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1 Introduction

In November 2015 a water dam, run by Brazilian iron ore miner Samarco, burst and caused a major flooding. Samarco is a 50/50 joint venture between BHP Billiton and Vale and the disaster caused 19 fatalities, ruined hundreds of homes and contaminated a major river (Reuters, 2016). The Brazilian government and Samarco later agreed upon a settlement of $5.1 billion in compensation (Reuters, 2016). Samarco has been accused of continual negligence prior to the disaster with prosecutors saying that damns like these should not be able to fail without reason and, as an example, that water testing of the water in the dam declared dangerously high levels of arsenic even though regulations are in place (abc news, 2016).

An incident like this sparked an enthusiastic curiosity on how and why environmental incidents like this occur? Previous courses of our university education have taught us about sustainability reporting and how covered aspects as the environmental impacts from global corporations are. Yet incidents like these evidentially still occur which begs the question; are corporations as responsible and trustworthy as they claim or are there major flaws in today's company disclosures.

1.1 Background

Greenwashing is a phenomenon that is highly relevant in today's society where the term greenwashing is connected with companies that make claims, either not accurate or completely false, about their environmental performance.

In the early 90´s surveys where handed to the public to find out their mind-set about the environment and the result of the surveys showed something that environmentalist groups had been trying to rise the concern about for decades. The result of the survey showed that most of the people asked had concerns about the environment and they where willing to change their consumption habits to make a contribution to the sustainability of the environment. The big break through here was that the general public went away from relying on the governments regulations being enough by itself and started to understand that they where a big part of the solution. With this increase of people concerned about all steps behind the finished products, companies started to capitalize on the new demand and

started to make changes, ranging from how products where made to how products where marketed.

The 90´s boom in environmental friendly products has continued to increase to this date and it has brought numerous possibilities for companies around the world. One example is the competitive advantage environmental friendly products can give is when there is only a marginal increase of price for the environmental friendly labeled products, or so called eco-labeled products (Feinstein, 2013). One issue that have followed this increase of eco-labeling is that there is a huge amount of different labels, prices and awards, making it impossible for the general public to follow up on and make sure that the claims of the labels are accurate. As a result of this there has been room for companies to make environmental friendly claims that are inaccurate, misleading or even completely false. In 2012 TerraChoice, an environmental marketing firm, made a study of 5,296 products of which all of them had some claim of being environmental friendly. 265, or 5%, of the products where found to be as green as they claimed which gives the staggering result that 95% of these products had some kind of greenwashing in the description (TerraChoice, 2010).

As society have become more aware of the importance of long-term sustainability and the fact the there are environmental claims that are not always true, the result have been that the accountability pressure, especially for large companies, have increased substantially and society have started to demand more transparency within this area (Kolk, 2006).
One way for companies to meet this demand and to communicate their view on sustainability as well as their environmental and social performance is by conducting a sustainability report, which is a report containing most of the CSR related information society and investors now often demand. Many have welcomed the increasing demand for transparency regarding environmental and social performance but there are also people that believe the quick development and the relatively young age of these reports have increased the possibility to conduct greenwashing. This because of the comparability issues with the many sustainability reports and that the regulatory progress of the disclosures have been slower the than publics demand for this kind of information (Delmas & Burbano, 2011).

As a result of the increasing pressure from stakeholders to act in a sustainable manor it has become politically risky to be an opponent to sustainable development. This change has

resulted in that it now has become a norm to embrace these actions and commitments to inflate credibility in organizations. One specific sector that has been questioned of ever being able to act in a sustainable manor is the mining sector as the nature of the business is to collect what nature has built up during centuries. As a result of this, CEO´s of large mining corporations understood the part they could play in the development of sustainability, which in the year of 2000 resulted in the creation of the Global Mining Initiative (GMI) (Young, 2005). One of the major results of this initiative was that the almost 150 members where required to conduct sustainability reports based on the GRI framework and its Mining and Metals Sector Supplement. To further try to lower the mistrust towards the sector these organizations where also required having an external assurance of these reports. (Fonseca, How Credible are Mining Corporations' Sustainability Reports? A Critical Analysis of External Assurance under the Requirements of the International Council on Mining and Metals, 2010)

Despite the initiatives from sectors as the mining sector greenwashing still occurs in the corporate world and with the room for improvement regarding a worldwide standard and the lack of comparability among the different frameworks for sustainability reports, greenwashing will remain a problem. The many alternatives, the inadequate progression of the regulations, the lack of reliability and comparability is today some of the biggest problems within the area of sustainability reporting. (Parguel, Benoît-Moreau, & Larceneux, 2011)

1.2 Problem Discussion

Corporate social responsibility is more and more used as a communication tool to enhance companies' image towards the public. An example of this is environmental legitimacy, which is an important part of management research since organizations tend to be more competitive if they are successful in establishing environmental legitimacy (Berrone, Fosfuri, & Gelabert, 2015).

However, the strategically well-designed advertisements used can be problematic to truly control, making it hard to sort out what companies are or are not truly as CSR-aware as they claim. This provides companies with an incentive to use greenwashing (Parguel, Benoıt-Moreau, & Larceneux, 2011). Greenwashing has been defined as "the practice of making unsubstantiated or misleading claims about a firm's environmental impact"

(Berrone et al., 2015, p. 315). It can be difficult for stakeholders to get enough information about environmental footprints of various organizations in order to evaluate if the organizations' environmental statements are accurate, causing an information asymmetry (Berrone et al., 2015). Laufer (2003) expresses concerns about the potential to engage in GRI-reporting as a tool for greenwashing giving companies a marketing advantage.

In recent years, a vision of sustainable mining has increased among mining corporations, particularly large global mining corporations (Fonseca, 2010). It can, however, be questioned if the mining industry can be sustainable or environmentally friendly at all (Mallet, 2008). Mallet (2008) refers to MiningWatch Canada, which claims that there is no such thing as a environmental friendly mining company. Fonseca (2010, p. 356) states that "despite the apparently paradoxical nature of the expression 'sustainable mining', past years have witnessed a proliferation of initiatives promoting this vision. Among the most notable are the ones carried out by global mining corporations".

The emergence of sustainability reporting has created an uncertainty about how reliable company disclosures really are. A discussion about the fact that companies have a lot of freedom in altering the information in sustainability reports has been started, where the organizations ability to describe confident and positive views in the message delivered to report-readers is in focus (Fonseca, 2010).

According to Fonseca (2010), disclosing corporate social responsibility based on the GRI framework can in some cases be meaningless since a matter of "what we are doing" shines through more than critical changes or damages. He argues that sustainability assessments need a deeper reflection of the socio-ecological systems where they are conducted. He even goes to the length of claiming that GRI-reports can misinform readers and disguise corporate unsustainability, thus causing a problem of an information gap between readers and companies (Fonseca, 2010).

1.3 Research Questions

- How do companies in the mining sector use sustainability reporting and the GRI framework and can any indications of greenwashing be found when comparing them to published independent information?

1.4 Purpose

The purpose of the report is to investigate the reporting of the environmentally preservative actions global mining companies claim to do. Furthermore, the results of the reports released by the companies in question will be examined and analyzed to ultimately discover if the global mining companies actually work actively towards their stated environmental goals or if greenwashing occurs.

1.5 Delimitations

This thesis is limited to events and reports covering the years of 2012-2014 since the 2015 sustainability reports were not yet released by all four companies at the time of the investigation. This thesis is also limited to the GRI framework aspects: Energy, Water, Biodiversity, Emissions, Effluents and Waste as the information related to the study is concentrated to those particular aspects. The thesis includes the largest companies in the mining sector based on market value in 2015, where China Shenhua Energy, which is the fourth largest has been replaced by Vale. This was due to the fact that China Shenhua Energy only releases sustainability reports based on Chinese which none of the researchers have adequate knowledge about in order to be able to treat them in the same way as the other companies.

2 Frame of references

2.1 Greenwashing

The term greenwashing, or more specific the illusion a company wants to create when stating that they are doing good towards the environment when they in reality do not or even do the opposite, have it origins from the environmentalist Jay Westerveld's essay about the hotel industry. He noticed the hotel industries usually had a "save-the-towel" project, a project which asked quests to put the towel back on its place if it where to be reused. He claimed that it was merely a way for the hotels to cut down on laundry costs while the hotels claimed that it was an initiative to act for the environment (Sanders & Wood, 2015).

The concept of greenwashing can be divided into two different levels, where one is the firm-level greenwashing where a company tries to give the public a picture of the company´s environmental performance which, is not completely true or even false. The

other one is the product-level greenwashing where a company gives false information about the environmental benefits of its products. Delmas & Burbano (2011) uses a matrix to describe when greenwashing occurs. Companies with good environmental performance are called green companies and companies with bad environmental performance are called brown companies. Further the authors describe the companies that positively communicate their environmental performance as vocal companies and companies that do not communicate their environmental performance as silent. As figure 1 shows, companies that have a bad environmental performance and at the same time communicate positively about their environmental performance are categorized as greenwashing firms. Dalmas & Burbano (2011) further describes the drivers of greenwashing as first and foremost being a result of the monitoring and pressure of media and non-governmental organizations as well as the lack of regulations regarding greenwashing.

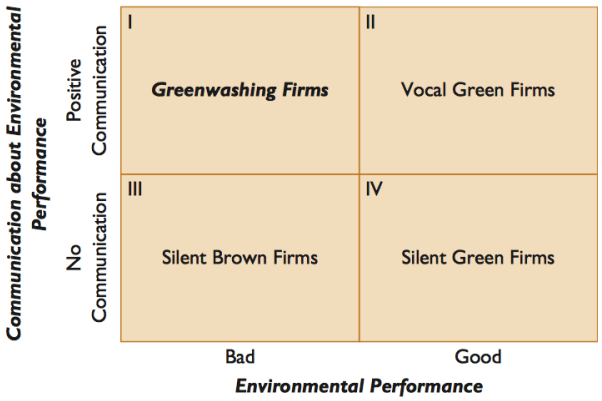

Figure 1: A Typology of Firms based on Environmental Performance and Communication, (Dalmas & Burbano 2011)

This combined with drivers as consumers demand for certain labels on products, the competitive pressure, the characteristics of the firm and optimistic bias of the manager's are some examples for why greenwashing is conducted.

Du's (2015) study of how markets react to greenwashing shows that markets are more prone to relay on earlier impressions of the company when the environmental claims are proved wrong and that the investors and the market´s trust towards companies future statement will be damaged if these claims are not followed through. It further shows that the media plays a big part in making the market react on greenwashing, especially in developing countries as the business ethics and the governmental regulations generally are not as evolved as in developed countries.

2.2 Impression Management

The study of how people display themselves in order to strengthen their image towards others is called Impression management. It lies within the field of social psychology and has been defined as "the conscious or unconscious attempt to control images that are projected in real or imagined social interactions" (Hooghiemstra, 2000, s. 60). Impression management as a theory has, even though originally being aimed against individuals, been used considerably in order to describe the actions taken by organizations facing legitimacy threats (Hooghiemstra, 2000). CSR can, according to Hooghiemstra (2000) be used as impression management and can contribute to an organization's image. Merkl-Davies & Brennan (2011) lists four theoretical perspectives on managerial impression management in order to improve the knowledge regarding a corporate reporting matter, which are Economic-, Social psychology-, Sociology- and Critical perspective.

