
Emissions	66	12%

Employees	62	12%
Plant	59	11%

3.1.5 Lundin Mining AB

The most relevant concepts in Lundin Mining AB's sustainability report are presented in Table VII. The text analysis shows that the core subject corporate governance is of relatively high relevance in the sustainability report. Concepts concerning the labour practices have a slightly lower percentage followed by the environment. Most of the concepts are related to the core subjects of corporate governance, labour practices and the environment. The most prominent concepts in corporate governance are 'management', 'monitoring' and 'reporting'. For labour practices, the concepts are 'safety' 'employees' and 'health'. For the environment, the concepts are 'environmental', 'waste' and 'emissions'. The concept 'management' is connected to areas such as risk, stakeholder, waste, crises, water, energy, tailings management and HSE (health, safety and environmental) management systems.

Table VII. Concepts found in the analysis of Lundin Mining AB's sustainability report.

Concepts	Count	Relevance
Mine	256	100%
Water	98	38%
Operations	92	36%
Management	76	30%
Safety	63	25%
Environmental	58	23%
Local	56	22%
Community	49	19%
Closure	41	16%
Employees	39	15%
Health	38	15%
Project	35	14%
Construction	34	13%
Tailings	33	13%
Waste	32	12%
Impacts	30	12%
Emissions	30	12%
Monitoring	29	11%
Production	29	11%
Support	28	11%
Work	28	11%
Rock	27	11%

Reporting	24	9%
Exploration	22	9%

3.1.6 Outokumpu Crome Oy

The most relevant concepts in Outokumpu's sustainability report are presented in Table VIII. The text analysis shows a clear focus on the core subject the environment in the sustainability report. Concepts regarding corporate governance have a much lower percentage in relation to the environment. However, the percentage is still high. The core subject environment is closely followed by society. The majority of the concepts are related to the core subjects of corporate governance, labour practices and the environment. For corporate governance, the concepts are 'management', 'system' and 'report'. The concepts 'management' and 'system' almost always refer to various kinds of management systems include the environment, energy, occupational health and safety and risk management.

For labour practices, the concepts are 'employment' and for the environment the focus is on 'energy', 'water', emissions' and 'waste'.

Table VIII. Concepts found in the analysis of Outokumpu's sustainability report.

Concept	Count	Relevance (%)
Steel	166	100%
Stainless	155	93%
Production	143	86%
environmental	129	78%
Energy	120	72%
Emissions	108	65%
Operations	100	60%
Material	88	53%
management	75	45%
Efficiency	74	45%
Local	72	43%
Employees	70	42%
Water	66	40%
Report	64	39%
Work	56	34%
Impact	55	33%
Products	50	30%
Waste	46	28%
sustainability	43	26%
System	40	24%

Customers	39	23%

3.1.7 Talvivaara Mining Company Plc.

The most relevant concepts in Talvivaara's sustainability report are presented in Table IX. The text analysis shows that the core subject economic aspects is of relatively high relevance in the company's communication. Concepts concerning corporate governance have a slightly lower percentage followed by the environment. Most of the concepts are related to the core subjects of corporate governance, economic aspects, labour practices and the environment. For corporate governance, the key concepts are 'management' and 'risk'. The concept 'management' often refers to 'water' and 'risk' management, but sometimes also include 'environmental', 'safety' and 'sustainability' management and management systems. For the core subject economic aspects, the concepts are 'financial', 'shares', 'assets', 'costs', 'market' and 'tax'. For labour practices the concepts are 'personnel' and 'safety'. For the environment, the focus is on 'water'.

Table IX. Concepts found in the analysis of the sustainability report for Talvivaara

Mining Company Plc.

