ENV 600 Project Thesis

Annisa Loadwick

Student Number: 31191952

Supervisor: Angus Morrison-Saunders

Understanding the use of Corporate Social Responsibility (CSR) to address climate change by oil and gas companies in developing nations

Declaration

Annisa Loadwick declares that this Project thesis is her own account of her research.

Abstract

Corporate Social Responsibility (CSR) is a tool which oil and gas (O&G) companies can use to voluntarily go beyond compliance with laws and regulations to address sustainability issues. This research examines the reported use of CSR by O&G companies operating in developing nations to address climate change mitigation and adaptation. Developing nations may lack regulation, capability or willingness to require O&G companies to take steps to mitigate or adapt to climate change due to weak institutional structures, lack of enforcement of regulations, and the competing interests of economic development and tackling climate change. The first aim of the research was to establish whether there is recognition of the issue of climate change in the CSR Reports of O&G companies operating in developing nations. If so, what are the strategic responses by these companies to climate change? The second aim was to explore if O&G companies who operate in developing nations are using CSR programmes to conduct climate change mitigations and adaptation activities. If so, what are these mitigations or adaptations that are being deployed voluntarily as CSR? The method included a literature review and then an analysis of the CSR Reports of 20 O&G companies with operations in developing nations. Questions were established to identify what strategies, if any, companies were deploying to mitigate and adapt to climate change. These questions were used to collect data from the CSR Reports of 20 O&G companies with operations in developing nations. The research found that O&G companies operating in developing nations are deploying strategies to mitigate and adapt to climate change. Most companies recognised climate change as an issue in their CSR Reports and had deployed strategic responses to climate change as CSR. These responses included memberships of voluntary organisations, GHG emissions reporting and reduction, investment in renewable energy and other activities such as tree planting and deployment of carbon capture and storage technology. The O&G industry does recognise climate change as an issue and is using CSR as a tool to respond voluntarily and deploy mitigation and adaptation strategies. However, this research indicates that the CSR programmes of O&G companies are not necessarily addressing climate change ‘on the ground’ in developing nations.

Table of Contents

1. Introduction

The concept of Corporate Social Responsibility (CSR) was created in the developed world, particularly in the United States and the United Kingdom in the 1980s (Doh, et al., 2015). The implementation of CSR programmes was a result of stakeholder influence – the stakeholders requiring companies to be accountable for and reduce, among other things, their impact on the environment caused by their operations in both the developed and developing world (Doh, et al., 2015). There is no single definition of CSR; rather CSR is an "…umbrella term for a variety of different theories and practices…" (Frynas, 2009, p. 2) which recognise that international corporations have obligations to the societies and environments in which they work as well as responsibility for the actions of those other companies with whom they work, and that in order to go beyond basic legal compliance, they must take voluntary action (Frynas, 2009, Ortar, 2014). CSR activities are a mechanism whereby organisations can fill "institutional voids" in countries where government regulation is lacking (Doh, et. al, 2015, p. 112). CSR activities are a voluntary strategic response by organisations which aim to highlight to customers and stakeholders that the company is socially responsible and can be viewed as a form of self-regulation (Doh, et al., 2015, Michelon, et al., 2015). CSR can also be considered as a value alignment between and among stakeholders (Mallin, 2009) that balances the company's economic interests with societal and/or community aspirations, needs and concerns (Frederick, 2008). CSR can be understood as a managerial socio-economic-cultural-ecological 'sensitiveness' to the operating context (Burja & Mihalache, 2010).

It was largely oil and gas (O&G) companies who were responsible for the introduction of CSR programmes in the past few decades, following environmental disasters that resulted in damage to various companies' reputations (Utting & Ives, 2006, Frynas, 2009, Contrafatto, 2014). In recent years, companies from all industries are increasingly disclosing their environmental impacts through CSR reporting (Michelon, et al., 2015). In the past CSR reporting was included in companies' annual reports, however there is now a trend towards stand-alone reporting on CSR activities (Michelon, et al., 2015). The term "CSR Report" encompasses a range of reports, including Social and Environmental Reports and Sustainability Reports (the latter term more frequently used) which companies publish disclosing their CSR activities (Mobus, 2012, Contrafatto, 2014). It is now usual for many O&G companies to produce CSR Reports as an initiative aimed at reporting activities these companies are taking towards managing their impact on the environment and societies in which they operate (Mobus, 2012, Contrafatto, 2014, Michelon, et al., 2015).