The Economic perspective reflects how there is an information asymmetry, which is being used by managers in order to manipulate the disclosure of information and thus maximizing their personal wealth. In this case, corporation-written documents are used to disclose a corporate performance ideal for personal interests. Regarding the Social psychology perspective, managers tend to use impression management as a tool in the reporting process when expecting an evaluation of their performances. Managers accountable towards external stakeholders can use this to avoid certain negative consequences by responding in advance with acceptable reports and results. The Sociology perspective is focused on the effect of stakeholder groups or society at large and how organizations make their disclosure decisions in accordance to "consensually developed systems of norms and values". Lastly, the Critical perspective challenges the conventions of instrumental rationality. To achieve rational decision-making, managers may use corporate-written documents where decisions are assumed not to be made in accordance with "self-interest". (Merkl-Davies & Brennan, 2011)

2.3 Sustainability Reporting

A Sustainability report is a non-financial report that organizations publishes to state what economic, environmental and social impacts their activates have on society. It also states the values of the organization, the governance model, the strategy of how to achieve goals and what they are currently doing towards society. (GRI, 2015) One of the major goals

with sustainability reporting is to gain acceptance by key stakeholder as government or employees as well as pressure groups as environmental protection groups and human rights associations (Schaltegger, Bennett, & Burrit, 2006).

According to KPMG (2015) there has been an increase in usage of sustainability reports which have made researchers aware of the need and importance of development regarding standards, guidelines and frameworks to enhance comparability between the reports and to lower the costs of conducting the reports (Christofi, Christofi, & Sisaye, 2012) (Kitzmueller & Shimshack, 2012). Progress have, however, been made in this area and as a result of the European Unions initiative on Corporate Social Responsibility the European parliament amended the 2013 Accounting directive for so-called public interest entities with more than 500 employees. The amendment will require these companies to disclose relevant non-financial information as environmental matters, social and employee-aspects, respect for human rights, anti-corruption strategies, bribery issues and the diversity of the board of directors. It will start to be mandatory reports released in 2018 covering the financial year of 2017-2018 (The European Parliament and The Council of The European Union, 2014).

There has been critique about whether or not sustainability reporting is something that actually has a positive effect on the management, making them act in a more responsible way, or if it just is a way to handle their public relations (Blanding, 2011).

2.4 Global Reporting Initiative

GRI is an international independent organization, which educates organizations on how to manage disclosures of different impacts business operations has on important sustainability concerns such as climate change. (GRI, 2016a). Global Reporting Initiative primarily focuses on promoting economic, environmental, and social sustainability (Fernandez-Feijoo, Romero, & Ruiz, 2013). In doing so, GRI provides all companies and organizations with a comprehensive framework on sustainability reporting, which is commonly implemented around the globe (Fernandez-Feijoo, Romero, & Ruiz, 2013). This enables the reporting on sustainability to be more easily applicable and more comparable between organizations.

The Global Reporting Initiative was first introduced in 1997 when the Coalition for Environmentally Responsible Economies (CERES) discovered some flaws in companies' sustainability reporting (Willis, 2003). Requests for information about environmental and social reporting and the inconsistence and incompletion among reports causing incomparability were some critical factors inspiring change (Willis, 2003). In 1998, a multi-stakeholder Steering Committee was formed in order to navigate the organization correctly (GRI, 2016b). The committee issued a pivotal mandate to do more than the environment, widening the range of interest to social, economic and governance issues. In 2000, the first edition of the guidelines was released, becoming the first global framework for sustainability reporting (GRI, 2016b).

The framework has through the years been developed to the current guidelines of today, the G4-guidelines, which is structured into two main parts. The first part is called Reporting Principles and Standard disclosures and focuses on reporting principles, standard disclosures, and criteria to be applied in order to prepare an organizations sustainability report (GRI, 2013a). The second part is called the Implementation Manual and primarily contains details of how to apply the reporting principles, how to prepare the information and an explanation of the concepts in the framework (GRI, 2013a). This framework is the fourth line of main editions of the GRI and was publicly revealed in May 2013 (GRI, 2013b). It has been called "a major step forward in the evolution of sustainability reporting" by experienced reporters (GRI, 2013b).

Indicators, briefly mentioned above, constitute an important part of the GRI report. They are divided into different aspects, used as headlines, where the specific indicators are listed accordingly. For example, under the water-aspect the different water specific indicators are listed. The usage of indicators is a way to monitor economic, environmental and social performance and also to measure what kind of impacts an organization has had (GRI, 2013a). Material aspects are the most significant impacts from activities performed concerning both the organization itself, but also concerning the various stakeholders (GRI, 2013a).

Skouloudis et al. (2010) made a study about the GRI framework and its quality. They came to the conclusion that the reports studies had major gaps and that many of the companies failed to achieve the key purposes of the reports, which is to promote stakeholder

engagement and to follow trough on the organizational accountability towards society. They further found that the vision and strategies disclosed as well as the statement from company leaders where more related to self-laundry than to achieve its real purpose which is to clarify the companies approach towards its stakeholder.

2.5 Transparency and Disclosure

As a result of the recent decades financial and environmental scandals, the pressure for corporate transparency and disclosure have increased. This pressure comes from stakeholders such as institutional shareholders, regulators and banks as they need to monitor the organizations in order to trust the information given (Choi & Sami, 2012).

Andersson (2008) write about transparency as a word that in everyday language often have been somewhat misused and that people often believe that transparency is the exact same word as openness, which is not completely true even if they are closely related. He continues by saying that only a handful of the people have an idea of what means more to the word transparency than just openness. In order to achieve this real transparency the organization must disclose all relevant information, they must make sure that the entire market have the same possibility to get the information without any cost and the market agents as analyst and institutions must be able to analyze and to share their view of the information. This has to be done in a proper way to achieve real transparency, as transparency is the cornerstone of building trust between organizations and society.

The disclosures of the organization can take many different forms ranging from eco-labeling notices, treatment of employees to the organizations climate change related risks. By improving disclosures customers can choose between products and services that are environmental friendly or potential employees can look into the organization and see whether the values and performance of the company attracts them. Disclosures like these may lead to a competitive advantage for the organizations that manage this well (Matisoff, 2013).

There is always a trade-off for the organization when deciding on the amount and what kind of information to publicly display and whether the benefits of these disclosures exceed the costs (Choi & Sami 2012). For example, when having the stockholders interest at heart it is not uncommon that the protection of the environment will be put in second priority or

that misuse and abuse of the labor force occurs. At the same time, if having the societal interest at heart this often is at the expense of the stockholders as it cost money to take care of the environment, not using child labor or paying fair salaries to the employees (Hearit, 1995). Therefore it is important for the organizations to disclose information about their vision and strategy and how they are affecting various segments of society, especially if the organization operates in a sector that is known for releasing large amounts of pollution or violating human rights. The organizations often cope with these issues by engaging in corporate sustainability reporting to show the society that their actions are legitimate and that they are acting for the society and not against it (Hooghiemstra, 2000).

2.6 Stakeholder Theory

Stakeholders are defined as "any group or individual who can affect or is affected by the achievement of the corporation's purpose" (Freeman, 2010, p. iii). He also states that stakeholders are any group that help or hurt the corporation. Therefor, Stakeholder theory can be described as a managerial theory that places the stakeholders in the center of attention of the organizations strategic thinking (Freeman, 2010).

The stakeholder theory can be divided in to two branches (Gray, Adams, & Owen, 2014). The first branch, called the ethical branch of stakeholder theory, that focus on the responsibility towards the whole society and all its stakeholders is based on the assumption that the organization and stakeholder relationship is constructed on a number of social interaction that affect all stakeholders and as a result the organization is accountable to the entire society (Deegan & Unerman, 2011). According to Gray et al. (1997) the theory has limited power regarding how it can help and explain the social interaction in the context of social accounting.

The second branch, called the managerial branch of stakeholder theory, which is based on which stakeholders the organization deems most important (Deegan & Unerman, 2011). Mitchell et al. (1997) gives a further understanding by saying that the more salient an organization finds a stakeholder, the more effort should be put into the particular stakeholder. They can then use the information in a more specified way to better manage the stakeholder in order to gain approval and support (Deegan & Unerman, 2011).

2.7 Legitimacy Theory

Legitimacy theory can be explained as the idea that organizations only can continue to exist and to grow if the societies, in where the organizations are conducting their business, perceive them as legitimate. It can be said that there is a social contract between the organization and the society and because of this contract the organizations perform actions that can contribute to a better society. The organizations need to disclose information regarding these actions in order for society to be able to see them as legitimate (Deegan & Unerman, 2011; Guthrie & Parker, 1989 & Gray et al., 2014). If the organizations are not successful in communicating their commitments towards society and if society feels that this social contract has been violated, the soul survival of the organization can be in jeopardy (Deegan C. , 2002).

The theory can be divided into two different sub-theories, which are the institutional legitimacy theory and the Strategic legitimacy theory (Tilling, 2010). The institutional legitimacy theory have a macro level perspective and deals with how the legitimatization of concepts as capitalism or existence of governments and how these gain acceptance from society. The strategic legitimacy theory on the other hand has an organizational perspective and focuses on the surrounding environment of the organization, or as Kaplan & Ruland (1991, p. 370) explains it: "Underlying organizational legitimacy is a process, legitimation, by which an organization seeks approval (or avoidance of sanction) from groups in society". Here, legitimacy can be seen as a resource, just as money, that is needed for the organization to continue their operations.

Suchman (1995, p. 574) define legitimacy as "Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values beliefs, and definitions". He continues with saying that in order for society to experience the organization as legitimate the organization has to be able to prevent events that will harm their legitimacy. Lindblom (1994) have identified four legitimation strategies in order to prevent events as these: educating its stakeholders, change the stakeholders perceptions of the issue, distract (i.e. manipulate) the attention from the issue of concern or seek to change external expectations about its performance.

3 Methodology

3.1 Research strategy and approach

Bryman & Bell (2011) explain research strategy as the way that data is collected and analyzed and he explains the two major strategies to choose from, qualitative and quantitative. The terms qualitative and quantitative are a way to differentiate data, both in collection and in analysis, where the biggest difference between the two is whether the data is numerical or non-numerical. Quantitative data is mostly used if the data the researcher is collecting or analyzing generates or uses numerical data and this data often have very little meaning in its raw form. For this data to be useful it needs to be quantified which can be done with analysis techniques as charts or tables. Qualitative data, on the other hand, can be said to be when the data generates or uses non-numerical data which can been seen as understandable at the first glance but in order to be fully understood it, it has to be analyzed (Saunders, Lewis, & Thornhill, 2009).

This report will use qualitative data since the majority off the data is text based and also because it is better applicable when doing a deeper study, as the purpose of this report requires. When using this kind of data one can use both an inductive and a deductive approach where the biggest difference is whether a clear theoretical position is developed before the collection of data, deductive approach, or if the aim is to develop a theory after the data is collected, inductive approach (Saunders et al., 2009). This study has a deductive approach as it is built on the discussion of the framework that discusses relevant literature as well as theories within the subject and the guidelines of sustainability reporting.

Numerical data will also be used in this report, but as this data already have been quantified and put together in way that is easy to understand, there where no need to implement any quantitative methods in the research. This because the companies use these charts and tables as a mean to give a better understanding to what is being stated in the text sections.

The analysis of the data in this report is considered secondary data analysis, which is "the analysis of data by researchers who will probably not have been involved in the collection of those data, for purposes that in all likelihood where not envisaged by those responsible

for the data collection" (Bryman, 2012, p. 312). Since the timeline of this thesis is quite narrow, performing secondary data analysis saves both time and money (Bryman, 2012).

When analyzing the data a disclosure checklist was created to get an overview of the companies performance based on the indicators. An empty checklist, Table 1, can be seen below and it is based on the chosen aspects, with underlying indicators, from the GRI framework. The checklist shows what indicators the companies used each year where the boxes after the indicators will have a "Yes", "No" or "Partially", depending on how or if that specific indicator has been used. The checklist also covers if there has been an increase or a decrease of these indicators from the previous year. A few of the indicators have been explained by text in the sustainability report and as these indicators could not be measured with an increase or decrease these boxes have been marked with "In Text".