Concept	Count	Relevance (%)
Mining	395	42%
Financial	272	29%
management	230	24%
Water	219	23%
Shares	199	21%
Production	189	20%
Risk	169	18%
Operations	167	18%
Corporate	164	17%
Assets	159	17%
environmental	158	17%
Safety	121	13%
Costs	117	12%
subscription	112	12%
Work	110	12%
Information	84	9%
Impact	79	8%
Metals	78	8%
Personnel	78	8%

Market	70	7%
Tax	68	7%
Equipment	65	7%

3.1.8 Summarized findings from the content analysis

The concepts identified in the content analyses were sorted into six core subjects; corporate governance, economic aspects, human rights, labour practices, society and the environment. The content analysis shows that the companies choose to communicate different sustainability criteria. First Quantum Minerals Ltd. has a clear focus on concepts concerning society. LKAB is directing its communication on economic aspects and Outokumpu Crome Oy on the environment. For the rest of the companies, the differences are not as prominent, see tables III-IX. This priority is further illustrated in Table X by the ranking 1, 2 and 3, where number 1 represents the highest relevance.

Table X. The relevance of core subjects in the companies' sustainability reports.

Company/Core subjects	Corporate governance	Economic aspects	Labour practices	Society	The environment
Agnico Eagle Mines Ltd.			2	1	3
Boliden AB	1		2		3
First Quantum Minerals Ltd.			3	1	2
LKAB	2	1	3		
Lundin Mining AB	1			3	2
Outokumpu Crome Oy	2			3	1
Talvivaara Mining Company Plc.	2	1			3

The results of the content analysis show that all the companies prioritise three of the core subjects in their sustainability reports: corporate governance, labour practices and the environment. The communicated sustainability criteria in the core subject of corporate governance are 'self-regulatory practices and management systems', 'disclosure', 'risk management', 'stakeholder management' and 'respect for the rule of law'. For labour practices, the focus is on 'employment', 'occupational health and safety', 'training and education' and 'diversity and equal opportunity'. The prioritised environmental criteria are

'water', 'emissions', 'effluents and waste', 'energy', 'biodiversity' and 'the recycling of metals'.

The core subjects of economic aspects and society are prioritised in three of the seven sustainability reports. The criteria for economic aspects are 'market presence' and 'economic performance' and for society 'local communities', 'education and culture', 'wealth and income creation' and 'health'. The findings are summarised in Table XI.

Table XI. Core subjects and sustainability criteria from the content analysis of sustainability reports.

Core subjects and sustainability criteria	**SR**
Corporate governance	**7**
Stakeholder management	3
Respect for the rule of law	1
Self-regulatory practices and management systems	6
Disclosure	5
Risk management	5
Economic aspects	**3**
Economic performance	1
Market presence	2
Human rights	**1**
Labour practices	**7**
Employment	6
Training and education	1
Occupational health and safety	5
Diversity and equal opportunity	1
Society	**3**
Local communities	3
Education and culture	1
Employment creation and skills	1
Wealth and income creation	1
Health	1
The environment	**7**
Energy	2
Water	5
Emissions	4
Effluents and waste	4
Biodiversity	1
Restoration of natural habitats	1

3.2 The stakeholder survey

The survey had a response rate of 23%, which is regarded as average for online surveys (Nulty, 2008). The mining industry's stakeholders provided scores for all sustainability criteria in a range from 3.5 to 4.9, with a mean of 4.4. The most important core subjects (score ≥ 4.6) are the environment and corporate governance. However, all core subjects have a mean score equal to or above 4.0 which indicates that the stakeholders value all core subjects highly. The most important criteria (score ≥ 4.6) are found within the core subjects; corporate governance, fair operating practices, labour practices and the environment. For corporate governance the respect for laws and regulations as well as risk management are important criteria. For fair operating practices anti-corruption is an important criterion. Occupational health and safety is the most important criterion within labour practices. The great majority of important sustainability criteria are found within the environment by sustainable resource use, energy, water, sustainable land use, emissions, effluents and waste, sustainable transports and recycling of metals;

We should strive for a sustainable mineral supply, that is, only to start-up new mines when it is absolutely necessary

The result from the survey is presented in Table XII.

Table XII. The stakeholder survey result.