Table 1: Disclosure checklist - Empty

Company name, reporting years, G3/G4, Application level								
Aspect	Indicator		Disclosure	Disclosure	Disclosure	Indicator performance over time		
Energy			2012	2013	2014	2012	2013	2014
	DMA							
	G4-EN3	Direct energy consumption by primary energy source.						
	G4-EN4	Indirect energy consumption by primary source.						
	G4-EN5	Energy saved due to conservation and efficiency improvements.						
	G4-EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.						
	G4-EN7	Initiatives to reduce indirect energy consumption and reductions achieved.						
Water								
	DMA							
	G4-EN8	Total water withdrawal by source.						
	G4-EN9	Water sources significantly affected by withdrawal of water.						
	G4-EN10	Percentage and total volume of water recycled and reused.						
Biodiversity								
	DMA							
	G4-EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.						
	G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.						
	G4-EN13	Habitats protected or restored.						
	G4-EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.						
	G4-EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.						
Emissions, Effluents and waste								
	DMA							
	G4-EN16	Total direct and indirect greenhouse gas emissions by weight.						
	G4-EN17	Other relevant indirect greenhouse gas emissions by weight.						
	G4-EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.						
	G4-EN19	Emissions of ozone-depleting substances by weight.						
	G4-EN20	NOx, SOx, and other significant air emissions by type and weight.						
	G4-EN21	Total water discharge by quality and destination.						
	G4-EN22	Total weight of waste by type and disposal method.						
	G4-EN23	Total number and volume of significant spills.						
	G4-EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.						
	G4-EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.						

Together with the checklist the content from the sustainability reports was thoroughly analyzed. However, as the reports alone did not give sufficient information to achieve the purpose of the thesis a decision was made to include information from published

independent sources such as newspapers and articles. To get an as complete picture of the companies environmental performance as possible the information from the different sources was compared in the hopes of getting an unbiased view of the companies. To give aid in the analysis weather these companies where involved with greenwashing or not Delmas & Burbano's (2011) definitions and terms of when greenwashing occurs was used.

3.2 Studied Companies

To manage the short timeframe of the study, a non-probability sampling was conducted where the starting point of our sample selection was the usage of the GRI-framework. The convenience and necessity due to language limitations pointed the report towards sustainability reports in English only. This type of non-probability sampling is called convenience sampling and while considered the most suitable for this particular study, it limits the opportunity of making general statements about the industry as a whole while reasonable assumptions can, however, still be made (Bryman, 2012).

The companies chosen for this study are some of the largest mining companies in the world. Since a lot of reading of sustainability reports is required in order to evaluate the companies' claims, the list has been limited to four companies. Another criteria is that the companies chosen are all conducting their reporting based on the GRI G3 framework in order to make an accurate comparability and a fair interpretation possible. The four companies in the study were all chosen after market value in order to investigate the most relevant market players in the industry.

The four companies selected are organized based on market value from highest to lowest as follows: BHP Billiton, Rio Tinto, Glencore and Vale. These are all major corporations with high incentive to have a proper sustainability approach, which gave the possibility to exclusively examine properly prepared reports. For this reason, it was deliberately sought after to only examine companies considered as large and relevant as the chosen ones.

Table 2: Selected Companies

Company name:	BHP Billiton	Rio Tinto	Glencore	Vale
Market value (US$):	122.3 billion	77.1 billion	55.5 billion	27.9 billion

Initially, the study was aimed at Swedish mining companies. However, after careful consideration it was decided that the source of relevant companies for this particular study

was to slim. The same conclusion was reached after expanding to all Scandinavian countries. Ultimately, after researching the matter, it was found that in order to accomplish this paper with the best possible outcome the focus needed to be changed to a global perspective.

3.3 Data collection

The data has been collected from companies using sustainability reports based on the GRI framework and these reports have been gathered from the GRI database. Doing so enables a certainty that the reports contain the GRI indicators and provides an assurance to find the data searched for. In the reports, the Chairman´s letter and the CEO statements of the different years have been examined in order to see what their focus has been and if their vision for the future has been followed up. Furthermore, the sustainability reports have been studied, with the focus on the information under the environmental aspects, in order to locate information that could benefit the research. To achieve an understanding whether the companies have improved, a comparison between the statements and the indicators chosen have been made with the same statements and indicators from former years. Additionally to this, different media, newspapers and databases containing news articles have been examined. This was done in order to find published information regarding the companies environmental related work as the information disclosed by the companies was found, in some cases, to be insufficient or nonexistent.

Since the companies in this study have operations all around the world, direct contact with company-representatives was deemed difficult. However, because of the importance of sustainability reporting for large companies and the fact that the purpose has a stakeholder-oriented scope, it was considered reliable to trust the information provided by the sustainability reports.

3.4 Credibility check

In order to reduce the risk of ending up with false answers from analyzing false data, ensuring the credibility of the data collected is of grave importance. This can be done by inspecting the rationality and the validity (Saunders, Lewis, & Thornhill, 2009). Testing the rationality can, according to Saunders et al. (2009), be performed by asking the following three questions:

1. *Will the measures yield the same results on other occasions?*
2. *Will similar observations be reached by other observers?*
3. *Is there transparency in how sense was made from the raw data?*

Since the raw data exclusively consists of publicly available information in the form of released reports and statements, there is little to none room for what Saunders et al. (2009) calls participant errors where, for example, interviewees may answer differently depending on mood. Because of the fact that we merely examine these kinds of raw data, the three questions above can be answered positively without hesitation.

Additionally there is validity, which concerns if the findings are in fact what they seem to be and that conclusions are drawn with integrity (Saunders et al., 2009 & Bryman, 2012). It is important to be certain about whether or not there is clear causality between the data, the purpose we use it for and the conclusions we reach when analyzing it.

4 Findings/Empirical findings

4.1 BHP Billiton

BHP Billiton is the world's largest mining-company based on market value in 2015 (Statista, 2015). According to the their website, their purpose is to create long-term shareholder value through the discovery, acquisition, development and marketing of natural resources.

4.1.1 Information in Sustainability reports

4.1.1.1 Information in CEO-statement

Throughout the different sustainability reports in the 3 years of examining, the CEO-statements constantly focus a lot of attention towards health and safety of their workers, calling it paramount. They have a continuing goal of zero fatalities in their operations every year, which they however did not accomplish in 2012 with 3 fatalities, nor 2013 with another 3. 2014 was a fatality-free year for BHP Billiton. The CEO also reports that in 2012 they did not reach two of their health metrics. There was no reporting of health metrics in 2013 while 2014 was reported as a year with record-low amounts of injuries. When fatalities and large amounts of injuries have been reported in the CEO-statement there is regularly mentioning's that they learned a lot from their mistakes and that these accidents have occurred despite improvements in injury trends.

When it comes to the environmental issues of BHP Billiton's operations, the CEO-statements repeatedly explain how they continuously strive to reduce and eliminate environmentally harmful events and minimize the environmental footprint of their operations. The CEO statements mention various environmental achievements where in 2012 states that BHP Billiton failed to achieve their goals for land rehabilitation to beat the baseline of 2006; in 2013 their greenhouse gas emissions were lower than the 2006 baseline, keeping them on route for achieving the goal of staying below the baseline until 2017; in 2014 the CEO again stated that the greenhouse gas emissions stayed below the base line of 2006.

Overall there seems to be a continuously great majority of focus on health and safety towards their own opposed to environmental safety in the CEO-statements.

4.1.1.2 Information under the aspects sections

Air

BHP Billiton discusses that their operations and products are exposed to potential financial risks from regulations controlling greenhouse gas emissions and that they probably will see changes in the cost-arrangements at the operational sites with significant their greenhouse gas emission. According to BHP Billiton, all of their operations must assess and implement projects that reduce greenhouse gas emissions and they claim to have set a goal to maintain their total greenhouse gas emissions below FY2006 level, which they during the investigated time period have accomplished. They continuously discuss different ways of how they are in line with accomplishing their goals while keeping up the same or increased production by using new innovative production procedures. An example of this is their petroleum facility in Pakistan, which has optimized compression equipment to achieve lower discharge pressures, resulting in lower fuel consumption and thus reduced amounts of emissions in the air.

Waste

BHP Billiton states that a number of controls are used to handle, reduce and recycle drilling waste. They claim that their procedure for managing waste materials specifies the storage, transportation, disposal, and monitoring of the waste and contains a worker protection plan to minimize exposure.

Biodiversity

In 2013, BHP introduced new biodiversity targets. The first target focused on a core business requirement to develop land and biodiversity management plans that include controls to prevent, minimize, rehabilitate and offset impacts to biodiversity and ecosystems services. They also claim to have targets to "finance the conservation and continuing management of areas of high biodiversity and ecosystem value that are of national and international conservation significance", where they work in an alliance with Conservation International (a leading no governmental organization). Some examples where they say they are working to preserve land are Cradle Mountain and Lake St Clair in Tasmania, Australia (11,000 hectares), the Los Rios region, Chile (50,000 hectares) and new Mexico Coal asset in the, USA.

Energy

"Efficiently using energy" is stated early when discussing BHP Billiton's energy usage. They continuously explain their annually increasing energy usage with the increase in operations while they at the same time claim to search for new technology to constantly decrease their usage. This can be seen in the disclosure checklist.

Water

Environmental and economic values as well as expectations from stakeholders are mentioned as factors for the importance of water management. In 2014 it is explained that in order to reach sustainability within their operations it is crucial to manage water through appropriate quality/quantity and responsible/appropriate amount of usage. During 2011-2014 they developed over 500 projects to install leak monitoring and they also continued studies about water footprint. BHP discusses different risks associated with their different operational sites and how they implement quantitative water balance models to predict and support the management of water inputs, use and outputs and to enable timely management responses to water-related risks.

4.1.2 Scandals and controversies

4.1.2.1 Borneo coal mining controversy

Information in sustainability reports

There is no information in the sustainability report regarding this incident.

Published independent information

In October 2013, BHP Billiton encountered heavy opposition from JATAM (The Indonesian Mining Advocacy Network) when they were preparing to open seven coal concessions, which together would cover 3,500 km^2 of rainforest in Borneo, Indonesia. Part of the operation is in the transnational "Heart of Borneo" conversation area, described as "The lungs of Asia" (London Mining Network, 2013). Coal mining operations in these areas were said to be disastrous for the local people as well as the environment and that it would cause health problems, pollution and human rights abuses. Among other statements, Hendrik Siregar of JATAM claimed, "BHP Billiton, backed by UK shareholders and investors, tells the world that it is resourcing the future. Local communities in Central Kalimantan are telling us that coal mining is destroying their future." (London Mining Network, 2013)

4.1.2.2 George's River pollution

Information in sustainability reports

There is no information in the sustainability report regarding this incident.

Published independent information

In 2012, Endeavour, a BHP Billion subsidiary was accused of releasing high levels of zinc, copper, nickel, arsenic and aluminum into Brennan's Creek, which flows into the George's River south of Sidney. The water in George's River had, among other things, been used for swimming, fishing, watering veggie patches and leisure purposes but local communities were never notified if the polluted water could have a negative impact on health (ABC News, 2012). BHP Billiton, however, rightfully claimed they had license to distribute waste in the area (ABC News, 2012). There was a long going investigation about this matter, which in April 2013 resulted in Environment Protection Authority (EPA) conducting a license variation notice, basically giving BHP continued right to dump waste and pollute the river. At the same time, however, the EPA also added to the license that BHP Billiton were required to perform a program of works to achieve 95% species protection in Brennan's Creek and the George's River by December 2016 with the addition of ongoing controls (EDO NSW, 2013).

BHP Billiton, 2012-2014, GRI G3, Application level A+							
Indicator		Disclosure	Disclosure	Disclosure	Indicator performance over time		
		2012	2013	2014	2012	2013	2014
DMA							
G4-EN3	Direct energy consumption by primary energy source.	Yes	Yes	Yes	Increase	Increase	Increase
G4-EN4	Indirect energy consumption by primary source.	Yes	No	No	Increase		
G4-EN5	Energy saved due to conservation and efficiency improvements.	No	No	Yes			New
G4-EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.	Yes	Yes	Yes	In text	In text	In text
G4-EN7	Initiatives to reduce indirect energy consumption and reductions achieved.	Yes	No	No	In text		
DMA							
G4-EN8	Total water withdrawal by source.	Yes	Yes	Yes	Decrease		
	Surface water					New	Increase
	Ground water					New	Increase
	Sea Water					New	Increase
	Thrid party water					New	Increase
G4-EN9	Water sources significantly affected by withdrawal of water.	Yes	No	No	In text		
G4-EN10	Percentage and total volume of water recycled and reused.	Yes	No	No	In text		
DMA							
G4-EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	Partially	Yes	Yes	Increase	Increased	Decrease
G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	Yes	Yes	Yes	In text	In text	In text
G4-EN13	Habitats protected or restored.	Yes	Yes	Yes	Increase	Increase	Increase
G4-EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.	Yes	Yes	Yes	In text	In text	In text
G4-EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.	No	No	No			
DMA							
G4-EN16	Total direct and indirect greenhouse gas emissions by weight.	Yes	Yes	Yes	Decrease	Increased	Decrease
G4-EN17	Other relevant indirect greenhouse gas emissions by weight.	Yes	Yes	Yes	Increase	Increase	Increase
G4-EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	Yes	Yes	Yes	In text	In text	In text
G4-EN19	Emissions of ozone-depleting substances by weight.	Yes	Yes	Yes	Decrease	Increase	Increase
G4-EN20	NOx, SOx, and other significant air emissions by type and weight.	Yes	Yes	Yes			
	Flouride emissions				Increase	Increase	Decrease
	SOx Emissons				Increase	Decrease	Increase
	Mercury emissions				Decrease	Decrease	Increase
	NOx emissions				Increase	Increase	Increase
G4-EN21	Total water discharge by quality and destination.	Yes	Yes	Yes	Increase	Decrease	Decrease
G4-EN22	Total weight of waste by type and disposal method.	Yes	Yes	Yes	Increase	Decrease	Increase
G4-EN23	Total number and volume of significant spills.	No	No	No			
G4-EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.	Yes	No	No			
G4-EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.	Yes	No	No			

Table 3: Disclosure checklist - BHP Billiton

4.2 Rio Tinto

Rio Tinto is the world's second largest mining-company based on market value in 2015 (Statista, 2015). They state that they collaborate with neighboring communities to seek a sustainable improvement for climate change, water & air.

4.2.1 Information in Sustainability report

4.2.1.1 Information in Chairman's Letter

The focus of the chairman's letter in 2012 was to gain the financial trust back as this trust was damaged due to of a number of events within the organization. The material events were the impairment of US$14.4 billion in the beginning of the year, a discussion of the management of capital and the executive remuneration linked to board effectiveness. Because of these events the former CEO stood down and was replaced.

In 2013, the focus was on Rio Tinto's strong financial results and the restoration of the financial trust that was lost the previous year. It also focused on health and safety for the workers as a result of the three fatalities that occurred this year. The chairman also makes the statement: "We believe earning the trust of our host communities and governments is vital in creating sustainable shareholder value" (Rio Tinto, 2014).

2014´s chairman's letter is the first of these letter that mentions the environmental impacts of the company and it states that as society's expectations regarding this matter is increasing they strive to create mutual value. It also mentions that environmental investors seek strength, reliability and consistency and that the company will deliver sustainable returns to shareholders. In addition to the environmental issues they mostly write about their positive results, the increase in dividends and the addition of new board members.

4.2.1.2 Information in CEO Statement

In the 2012 CEO statement the newly appointed CEO Sam Walsh writes about Rio Tinto's safety improvements and how it, despite these improvements, were fatalities within the organization. He continues with writing about the importance of achieving zero unnecessary cost and that the focus for him as a new CEO in the coming year will be on managing the business portfolio by exploring new potential operations and letting go of the ones with little or no future. Regarding the environment, he writes about the Oyu Tolgoi

mine in Mongolia, which he mentions in the context of being a big part of Rio Tinto's growth investments.

In 2013, the CEO put a lot of focus on the environment and that it is important to minimize the impact on the stakeholders to deliver long-term business value in order for Rio Tinto to uphold their social license to operate. Further in the statement, he mentions that they met their 5 year goal from 2008 to lower greenhouse gas emission by 10% and that new goals will be set in 2015. He further mentions safety and that Rio Tinto, despite their improvements in this area, still have much to do, that this is the focus of all employees and that nothing is more important.

In the beginning of the 2014 statement he once again talks about safety. He says that even if there has been improvement within this area there have still been fatalities, which is not acceptable in Rio Tinto's organization. Due to this they have revised and refreshed the 2014 safety strategy. There is a small section covering environmental information where they state that their 2015 target for greenhouse gas emission that was met last year now have decreased by 18% since 2008. Moreover he writes that they have got awards related to environmental work for their sustainable development of 2014. He ends with saying that the focus for the coming year is both safety for the employees and the work for the environment and its surroundings.

4.2.1.3 Further information of interest

When creating value, one of the most important steps for Rio Tinto is to maintain their operations in the long-term and to achieve its legitimacy from society by how they handle the closedown and rehabilitation of operational sites. They mention Flambeau, Wisconsin in the USA as a former mine that is now a healthy mix of woodland, grassland and wetland. They also mention a former mineral sand mine near Punakaiki in New Zeeland which is currently being transformed into a corridor of native forest. In New Zeeland they are working with the government and voluntary organizations in order to restore the eco-system in a proper way.

Further on in the report Rio Tinto writes that during the whole value creation chain, from planning and development to operation and closure, they engage with stakeholders, as they believe that it is vital to face challenges in order to minimize the risk of operations and to

capture upcoming opportunities. They write that maintaining a good relationship with stakeholders is crucial to maintain their social license to operate and to deliver a sustainable growth.

Under the environmental section in all sustainability reports during this time period they use statements as "Wherever possible we prevent - or otherwise minimize, mitigate and remediate - harmful effects that our operations may have".

4.2.1.4 Information under the aspects

Air

In 2008, Rio Tinto started an engine idle reduction program, a program that was completed in 2014, which helped lower greenhouse gas emissions with a great amount while simultaneously reducing money spent on fuel. Rio Tinto´s fully owned subsidiary Richards Bay Minerals also won the "Annual National Association of Clean Air Award for Industry" in South Africa for its efforts to handle the quality of the air.

Under the Air section Rio Tinto mostly write pure facts about the specific emissions, as from where it origins and what health effects it can have. Here the greatest changes were, based on the GRI indicators, an increase in particulate matter/emissions (PM) in 2012 due to increased investment, an increase in NO_x in 2013 as a result of higher fuel oil usage, of which mostly is related to the shipping fleet, and a decrease in SO_x as a result of the divestment of a copper smelter in Palabora.

The 2008 goal to reduce greenhouse gas emissions by 10% to 2015 was met in 2013 where the reasons for the decrease of emissions were the divestments and closures of different smelters together with improved measurement in the Australian coalmines. Rio Tinto's view on these matters and its effect on the climate change is that it is important both in maintaining their social license to operate as well as how the climate change can affect their operations.

Waste

Rio Tinto's waste management has not been under any major changes during these years. Regarding their mineral waste, all operations must have a developed mineral waste management plan with the focus to minimize the environmental impact. They have during the years stated that the acid rock drainage is the most dangerous of the mineral waste as it

has affects that need long-term solutions. Rio Tinto is currently a member in The International Network for Acid Protection (INAP) where they promote acid rock drainage (ARD) research and control, and they state that they are constantly aim for improving the handling of ARD.

Biodiversity

The section about biodiversity start with the statement that Rio Tinto are fully aware of the impacts that their operations might have on the environment. To cope with the complexity of biodiversity in the mining sector Rio Tinto implemented a biodiversity strategy in 2013 to make all sites aware of the importance of managing the biodiversity and the related risks when dealing with this issue. If the sites prove to have a high or very high biodiversity risk they must develop an action plan in order to "help understand and minimize impacts, and, where appropriate, implement actions to achieve a net positive impact" (Rio Tinto, 2015). The stages of this action plan are to first seek to avoid damage to the biodiversity, when that is not possible, seek to minimize impact and when the operation is done, rehabilitate and try to achieve a net positive impact. In 2013, 24 of 33 high or very high sites had an action plan and in 2014 the number of sites with an action plan decreased to 21 out of 32. It was stated in 2013 that the goal is for all of them to have a biodiversity action plan ready by the end of 2015.

Rio Tinto ends with writing about a planned coalmine in Mount Pleasant, Australia. The project would operate where the surrounding area holds species that are only living in that specific area. They discuss that the biggest issue about this project is to balance the economic benefits with the social benefits the mine would provide in order to ensure the protection of the biodiversity in the long run.

Energy

Under the energy section, Rio Tinto states that the global energy and climate change challenges are best being met by companies, governments and society working together and the usage and choice of energy is a big part of the solution. They recognize the need for new and more effectiveness-enhancing energy technology and that renewable energy sources are important ingredients in coping with this issue. Rio Tinto's view on this matter has not changed dramatically during the investigated years. They are striving for more and better use of renewable sources and they know that they need to build a portfolio of these

projects. They are looking into new commercial renewable energy projects and now have a big focus on solar technology. The decrease in energy use has been a mix of operational changes and an effect of Rio Tinto's efficiency work at their operations. As mentioned, they are striving for sustainable energy and in 2014 75% of electricity came from renewable sources as hydro plants.

Water

As each of Rio Tinto´s sites have different challenges with water, some having water surplus and some having water scarcity, every operational site must set own ways to cope with these issues. All operation, however, focuses on minimizing water use, maximizing water recycling and to return clean water to the environment. All operations should base their water management on the group water-target and the group standard as well as meeting regulatory limits. Rio Tinto works with external parties to find which operations are in water scarce environment and 2014 around 34 % of the freshwater withdrawals were from 35 operations in water scarce areas.

In between 2012-2013 one of their group targets was to lower freshwater withdrawal by 6% and the water standard included that all operations should measure the water use and reduce impact on water sources.

In 2014, water use rose by 7% to 555 billion liters. This result is said to not truly show their work for better efficiency in water use as the increase mostly was a result of them having to manage the water surplus when mining below the groundwater table.

4.2.2 Scandals and controversies

4.2.2.1 2012 London Olympics and Bingham Canyon Mine, Utah

Information in sustainability reports

There is nothing to be found in the sustainability report regarding this issue, information that mentions the event can only be found on their webpage where Rio Tinto shortly describe what kind of metal the mine delivered for the Olympic medals.

Published independent information

One event that got Rio Tinto a lot of attention was when they where to deliver the metal for the Olympic medals to the Olympic games in London 2012. This was because the Olympics in London had the goal to be the most sustainable Olympics ever arranged, covering every aspect of the games. The critique given included thoughts related to Rio Tinto's comment that participation in the arrangements of the games could show the world how sustainable they where. The critique was based on the thought that Rio Tinto used this as a way of providing a picture of the company as being sustainable when a lot of organizations and individuals did not share that picture, hence they got critique for greenwashing (Al Jazeera, 2012).