Core subject/sustainability criteria	
Corporate governance	**4.6**
Stakeholder management	4.5
Respect for laws and regulations	4.9
Self-regulatory practices and management systems	4.3
Risk management	4.6
Fair operating practices	**4.2**
Anti-corruption	4.8
Responsible political involvement	3.9
Fair competition	3.8
Economic aspects	**4.0**
Economic performance	4.1
Indirect economic impact on society	4.4
Procurement practices	3.5
Human rights	**4.4**
Non-discrimination	4.5
Freedom of association and collective bargaining	4.4
Indigenous rights	4.2
Labour practices	**4.2**
Employment	4.1
Training and education	4.1
Occupational health and safety	4.6
Diversity and equal opportunity	4.2
Social security	4.3
Labour/management relations	3.9
Society	**4.3**
Local communities	4.5
Employment creation and skills	4.3
Wealth and income creation	4.2
Social investment	4.0
The environment	**4.7**
Sustainable resource use	4.8
Energy	4.7
Water	4.7
Sustainable land use	4.8
Emissions	4.8
Effluents and waste	4.8
Sustainable transport	4.6
Biodiversity	4.5
Climate change mitigation and adoption	4.5
Recycling of metals	4.8

4. Discussion and conclusions

In line with Pedro et al. (2017) this study takes a more comprehensive approach which is illustrated by the core subjects presented in Table XI and XII. The most important sustainability criteria (score ≥ 4.6) are found within corporate governance, fair operating practices, labour practices and the environment.

4.1 Corporate governance

Boliden AB and Lundin Mining AB have prioritized the core subject corporate governance in their sustainability report. The stakeholders valued the respect for the rule of law and risk management highly. These are issues that often are highlighted and discussed in different sustainability initiatives, guidelines and tools (Ranängen and Lindman, 2017). The OECD's guidelines for multinational enterprises talk about "obeying domestic laws" (OECD, 2011) and ISO 26000 states that "an organization should accept that respect for the rule of law is mandatory" (ISO, 2010). However, this issue is only addressed in one of the sustainability reports. To ensure compliance with legislation, regulations and permissions regarding for example emissions, effluents and waste and to communicate this fact to the stakeholder would probably contribute to higher social acceptance. Risk management was prioritized both by the stakeholders and the mining companies. In LKAB's report one can read that a Chief risk officer was appointed in order to strengthen risk management to identify, monitor and report critical risk to achieve sustainability objectives (LKAB, 2014). Lundin mining states that risk assessment is fundamentally important and required throughout the life cycle of a mine (Lundin, 2013). The mining companies highlighted self-regulatory practices such as management systems which are also required in numerous sustainability initiatives (Ranängen and Lindman, 2017). To develop and apply effective self-regulatory practices and management systems that foster a relationship of confidence and mutual trust between enterprises and the societies in which they operate (OECD, 2011) is important and the system

requirements is described in more detail in various standards, for example ISO 26000 for social responsibility, ISO 14001 for environmental management and OHSAS 18001 occupational health and safety management. However, this was an issue that was lower valued by stakeholders.

4.2 Labour practices

Labour practices did not have first priority among core subjects in the sustainability reports. However, it is a well communicated core subject in the sustainability reports where the focus is on employment and occupational health and safety which confirms Bice's (2014) results from a content analysis of the Australian mining industry's sustainability reporting. The mining companies often highlight the fact that their business operations are of considerable importance in terms of employment in the local community. This contribution is also often discussed in sustainability initiatives. For example, according to ISO 26000, an employer contributes to one of the most widely accepted objectives of society, namely the improvement of standards of living through full and secure employment and decent work (ISO, 2010). Employment is also an important indicator on both the Spanish standard UNE 22470 (UNE, 2008) and in the GRI framework (GRI, 2015). However, this is not an issue highly valued by the stakeholders. On the other hand, occupational health and safety got a rather high score from the stakeholders and is also often communicated in the sustainability reports. This example comes from Boliden's sustainability report (Boliden, 2014);

> Occupational health & safety is Boliden's most important issue as it involves the safety and ultimately the life of Boliden's employees

So, this is an area where the companies' practice and communication are matching the stakeholder interests.

4.3 Fair operating practices

Anti-corruption was highly valued by the stakeholders. Corruption is the abuse of entrusting power for private gain and can take many forms. Examples of corruption include bribery, conflict of interest, fraud, money laundering, embezzlement, concealment and obstruction of justice, and trading in influence. This was an issue that was not identified in the content analysis of the sustainability reports. Our recommendation is therefor that the Nordic mining industry should ensure compliance with for example the United Nations Convention against Corruption, OECD's guidelines for multinational enterprises, The UK Bribery Act and/or ISO 26000 in order to gain higher social acceptance.