The mine in Utah that provided the metal for the medals faced a lawsuit for air pollution a year after the Olympics and had, according to doctors consulted in the article, polluted the air for at least five years in way equivalent to smoking 20 cigarettes a day for people in the surrounding areas. People had reacted to the statement the former CEO Tom Albanese made when they won the 2012 Olympics contract. In this statement he said, "Being ethically responsible is a thread that runs through everything we do. We aim to bring long-lasting positive change to the communities where we work, respecting human rights, bringing economic benefits and looking after the environment … we have rigorous standards for air quality, ecosystems, biodiversity, climate change, the use of energy, land and water and waste disposal" (The Guardian, 2013).

4.2.2.2 Oyu Tolgoi copper mine, Mongolia

Information in sustainability reports

In the sustainability report Rio Tinto mentions this location but only address the deep-water aquifer they built on the site.

Published independent information

In 2013 Rio Tinto made headlines regarding their US$5 billion expansion in the Oyu Tolgoi copper mine in Mongolia. This because the mine was located in the desert and that they had not shown any plans on how they would get enough water to sustain the operations of the mine. The concerns where that the mine would take a huge part of the scarce amount of water available in the desert where the most affected group of people was

the nomads who were in great need of their wells and water holes to be filled (Global Post, 2014).

The result of Rio Tinto's operation was that they built a deep level aquifer to avoid using the surface water but they had to redirect a river to go around the plant. Because of the redirection of the river, they had to create a new spring to deliver water to the animals where the result was that it took water from the nomads wells and greatly disrupted their routines.

4.2.2.3 Grasberg mine. West Papua, Indonesia.

Information in sustainability report

There was no information in the sustainability report regarding this incident.

Published independent information

The surroundings of the Grasberg mine in West Papua has been a victim of extreme pollution. The river, coming down from the mine and the mountain, that once where crystal clear and full of fish in some places got a color similar to coffee and the surroundings where in some places similar to dessert. The inhabitants that once lived from the mountain and the river have experienced a dramatic change of their lifestyles as of this pollution (Earth Island, 2013). As a result of Rio Tinto being involved in this mine Norway's government let go of all investments related to Rio Tinto as the Norwegian government did not want to have any part in such extensive environmental destruction (BBC, 2008).

Table 4: Disclosure checklist - Rio Tinto

Rio Tinto, 2012-2014, GRI G3, Application level A+								
Aspect	Indicator		Disclosure	Disclosure	Disclosure	Indicator performance over time		
			2012	2013	2014	2012	2013	2014
Energy								
	DMA							
	G4-EN3	Direct energy consumption by primary energy source.	Yes	Yes	Yes	Decrease	Decrease	Decrease
	G4-EN4	Indirect energy consumption by primary source.	Yes	Yes	Yes	Decrease	Decrease	Decrease
	G4-EN5	Energy saved due to conservation and efficiency improvements.	No	No	No			
	G4-EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.	No	No	No			
	G4-EN7	Initiatives to reduce indirect energy consumption and reductions achieved.	No	No	No			
Water								
	DMA							
	G4-EN8	Total water withdrawal by source.	Yes	Yes	Yes			
		Freshwater				Increase	Decrease	Increase
		Poor quality water				Decrease	Decrease	Decrease
	G4-EN9	Water sources significantly affected by withdrawal of water.	No	No	No			
	G4-EN10	Percentage and total volume of water recycled and reused.	No	No	No			
Biodiversity								
	DMA							
	G4-EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	Yes	Yes	Yes	In text	In text	In text
	G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	Yes	Yes	Yes	In text	In text	In text
	G4-EN13	Habitats protected or restored.	No	No	No			
	G4-EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.	No	No	No			
	G4-EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.	No	No	No			
Emissions, Effluents and waste								
	DMA							
	G4-EN16	Total direct and indirect greenhouse gas emissions by weight.	Yes	Yes	Yes	Decrease	Decrease	Decrease
	G4-EN17	Other relevant indirect greenhouse gas emissions by weight.	Yes	Yes	Yes	Decrease	Decrease	Decrease
	G4-EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	No	No	No			
	G4-EN19	Emissions of ozone-depleting substances by weight.	No	No	No			
	G4-EN20	NOx, SOx, and other significant air emissions by type and weight.	Yes	Yes	Yes			
		Flouride emissions				Decrease	Decrease	Decrease
		SOx Emissons				Decrease	Decrease	Decrease
		Particulate emissions				Increase	Decrease	Decrease
		Nox emissions				Increase	Increase	Decrease
	G4-EN21	Total water discharge by quality and destination.	Yes	Yes	Yes	In text	In text	In text
	G4-EN22	Total weight of waste by type and disposal method.	Yes	Yes	Yes	In text	In text	In text
	G4-EN23	Total number and volume of significant spills.	No	No	No			
	G4-EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.	No	No	No			
	G4-EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.	No	No	No			

4.3 Glencore

Glencore is the world's fourth largest mining-company based on market value in 2015 (Statista, 2015). They state that they want to create stakeholder value and to achieve a sustainable development by going beyond the regulatory limits and to act in a responsible manor when conducting their operations.

4.3.1 Information in Sustainability report

4.3.1.1 Information in Chairman's Letter

There was no Chairman's Letter in the 2012 or 2013 sustainability reports but they implemented one in the 2014 report where the chairman gives overall information regarding safety as well as creating value for the communities by paying taxes and making investments. He also writes about the changes of the composition of the board. There are two features that he gives a bit more attention. One is about employee safety, which is their highest priority and the other one is taking their responsibility towards the environment very seriously.

4.3.1.2 Information in CEO Statement

In the 2012 sustainability report the CEO Ivan Glasenberg mentions that 27 deaths occurred during this year and states that this is unacceptable and should be preventable. As a result of this they have started a project with DuPont, a safety consultant firm, where DuPont are to review and analyze Glencore's safety management. Further on he writes about their environmental footprint as being one of the big challenges for Glencore and that there is room for improvement regarding their performance within this area.

The Focus of the CEO statement in 2013 were on employee health and safety for the workers as a result of the 26 deaths that occurred during the year within the organization and he continues with saying that Glencore is working on this matter and will not stop until the fatalities have come down to zero. He also mentions Glencore's work with investment in communities surrounding their operations. He ends this section with mentioning that they are seeing the last stages of the investment in the Mopani copper smelter where the reason for the upgrade was to lower the emissions.

In the 2014 report the big focus lies on the improvement of their environmental footprint area where they have just finished upgrades in the Mopani copper smelter. He also mentions that the number of fatalities decreased to 11, a number he does not find satisfying but he is glad that their started initiatives are showing results.

4.3.1.3 Further information of interest

Glencore states that they strive for keeping a corporate culture of correct ethical behavior that does more than just meeting the minimum regulatory limits. They further state that they engage with stakeholders and that it is important to see every location as an individual site and that the meetings with stakeholders is a big part of managing their operation in a way that meets Glencore's corporate culture.

When looking into Glencore's environmental ambition it says that their ambition is "To reduce our environmental impact, including our use of resources, such as energy and water, wherever possible" and when looking at their approach to sustainability they say "We work to minimize our potential effect, complying with or exceeding relevant regulation" (Glencore, 2016).

4.3.1.4 Information under the aspects sections

As can be seen in the disclosure checklist, Table 4, most of the indicators have had an increase between 2012-2014. Glencore have in the reports under the different aspects explained this as to a large extent being the result of increased operations.

<u>Emissions, Effluents & Waste</u>

Glencore states that their most frequent material emissions is SO_2, dust, PM and NO_x. These emissions most often come from fixed sources as smelter heaters and Glencore strives to control these emissions by capturing it with mechanical filters or exhaust gas treatment. This does not, however, include dust as the dust comes from many different sources as blasting or excavation. Therefore each operation must develop its own plan to minimize dust emissions based on the minimum requirements that is set up by Glencore, which include implementations as wheel washers and dust control centers to monitor dust levels. While doing this they state that they follow relevant regulatory limits and international standards of air emissions.

Glencore explain their temporary lower PM emissions in 2012 mainly as a result of a smelter being shut down between January and June. The decrease in NO_x in 2013 was a result of lower activity and lower consumption of bunker fuels. Otherwise there has not been much change in the information disclosed in this section.

Glencore's attitude towards waste management has changed during these years, from more or less only describing what kind of waste they had in 2012 to deliver a strategy for waste management in 2014. They state that their main waste is mineral waste as rock, tailings and slag and they also put focus on the way of handling the topsoil, as it is a valuable resource when rehabilitating closed operational sites. To minimize the impact on the environment all operations are to continually revise and improve their waste management and reuse as much of the waste as possible during the closure period, where one example is to use the waste rocks when filling a mine.

Biodiversity

In the biodiversity sections during these years Glencore puts a lot of focus on trying to minimize their footprint by removing as little topsoil as possible and rehabilitating areas as quickly as possible after the closure of the operations. They further state that they are running conservation programs in areas that have complicated and easily damaged wildlife, with programs involving taking care of trapped animals, constructing protective enclosures and having breeding programs. They also state that they try to take the local people and their cultural heritage in to account when planning an operation, as they know that they often have a special bond to the land. They have during the years ended this section with writing that they are committed to minimize the impact of their operation to the environment.

Energy

In the energy sections in all of the reports Glencore writes that energy efficiency is a priority for them and that they use renewable sources whenever possible. The 2012 and 2013 reports the biggest focus is that the Kazzinc mine, in Kazakhstan, operates a plant that deliver a great amount of electricity. This provides energy, which if raised from other sources as oil or coal would have released a lot of pollution. In the 2014 report they use almost the whole section to describe that they believe coal will remain to be a major source of energy even if electricity is on the way up and that they as a major producer of coal will

be able to maintain this business and develop technology that lowers the emissions related to the usage of coal.

In 2014 they changed the way they calculated the energy indicators, taking away energy for charted vessel. Because of this, Glencore has recalculated the numbers from previous years in the 2014 report. The increase in energy use in 2012-2013 is according to Glencore mainly because of the Bulga operations have experienced increased production. An increase in production is stated to be the reason for the slight increase in energy use in 2014 as well.

Water

In the water section Glencore explains their need for water to run their business as well as to keep their operations functioning. They also mentions the water related risks as managing water scarcity, preventing water contamination, the risk associated with shipping their products along the coastline and the possibility of spill that might occur in case of an accident. Further they explains that they interact with governments and people in affected areas as well as them having set minimum requirements for both owned and charted vessels to minimize chance of spill. The way they report about water management is more or less the same in all reports and much of the focus is on strategies for handling the future.

4.3.2 Scandals and controversies

4.3.2.1 Mopani copper mine, Zambia

Information in sustainability reports

In Glencore´s 2014 sustainability report they shortly mentions the Mopani mine in the CEO statement. They write that they obtained the mine in 2000 and back then all SO_2 was released. They continue by writing that they have been working on the issue and that their investment in upgrading the mine to capture SO_2 is finished, which makes them able to capture 95 % of the SO_2 emissions. They do not mention anything about the events in 2012.

Published independent information

The Mopani copper mine has been an object of extensive SO_2 emissions. According to reporters Ruth Sunderland and Rob Davies the mine in 2011 released 70 times the maximum health limit set by the World Health Organization of SO_2 emissions, which poisoned the water and air. (Daily Mail, 2011). Glencore responded to the article and said that they where going to invest in a system to reduce the emissions, a system that according to their sustainability report was finished in 2014. Measurements in March 2014 concluded that the emissions was up to 30 times the WHO limits and in august 2014 protest broke out due to accusations that seven people had been put to hospital as a result of these emissions.

4.3.2.2 Luilu Refinery, Katanga province in Congo

Information in sustainability report

There was no information in the sustainability report regarding this incident.

Published independent information

In the 2012 BBC Panorama´s John Sweeney made an undercover investigation of Glencore in Congo and found misuse of child labor in Tilwezembe Mine and environmental contamination around the Luili Refinery. When extracting the copper from the minerals Glencore have to use acid but the waste of the operation was released directly into a nearby river without being filtered in a proper way. Above Glencore's pipe in the river there was clear water but downstream of the pipe there was only brown sludge. A non governmental organization from Switzerland made a PH-test, where the result 1.0 is the same as pure acid and 7.0 is neutral; the result of the test was of 1.9. When Glencore's CEO was interviewed he admitted that it would probably not have happened if the location of the operation was in Europe or another developed country. He also said that they where working with the problem and that the pollution was a result of the mining actives before they bought the site and that the issue is not fixed over a night. He said that the pollution would be fixed but made no commitments to compensate the communities (BBC, 2012) (The Guardian, 2012).

4.3.2.3 Macarthur River Zinc Mine, Australia

Information in sustainability report

In the 2014 sustainability report Glencore mentions this incident and a report by Erias Group, an environmental impact assessment group. Glencore writes that this report, beside the problems, found some areas where the mine had been successful in its work towards a better environment. These areas were improvements in dust emissions, construction of a clay cover for waste rock to minimize pollution and better monitoring of ground and surface water. After this, Glencore responds to the matter with the waste rock and the pollution of water and states that the emissions almost have stopped completely and that air quality monitoring shows that the surrounding communities is of no harm.

Published independent information

In 2014 Erias Group did tests in a river near Macarthur River Zinc Mine (MRM) and the test showed high levels of lead, levels that were above Australian food standards. Erias Groups David Brown, who conducted the tests, found that nine out of ten fishes tested had higher lead levels than the Australian food standards allow and that the reason for the pollution was the pile of waste rocks located nearby the river. In the report there was also positive things about MRM's work, as over 63.000 trees that have been planted in the surrounding area and that they have decreased the level of dust by a large amount in the nearby area (ABC, 2014).

Table 5: Disclosure checklist - Glencore

Glencore, 2012-2014, GRI G3, Application level a+								
Aspect	Indicator		Disclosure	Disclosure	Disclosure	Indicator performance over time		
			2012	2013	2014	2012	2013	2014
Energy	DMA							
	G3-EN3	Direct energy consumption by primary energy source.	Yes	Yes	Yes	Increase	Increase	Increase
	G3-EN4	Indirect energy consumption by primary source.	Yes	Yes	Yes	Increase	Increase	Decrease
	G3-EN5	Energy saved due to conservation and efficiency improvements.	No	No	No			
	G3-EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.	No	No	No			
	G3-EN7	Initiatives to reduce indirect energy consumption and reductions achieved.	No	No	No			
Water	DMA							
	G3-EN8	Total water withdrawal by source.	Yes	Yes	Yes	Increase	Increase	Increase
	G3-EN9	Water sources significantly affected by withdrawal of water.	No	No	No			
	G3-EN10	Percentage and total volume of water recycled and reused.	Yes	Yes	Yes	Increase	Decrease	Increase
Biodiversity	DMA							
	G3-EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas. (Areas owned in High biodiversity value areas)	Yes	Yes	Yes	Increase	Decrease	Increase
	G3-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	Yes	Yes	Yes	In text	In text	In text
	G3-EN13	Habitats protected or restored.						
	G3-EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.						
	G3-EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.						
Emissions, Effluents and waste	DMA							
	G3-EN16	Total direct and indirect greenhouse gas emissions by weight.	Yes	Yes	Yes	Decrease	Increase	Decrease
	G3-EN17	Other relevant indirect greenhouse gas emissions by weight.	No	Yes	Yes	N/A	New	Increase
	G3-EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	No	No	No			
	G3-EN19	Emissions of ozone-depleting substances by weight.	No	No	No			
	G3-EN20	NOx, SOx, and other significant air emissions by type and weight.	Yes	Yes	Yes			
		PM				Increase	Increase	Decrease
		NOx				Increase	Decrease	Increase
		Sox				Increase	Increase	Decrease
	G3-EN21	Total water discharge by quality and destination.	Yes	Yes	Yes	Increase	Increase	Decrease
	G3-EN22	Total weight of waste by type and disposal method.	Yes	Yes	Yes	Increase	Increase	Increase
	G3-EN23	Total number and volume of significant spills.	No	No	No			
	G3-EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.	No	No	No			
	G3-EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.	No	No	No			

4.4 Vale

According to Statista (2015) Vale is the worlds fifth largest mining company based on market value, and the number one producer of iron ore (Vale, 2016a). They claim to have a vision of being "the number one global natural resources company in creating long term value, through excellence and passion for people and the planet" and their mission is stated as "to transform natural resources into prosperity and sustainable development" (Vale, 2016a)

4.4.1 Information in Sustainability reports

4.4.1.1 Information from Board of Directors

Vale's Message from Board of Directors is consistently quite vague regarding environmental information. In 2012 they mention that they made efforts in health and safety in order to reach the zero harm target and developed relevant projects in search of energy efficiency and management of water use. They also mention that they, as they formulate it, are constantly seeking best practices in social and environmental management. Furthermore they pride themselves each year of being listed on the Corporate Sustainability Index (ISE) of the São Paulo Stock Exchange. Other than that, there is little to noting about environmental work or progress with most of the information provided focused on financial aspects such as investments.

4.4.1.2 Information from the President (CEO)

The CEO-statements, or Message from the President as Vale chooses to address it, are during the 3 researched years greatly focused towards health and safety. Examples of this are when they during 2012 created "Golden Rules" and initiated the implementation of the Health and Safety Global Management System. Even though health and safety is clearly Vale's biggest objective, with for example an outspoken zero harms target since 2011, there were 15 fatalities during 2012, 7 fatalities during 2013 and 8 fatalities during 2014. In association to these deaths, Vale expresses the importance of commitment to safety and that they still have a long way to go to reach the goal in this category.

In 2012 he states that Vale has implemented 25 energy efficiency projects. He also discusses their Action Plan on Sustainability, a plan aimed at environmental matters such as

water and energy, to have reached 97%. The same measures decreased to 88% in 2013 while it was not mentioned in the CEO-statement of 2014.

In 2013, he claims that Vale has moved forward in integrating environmental and social criteria in their business strategy. Furthermore, he mentions water reuse initiatives in 77% of their operations, as well as vaguely mentioning the management of greenhouse gas emissions without going into detail. They also claimed to be making progress in the development of evaluating their dangers and affects on biodiversity while they increased the work of Vale Fund, a non-governmental area-protection fund started by Vale with a goal to assess the risks and impacts of biodiversity. At the same time they claim to have developed more projects concerning their improvement in waste management, decreasing emissions and closing of mines.

In 2014 he discusses the issues of global warming and how Vale seek to reduce direct greenhouse gases with 5% by 2020. Simultaneously he claims their awareness of the increasing need to protect water resources by promoting rational use of water and innovative technology.

Further in 2014, he expresses that Vale pride themselves in, since 2011, being part of a select group of companies in the United Nations Global Compact Lead, which is, among other areas, concerned with protecting the environment. At the same time they take pride in mentioning that they at the time are protecting a green area roughly six times larger than the total area of their operations with help from the earlier mentioned Vale fund.

4.4.1.3 Further information of interest

The Brazilian government is part owner in Vale and hold so called "golden shares" in the company where they are granted the right to veto in several different decisions. They are the only company in this report with such an ownership structure and it makes the Brazilian government a key stakeholder in Vale (Vale, 2016b).

Vale reports about cases where they are under investigation and/or where they have received fines in the ending part of their reports. In all cases they state that they are working on their defense or regrettably have lost in spite of their defense.

4.4.1.4 Information under the aspects sections

Air

Vale's Global Climate Change Mitigation and Adaptation Policy includes the company's Carbon Goal to reduce greenhouse gas emissions by 5% in 2020. In 2013 they claim to be the mining company with the lowest intensity carbon emissions per gross revenue in the market. Their Greenhouse gas-emissions have been declining steadily each year.

Waste

Vale's waste management has not changed a lot during the years. Their waste management is reflected in the way they manage their waste by different materials arranged into either tailings (waste materials resulting from processing iron ore) or waste rock (a material overlying the ore body). In 2013, they invested US$290 million in damns, dikes and waste rock piles, which represented the largest category of environmental expenditure. The amount of waste increased in 2012, decreased in 2013 and was not reported in 2014 according to the sustainability report.

Biodiversity

Vale pride themselves in making good progress in their construction of strategies for biodiversity and states that they have established prevention, control, mitigation and compensation actions for all stages of project life cycles. Their goal is to reduce the negative effects of land use while protecting territories in the regions where they operate; for example, more than 230,000 km^2 of natural areas, communities and native territories with financial aid from the Vale Fund.

Energy

Vale is working on the management and appropriate use of energy of projects with the aim to reduce consumption in transportation systems for material, utilities, and thermal systems. In 2014 they mention an example when they implemented an energy information system in its operations in Vitoria and Vale Fertilizers, which would make it possible to oversee the energy-performance and detect areas where improvements would be possible.

Water

Vale discusses the importance of water in the mining industry and how it is essential for operations. They further discusses that agriculture is the leading user of water resources. They claim to seek to ensure water conservation through initiatives that go beyond the legal requirement by, for example, developing innovative technologies to participate in the development of legal instruments for the management of water resources.

4.4.2 Scandals and controversies

4.4.2.1 The award "World's worst corporation of the year"

Information in sustainability reports

There were no information in the sustainability report regarding this incident.

Published independent information

In January 2012, Vale was rewarded with the not so flattering award as the world's worst corporation of the year at the Public Eye Awards (Friends of the Earth International, 2012). The Public Eye Awards was an online campaign, globally naming and shaming corporations around the world as a critical counterpart to the World Economic Forum in Davos and was active until 2015 (Public Eye Awards, 2015). Friends of the Earth International, the world largest grassroots environmental organization according to themselves, released a case study emphasizing how Vale's mining activities are contributing to the climate problem while Vale economically benefits from carbon offsetting. Among other things, the case study claimed that Vale increased its CO^2 emissions by a third, even though they set a reduction in this matter from the previous year as a goal (Friends of the Earth International, 2012).

4.4.2.2 Carajás Railway

Information in sustainability reports

Vale mentions being fined by IBAMA (Brazilian Institute of Environment and Natural Resources) for the inputs used in the expansion and maintenance of the railway and the potential environmental consequences it has caused. Vale also state that they presented an unsuccessful defense and ended up paying "the amount due" in fines, not mentioning any figures.

Published independent information

In 2014, Vale was granted a license to expand the Carajás Railway in order to boost productivity (Mining.com, 2014). The expansion met a lot of protests by Survival International, a global movement for tribal peoples' rights, who launched a campaign supported by nearly 30,000 people to stop the project (Survival International, 2012). Survival International claims that an expansion of the railway will severely hurt the Awá-tribe, called the world's most threatened tribe, claiming an increase in noise and number of invaders together with the fact that animal game needed to survive will be scared off (Survival International, 2012). Nevertheless, the project has been green lit and financed by Brazil's National Development Bank (BNDES) with approximately $2.8 billion (International Railway Journal, 2014).