4.4 The environment

Finally, the environment is an important core subject both for the companies, especially in the sustainability report published by Outokumpu Crome Oy, and for the stakeholders. However, it seems to be the traditional environmental issues like the use of water, emissions, effluents and waste that the companies are focusing their corporate environmental management on. This also confirms Bice's (2014) results regarding the Australian mining industry's sustainability reporting. An organization should conserve, reduce use of and provision of sustainable access to safe access to safe drinking water. It is also important to improve environmental performance by preventing pollution, including emissions to air, discharges to water and to conduct a sustainable waste management (ISO, 2010). The stakeholders on the other hand, take a more comprehensive grip of the environmental area and value sustainable use of material and energy for example by the recycling of metals, sustainable land use, sustainable transports and the recycling of metals high. Energy efficiency and the efficiency in the use of material are important in order to reduce the environmental impact. An organization can become more socially responsible by acting to protect the environment and restore natural habitats and the various functions and services that ecosystems provide. Thus,

there are several important environmental issues that the Nordic mining industry should implement in their daily operations and communicate in order to enhance social acceptance.

4.5 Final conclusion

In order to have a broad, ongoing approval and acceptance of society to conduct its activities (Prno and Slocombe 2012) the mining companies need to go above and beyond legal and regulatory requirements (Lesser et al., 2017). In order to obtain the SLO the community-company expectations need to be reconcilable (Prno and Slocombe, 2012). Hence, the purpose with this paper was therefore to explore if CSR practice actually complies with stakeholder's interests but also what these interests consist of.

This paper shows that the Nordic mining industry's CSR practice actually complies with their stakeholder's interests within some areas like risk management, occupational health and safety, sustainable use of water, and the prevention of pollution from emissions, effluents and waste which confirms previous research, see Ranängen and Lindman, 2017. However, there are several important areas where it doesn't comply. The mining companies prefer to communicate about self-regulatory practices and management systems, disclosure and employment while the stakeholders value the respect for the rule of law, anti-corruption, sustainable use of energy, sustainable land use and sustainable transportation and the recycling of metals. However, by understanding the local society and using its input for decision making the Nordic mining industry can develop its CSR practice further (Thorén Hedin & Ranängen, 2017). This can be accomplished by establishing and maintaining high quality contacts with local stakeholders (Moffat and Zhang, 2014).

There is no standard as to what activities/issues the SLO concept includes and these activities/issues are varying depending on the particular situation (Lesser et al, 2017). Although there seem to be similarities between countries, there are also differences (Bice, 2014). However, this study indicates that from a Nordic point of view, the mining industry

would gain social acceptance if it ensures an implemented practice and communicates its efforts within the following issues;

- Respect for laws and regulations
- Anti-corruption
- Sustainable resource use and energy in particular
- Sustainable land use
- Sustainable transports
- The recycling of metals

In line with Banerjee (2014) and Kemp (2010) CSR practice should be based on local community perspectives. Therefore, we suggest that the companies acting in Nordic countries should strive to develop and implement stakeholder engagement strategies so that the CSR practice could be based on these above aspects. This will create value for the stakeholders (Freeman, 2007) which will facilitate the industry to obtain the social licence to operate (Lesser et al., 2017). By understanding the surrounding community and using its inputs for decision making would develop the company's community involvement and development further (ISO, 2010; Kemp, 2010).

Finally, this paper explores if CSR practice complies with stakeholder interests in the Nordic mining industry. The findings show a large variation between companies in terms of what they choose to communicate in their sustainability reports. Some have a clear priority in a certain core subject while others address several subjects. This variation indicates that some companies do not necessarily base their communication on salient stakeholders' interests (Ranängen, 2015) in their respective mining area. This could be an interesting topic for further research since theory shows that it is important to create value for its local stakeholders to increase social acceptance in society to conduct mining activities.

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Highlights

Stakeholders value all sustainability criteria high.

CSR practice complies with stakeholder's interests within several areas.

However, stakeholders want to see a more comprehensive environmental approach.

Stakeholders highlight the respect of laws, anti-corruption and the environment.