Table 6: Disclosure checklist - Vale

Vale, 2012-2014, GRI G3, Application level A+								
Aspect	Indicator		Disclosure 2012	Disclosure 2013	Disclosure 2014	Indicator performance over time 2012	2013	2014
Energy	DMA							
	G4-EN3	Direct energy consumption by primary energy source.	Yes	Yes	Yes	Increase	Decrease	Decrease
	G4-EN4	Indirect energy consumption by primary source.	Yes	Yes	Yes	Decrease	Decrease	Increase
	G4-EN5	Energy saved due to conservation and efficiency improvements.	Partially	Partially	Yes	Decrease	Decrease	Increase
	G4-EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.	No	No	No			
	G4-EN7	Initiatives to reduce indirect energy consumption and reductions achieved.	Partially	Partially	Yes	Decrease	Decrease	Increase
Water	DMA							
	G4-EN8	Total water withdrawal by source.	Yes	Yes	Yes	Increase	Decrease	Increase
		Ground water				Decrease	Increase	Decrease
		Surface water				Decrease	Decrease	Increase
		Other				Decrease	Decrease	Increase
	G4-EN9	Water sources significantly affected by withdrawal of water.	Partially	Partially	No	Decrease	Decrease	
	G4-EN10	Percentage and total volume of water recycled and reused.	Yes	Yes	Yes	Increase	Decrease	Increase
Biodiversity	DMA							
	G4-EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	Yes	Yes	Yes	Increase	Decrease	Increase
	G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	Yes	Yes	Yes	In text	In text	In text
	G4-EN13	Habitats protected or restored.	Yes	Yes	Yes	In text	In text	In text
	G4-EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.	Yes	Yes	Yes	In text	In text	In text
	G4-EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.	Yes	Yes	Yes	Decrease	Increase	Increase
Emissions, Effluents and waste	DMA							
	G4-EN16	Total direct and indirect greenhouse gas emissions by weight.	Yes	Yes	Yes	Decrease	Decrease	Decrease
	G4-EN17	Other relevant indirect greenhouse gas emissions by weight.	Yes	Yes	Yes	Increase	Increase	Increase
	G4-EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	Yes	Yes	Yes	In text	In text	In text
	G4-EN19	Emissions of ozone-depleting substances by weight.	Yes	No	No	No change		
	G4-EN20	NOx, SOx, and other significant air emissions by type and weight.	Yes	Yes	Yes			
		NOx emissoins				Increase	Decrease	Increase
		SOx emissions				Increase	Decrease	Increase
	G4-EN21	Total water discharge by quality and destination.	Yes	Yes	No	Decrease	Increase	
	G4-EN22	Total weight of waste by type and disposal method.	Yes	Yes	No	Increase	Decrease	
	G4-EN23	Total number and volume of significant spills.	Yes	Yes	No	Increase	Increase	
	G4-EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.	Yes	Yes	No	In text	In text	
	G4-EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.	Partially	Partially	No	In text	In text	

5 Analysis

5.1 BHP Billiton in the context of greenwashing

BHP Billiton's reporting on sustainability matters shows that they indeed work hard to achieve a social contract. The hardest thing to determine seems to be, when discussing in matters of Gray's et al. (2014) philosophies about two different branches, if they can be stated to work hardest in the first or the second branch. However, statements in the sustainability report regarding potential financial risks from regulatory requirements regarding greenhouse gases contributes to a more financial cautiousness. This is pointing to BHP Billiton having greater awareness towards key stakeholders and investors rather than to society as a whole, putting them in the field of the second branch (Gray et al. 2014). Another example of this is the pollution of the George's River, which gives the impression of BHP Billiton being a company that performs in the environmental sustainability matter to the degree of what they are required to do. They had a license to dump waste in the river, and did so, even if it polluted it. This gives an impression that BHP Billiton cares more about regulatory matters, keeping them in the clear legally, granting them the opportunity to focus on profits and satisfying financial expectations from important stakeholders rather than actually caring about local environmental issues.

A big part of BHP Billiton's sustainability report is the discussion about safety among employees. In 2012 and 2013 they were not fatality-free as they aimed be and as a result it has been emphasized greatly in the CEO-statement. A disastrous event like a death of a person can, according to (Suchman, 1995) & (Lindblom, 1994), be seen as a harmful event of a firm's legitimacy. Inability to act on such events can in the eyes of legitimacy theory be dreadful and it is only natural that BHP Billiton wants to address these problems properly in their report. Along with the discussion about fatalities comes a notion about how they continuously learn more about the matter each year and how they try to show its stakeholders how they evolve in safety. This can be seen as legitimation strategy (Lindblom, 1994), where they educate the stakeholders on how much they work on reaching their goal of zero fatalities. Interestingly enough, the fact that BHP Billiton stresses the importance of safety primarily to environmental problems could be seen as another legitimation strategy where shifting focus from one problem, or event, to another can be an effective way to

distract stakeholders (Lindblom, 1994). The events of which may be in need of distraction could very well be BHP Billiton's progress in the environmental aspect, represented clearly in the disclosure checklist.

BHP Billiton's Disclosure checklist was quite unimpressive. In many of the different aspects there was a majority of red, indicating that a limited source has been used increasingly over the years. Since the disclosure checklist is based on GRI-indicators, the GRI framework may be questioned. BHP Billiton has an application level at A+, while the fact that a lot of their environmental indicators point to a negative result has no value in this matter. This reflects the ideas of Fonseca (2010) who discusses the fact that the GRI-guidelines may more be a tool to show what the company has done, rather than reflecting on damage and progress.

These increases, clearly shown in for example energy use and water use, may in some cases be explained with an increase in production or newly opened operational sites. However, the fact that increased productivity seems to be of greater priority than decreasing environmental impacts is in line with what MiningWatch Canada discussed about the impossibility of green mining (Mallet, 2008).

All the analysis above contributes to how BHP Billiton should be rated according to (Delmas & Burbano, 2011). Findings in this report show indications about being vocal in most matters but silent in some. The findings also pointed at BHP Billiton's bad environmental performance, making it a brown firm. BHP Billiton has, however, to the knowledge of this report never lied about being more environmentally friendly than they are, which according to Delmas & Burbano (2011) is a requirement for greenwashing, making them a "brown, silent firm".

5.2 Rio Tinto in the context of greenwashing

As can be seen in empirical findings, the information found in Rio Tinto´s sustainability report involves statements and sections that mention the environment as something that they take very serious. At the same time numerous sections can be found under the environmental part of the report where they use phrases as "minimize impact" or "whenever possible" when writing about their environmental related work. As what

Hooghiemstra (2000) wrote about that corporate social reports being used as a tool for impression management these findings goes in line with his thoughts about that it can enhance Rio Tinto's organizational image as it seems like Rio Tinto have thought through when to mentions what in the report in order to present the company in a way that suits them the best. This is also in line with one of Lindblom's (1994) strategies to minimize the potential effect of events that could hurt their legitimacy, more exactly to distract the attention from issues of more severe meaning.

Based on the sustainability reports and the disclosure checklist Rio Tinto can be seen as a company that somewhat has answered the call from society to act in a more sustainable manor. As Kaplan & Ruland (1991) argues, legitimacy on an organizational level can be seen as a resource just as money and has to be handled as this in order to seek approval or avoid sanction form society. A form of this can be seen when looking at the focus of the Chairman Letters and the CEO statements. These sections often follow the critical events of the company and addresses issues that is of importance for various stakeholder, as safety when fatalities where high, financial trust when there was financial problems, and eventually also addressing the environmental issues. When thinking from the perspective of the stakeholders this can be linked to what Deegan & Unerman (2011) says about finding what stakeholders find important at the moment to gain their approval and support, as well as what Deegan (2002) discusses about communicating the commitment towards society in order to maintain the social license to operate.

When looking at the information under the different aspects in the report and the information on the disclosure checklist it can be seen that Rio Tinto have started to improve their environmental related work during these years. They have won awards in 2014 and started projects as the engine idle program. They have also developed strategies to handle the problems as maintaining the biodiversity, minimizing the water usage, maximizing water recycling and rethinking their energy usage. Even if this looks good at a first glance the report does not give a clear picture when reading into it since they often use words and phrases that distances them from doing the little extra. The statements as "meeting regulatory limits" under the water section and "minimize" and "whenever possible we prevent" under the environmental section gives the picture of being a company not totally committed to sustainable development even if the findings present signs of change. When reading this in the eyes of what Merkel-Davis and Brennan (2011) says

about the social phychology perspective of impression management Rio Tinto can be said to try to convey a picture of a company that focuses on their strategies and performance in order to minimize the potential societal sanctions of the company's further actions. The fact that many of their decreases and increases, which can be seen in the disclosure checklist, are results from closures of mines and increased investments gives reason to question whether these increases and decreases are results of changes in on going operations or results of their actual work with environmental performance.

When taking information from the environmental related scandals into the analysis, the findings shows that there have been scandals of severe meaning that contradicts what Rio Tinto states in the sustainability report. Du's (2015) study of how the markets react when companies' environmental claims are proved wrong shows that when Rio Tinto states their responsibility regarding their environmental footprint, and do not follow up these statements, there is a high chance that society's trust towards Rio Tinto's further statements will be questioned and mistrusted. When looking at the fact that Rio Tinto barely mentions these scandals in the sustainability reports it paints, from an legitimacy perspective, a picture of a company that do not take these kinds of issues very seriously. It is odd, considering that Rio Tinto writes in their report that it is highly important for them to maintain a good relationship with the society and the stakeholders, that these issues and scandals are not addressed properly. As mentioned earlier, Kaplan & Rulands (1991) says that legitimacy can be an as important resource as money and when Rio Tinto do not try to legitimize or give an explanation to events as these, but only communicates positive things, it could in the long run hurt their relationship to society and hence affect and potentially hurt their social contract.

The discussion about whether or not Rio Tinto are greenwashing by delivering metal for the Olympic medals is not surprising considering the statement that the CEO did about the matter. He said that the participation in the arrangement of the Olympics was a chance for Rio Tinto to show their sustainability performance. They are a company and hence they want to win contracts like these as it is a way to get publicity; however, making a statement like that when the findings have pointed to how negatively Rio Tinto handles some of its operational sites, as for example the Utah mine, raises the question whether they are giving a fair picture of the company.

The information collected from the sustainability reports combined with the information from published independent sources covering events as the Olympics and the Utah mine, the Grasberg mine and the Oyu Tolgoi mine gives two different pictures of the same company. The majority of the report states that they are acting for a sustainable development and that it is important for them to engage with the stakeholders in a sustainable way but at the same time the findings shows that Rio Tinto use phrases as "minimize" and "whenever possible" in several sections of the report. The way they write the report leads us to Skouloudis et al's (2010) study about that the GRI based reports can be misleading and more related to self-laundry than to clarify the companies approach regarding their responsibility towards the society, as well as Blanding's (2011) critique that sustainability reports are being used more as a public relations tool that what its ultimate purpose it.

When applying Delmas & Burbanos (2011) matrix and terms of how to define greenwashing, as green or brown companies and vocal or silent companies, Rio Tinto falls under the category of being brown because of their environmental performance and as silent as a result of them do not mentioning these issues in a way to cover their true performance or to give a positive view of the company, which is the definition of being vocal. Hence, we have found that despite Rio Tinto's questionable statements in the report they do not fall under the category of being a greenwashing firm but as a "brown, silent firm".

5.3 Glencore in the context of greenwashing

When analyzing Glencore's information in the sustainability report the findings show several parts where they state their willingness to act in a sustainable manor. This can be seen in both the report where they state that they are willing to go beyond what needs to be done from a regulatory perspective as well as on their webpage where they once again state that they are willing to go beyond regulatory limits to minimize the impact of their operation. These statements give a picture of a company that has the ambition to do the little extra for society when conducting its operations. It shows from an ethical stakeholder perspective that they, according Deegan & Unerman (2011), take the responsibility towards the whole society serious. Gray et al (1997), however, argues that this can be quite vague as it addresses the issues very general and do not give any comprehensive insight in the specific issues.

Hearit (1995) discusses that it can be hard to decide what information to disclose and whether the benefit of the disclosures exceeds the cost. The findings shows that Glencore's content under the aspect sections in the sustainability reports has been quite the same over the years 2012-2014 and have mostly been covering general facts which, according to Hearit (1995), can be seen as Glencore not finding it important to give more specific information if seen to what they get back. Glencore uses almost all the text in these sections to explain their strategies or to give facts as, for example, what health implication their different emissions can have. Even if Glencore in one section describes that the increase of the indicators mostly is a result of increased operations this do not give adequate information of how the company is doing or have been doing the last years in the different areas, as the indicators alone do not show what areas have increased due to increased operations or what areas have increased due to other reasons. As the indicators only show numbers and do not give any comprehensive explanation to the changes it will, for readers, be hard to follow up Glencore's statements regarding their strategies related to the different areas. Based on Skouloudis et. al's (2010) study, Glencore's way of conducting the report can be a way of self-laundry as they, according to the authors, then use the reports to put themselves in a brighter light than what is in reality. It can also be that Glencore is focusing on communicating and managing the impacts of their future operations with the extensive disclosure of their strategies. In this case it would be in line with what Gray et al (2014) and Deegan & Unerman (2011) says about achieving legitimacy as when Glencore discloses information about their strategies on how to cope with future issues it enhances their chances to maintain a social license to operate.

The scandals that Glencore have been involved with during the investigated years show that despite Glencore's stated obligations of having sustainable operations severe environmental scandals have occurred. Despite this, fact the findings show that at their operations they most often already have begun working on the issues related to environmental damage. This can be seen in the Mopani mine where they have started to lower the SO_2 emissions or in the MacArthur River zinc mine where the report from Erias Group showed that Glencore had done a lot of positive environmental related work. The improvements at Glencore's operations are positive, but when seen from a stakeholder perspective it is odd that Glencore do not compensate their affected stakeholders in situations like Luilu Refinery. Especially as they state that they are going to go beyond

regulatory limits as well as it is important for them to take care of their stakeholders in order to continue their operations. If they would compensate the affected communities it would, from a stakeholder perspective, show that they value their stakeholders and by this showing signs of the willingness of keeping a good relationship with them.

What seems to be consistent through all the scandals is that Glencore respond to the attention from society. If not mentioning the issues in the sustainability reports, which they did in the MacArthur incident, they have responded to the interest from society in other ways, for example interviews, and tried to explain their view on the matter. If compared to other companies in this sector Glencores responses can according to Matisoff (2013) lead to competitive advantage as it shows signs of the willingness to be an transparent organization as well as it is in line with what Gray et al (2014), Guthrie & parker (1989) and Deegan & Unerman (2011) says about maintaining the social license to operate by disclosing information regarding the environmental actions they take.

Based on the findings Glencore is a company that does not completely see their vision and statements as a law while at the same time being far from ruthless in the context of their environmental impact. The combination of the statements in their report, the way they have handled the scandals as wells as their response to the affected stakeholder gives the view of a company that is in a sector where it is hard to act in a sustainable manor but to some extent tries.

When applying Delmas & Burbanos (2011) matrix and terms of how to define greenwashing, as green or brown companies and vocal or silent companies, Glencore falls under the category of being a brown firm as a result of that they have been involved in several environmental related scandals and silent as they have addressed the issues to the public but not in a way to cover it up. As of this Glencore do not fall under the category of being a greenwashing company but instead as a "brown, silent firm".

5.4 Vale in the context of greenwashing

When analyzing the empirical findings of Vale, one thing that was noticed was the fact that they, since 2011, are a member of the United Nations Global Compact Lead. This gives legitimacy while at the same time gives stakeholders an incentive to trust the company and

their disclosed information. It can also be used as o tool in impression management, contributing to Vale's image (Hooghiemstra, 2000).

Vale focuses a lot on financial aspects and safety. The Message from Board of Directors mostly discusses investments and finance while the Message from the President highlights health and safety. One might argue that this may be some sort of distraction from environmental issues. According to (Lindblom, 1994) that kind of distraction is usually performed with positive incidents, while the many fatalities every year are clearly not. This can instead be seen as a high level of transparency where they need to show a legitimate concern, that they take severe events such as fatalities very seriously and that they work for a healthy and safe society (Hooghiemstra, 2000). The decrease in their Action Plan in Sustainability over the 3 years may be explained with the increase in focus towards safety, even though several fatalities occurred all of the years.

The fact that Vale is partly governmentally owned is interesting. They can, in a stakeholder theory-perspective, be placed in the second branch where the Brazilian government is a key stakeholder, since it is also a stockholder with veto in important questions thanks to their golden shares (Deegan & Unerman, 2011). The importance of the increased productivity from the Carajás Railway becomes clear when Vale, supported by governmental funding, started the expansion even though it meant severe environmental consequences.

Vale's disclosure checklist from 2012 through 2014 is not perfect, nor horrible. The last year, 2014, was the worst of the three. This, once again, furthers the opinion of (Fonseca, 2010) about the GRI-guidelines being a tool of just disclosing instead of improving. The usage of the GRI-guidelines is, however, an important tool of impression management as it is in accordance with the Sociology perspective presented by Merkl-Davies & Brennan (2011), since it is a consensually developed system on how to disclose this kind of information.

The "winning" of the public eye award as the world's worst corporation in 2012 raises questions about Vale's sustainability reporting. Incidents like this requires, according to (Suchman, 1995) (Lindblom, 1994), counter-actions to restore the legitimacy of the company, which may explain why Vale engages in many different positive initiatives. Some

of these initiatives are, as mentioned earlier, the United Nations Global Compact Lead, the protection of a green areas and the Vale fund.

Linking to the purpose of this thesis, Vale's sustainability report in general is very extensive and on a positive note they seem to be working hard to actually perform good deeds for the environment. In the different categories of aspects they mention under the air section that their total direct and indirect greenhouse gas emissions have been decreasing every year. However, at the same time, the disclosure checklist shows that other relevant indirect greenhouse gas emissions have increased each year, which begs the question if one parameter of greenhouse gas emission simply has replaced another? In the water section, Vale expresses the importance of water in their field of operations and how their operations cannot be carried out without it. At the same time they point their finger at the agricultural industry, basically claiming that they are the real water-villains whom uses the most water. Under the energy section, they discuss their work of implementing projects to monitor and eventually reduce energy consumption by locating areas where opportunities of energy reduction may possibly appear and overall it seems as the energy consumption is decreasing according to the disclosure checklist. Biodiversity seems to be the field where Vale has reached greatest results so far; the Vale fund protects collectively a large area of land. It is however, interesting to see that this is in secondary priority compared to increased productivity and profits when comparing with the Carajás Railway expansion.

The information analyzed under the environmental aspects can easily be linked to Legitimacy Theory. The mentioning of one positive greenhouse gas parameter and the silence about a negative one is a distraction-method putting focus on factors profitable for their image (Lindblom, 1994). When it comes to the water section, Vale expresses the need for water usage and tries to change the stakeholders perception on the issue, educating them about that this is something that needs to be done in order to continue operations and hopefully change the external expectation about the complication (Lindblom, 1994). The implementation and developments of different projects, as to reduce energy consumption and work with biodiversity, seems like a way to not promise too much but still showing that they will try to minimize negative factors, which seems to have effect and grants Vale legitimacy from society (Deegan C. , 2002).

Vale presents a well-structured and informative sustainability report every year. However, the published independent information suggests that the information disclosed by Vale is perhaps not the whole picture. They can be seen as a silent firm, since they are clearly not disclosing about negative incidents as much as may be desired. Delmas & Burbano (2011) discuss that companies are not vocal about matters that will have a negative impact on their operations. To at the same time being as vocal as they are about environmental matters points to Vale trying to give the impression of a environmentally responsible company in order to shift focus from negative incidents, in line with Legitimacy Theory concepts of Lindblom (1994). This can, however, not be seen as clear lies about being greener than they are which according to Delmas & Burbano (2011) is a condition for greenwashing, making them a "brown, silent firm".

6 Conclusion

When looking at the findings one can see that non of the companies in this sector are by large contributing to a better environment which is understandable as the very nature of the business is to remove what have been in the ground for centuries. What have been found, however, is that many of the studied companies had environmental enhancing projects, while at the same time being involved in different severe environmental related scandals and controversies. This resulted in the conclusion of the mining companies' environmental performances being contradictory when compared to their vision and values.

The findings of how the reports are used are in line with what Hoogheimstra (2000) says about impression management, that organizations attempt to control the image that is projected in the social interaction. The findings implies that they are using the reports to create their own reality and that it in some cases does not reflect the truth about their operations.

When using Demlas & Burdano's (2011) matrix of how to define greenwashing none of our companies was categorized under greenwashing. This was concluded because of the fact that none of them specifically stated that their environmental work was perfect or flawless, nor did they specifically lie about criticized incidents, making them silent. They mostly wrote about strategies and used vague, protecting phrases as "whenever possible"

or "appropriate" in sections where they stated the environmental performance. As a result of their bad environmental performance, poor treatment of operational sites and unsatisfactory reactions to controversies, it was concluded that all companies could be considered as brown firms. Accordingly, they were all labeled as "brown, silent firms". A conclusion can thus be made that none of the four mining companies in this report are conducting clear, concrete greenwashing. An assumption, however, can be made about all four companies operating in a morally questionable manor, in a morally questionable industry.

7 Discussion

As our analysis and conclusion shows, all companies in this report were labeled as "brown, silent firms". The determination of the labeling can however be discussed further. It has, on the grounds of the companies being more environmentally harmful than vice versa, undoubtedly been stated that they were all brown. Deciding on whether or not they were vocal, which would imply them being greenwashing companies, proved to be more difficult. We would, however, discuss if being silent about negative matters can be seen as a form of greenwashing. Having negative matters are considered brown, while disclosing about positive operations is considered vocal. Therefor it is hard not to jump to the conclusion that brown plus vocal equals greenwashing.

Whilst conducting this thesis, we became more and more convinced about the impossibility of the mining industry being environmentally sustainable. According to Mallet (2008) MiningWatch Canada implements the idea that a truly green mining company concentrates more effort on conserving and recycling minerals than collecting them, making the industry senseless. This is an idea that we agree with while simultaneously the mining industry is a necessity for our way of life. It is also an industry contributing positively for the environment in many ways, although seemingly not in as many ways as it is environmentally destructible.

Additionally, signs in this report point to a questioning of the level of morality within the mining-industry. The clearest example of this is Glencore's pollution from the Luilu Refinery, Katanga province in Congo but also the Vale's treatment of the Awá tribe. Both cases hint about wealthy powerful corporations taking advantage of poor, defenseless

communities. The statement of Glencore's CEO about the fact that such a thing would probably not occur in Europe or other developed countries specifies these concerns.

Lastly, when analyzing the companies using the GRI-framework, we found that the indicators alone do not provide sufficient information. For example, the indicators concerning water withdrawal, where the indicator EN-8 examines total water withdrawal by source and the indicator EN-9 examines water sources affected by withdrawal of water should be reported together. As it is currently structured, they are two separate indicators which alone gives inadequate information. The companies in this report always report on EN-8 and almost never report on EN-9, which deprives the reader of which water source and to what extent it has been affected. Since the concerns of environmental protection is a big part of the GRI-framework, it can be discussed for further research if not an amendment concerning linkage between indicators such as EN-8 and EN-9 should be applied in order to increase credibility to the GRI framework.

8 Ethical Issues

Possible ethical issues have been taken into consideration when conducting this report. All collected data has been taken from publicly available and free sources. The majority of the data collection has been done through scientific journals, textbooks, company-written reports. The rest of the data collection was done through media research. No company-confidential information has been used in the research. All the information gathered in our data collection is either available to us through the school library database or publicly released and available to everyone. Parts of the empirical findings are based on The GRI-framework, which is a globally recognized standard; hence it can be considered trustworthy in providing reliable information. This report is in no way meant to harm any participants but merely to spark a discussion in the hopes of contributing to a better, more environmental friendly society.

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