Combating climate change is at the top of the agenda for many countries worldwide (with some notable exceptions including Australia, Russia and the US) (United Nations, 2016). Key aspects of tackling climate change are either mitigation or adaptation activities (Ortar, 2014). Mitigation activities aim to reduce greenhouse gas (GHG) emissions to try to slow the rate of climate change, whereas adaptation activities aim to assist humans, animals and the environment to adjust to the new climate (Ortar, 2014).

The O&G industry is one of the largest industries in the world and is recognised as a leading contributor to climate change – more than half of the GHG emissions in industrialised countries are from the combustion of oil-based fuels for transportation (petrol and jet fuel), generation of electricity and heating (both from the burning of natural gas) (Kolk & Levy, 2001, Schneider, et al., 2013). The top source of carbon dioxide emissions since the industrial revolution has been from companies in the oil, gas and coal business (Heede, 2014, Ortar, 2014). O&G companies have started to change their behaviour in the face of both public pressure and increased regulation to become more sustainable in the face of climate change (Kolk & Levy, 2001). These companies can choose to implement various strategies for addressing climate change in the form of CSR activities (Kolk & Levy, 2001). These 'strategic responses' can range from voluntary memberships of organisations with a focus on climate change action, to monitoring and reporting GHG emissions to investing in renewable energy (Levy & Kolk, 2002).

Most O&G companies are truly global and operate in various countries, including developing nations (Raufflet, et al., 2014). However, developing nations face challenges in ensuring a balance between environmental regulation and the economic benefits of O&G exploration and production (Netalieva, et. al, 2005, Abdulrahman, et al., 2015). Developing nations may not have effective environmental regulation (Netalieva, et. al, 2005), if any regulation at all, to drive an O&G company to adopt climate mitigation strategies or undertake adaptation (The World Bank, 2010). It is suggested that CSR programmes are an approach used by companies to tackle the legal and regulatory deficiencies in these developing nations (Doh, et. al, 2015, p. 112). Doh, et al. (2015, p.113) contend "…that CSR and sustainability effectively substitutes for an institutional deficiency..." in developing nations.

The purpose of this research is to identify the extent to which O&G companies who operate in developing nations are using CSR programmes to mitigate or adapt to climate change. The research questions are:-

1. Is there recognition of the issue of climate change in the CSR Reports of O&G companies operating in developing nations? If so, what are the strategic responses by these companies to climate change?
2. Are O&G companies who operate in developing nations using CSR programmes to conduct climate change mitigations and adaptation activities? If so, what are these mitigations or adaptations that are being deployed voluntarily as CSR?

It was hypothesised that the selected O&G companies will recognise the issue of climate change and include an account of it within the CSR Reports. Those companies from developing nations, however, would be less likely to recognise climate change as an issue and deploy strategies as CSR to mitigate or adapt to it. This is because of the lack of regulation with respect to climate change in developing nations.

2. Methods

2.1. Literature & Document Review

A literature review was an important starting point for the research in order to capture existing research for the topic (Rowley & Slack, 2004). The literature review was important as it was used to contextualise the research and focus the analysis of the CSR Reports. The literature review was focussed on identifying existing CSR activities by O&G companies with respect to climate change by using both scientific literature, the CSR Reports and information available on the internet from both private and government sources. The databases that were searched include ScienceDirect, Research Gate, Wiley Online Library and Sage Journals. The literature review was largely undertaken in the first six months of 2016.

The most recent (2014 – 2016) CSR Reports[1] of 20 O&G companies operating in developing nations were reviewed to identify the extent to which companies are engaging in climate change mitigation and/or adaptation activities through CSR programmes. The 20 O&G companies and details of the CSR Reports reviewed are identified in Appendix A. The data collected was the presence of climate change mitigations and adaptations in the CSR Reports of the 20 companies listed in Appendix A including memberships of various organisations. As indicated by WBI Evaluation Group (2007), the review of the CSR Reports is intended to complement the literature review and to obtain the data which will allow the assessment of whether O&G company CSR strategies and activities include climate change mitigation and adaptation activities. This research project involved the review of literature and then an analysis of the CSR Reports and collection of the data to answer the research questions.

[1] For the purpose of this research, Sustainability Reports, CSR Reports and CSR and Sustainability sections of websites were used and are referred to collectively as “CSR Reports”.

2.2. Selection of Oil & Gas Companies for CSR Report Assessment

The O&G companies were selected based upon the following criteria:-

a. The companies operate in developing nations;
b. The companies represent a cross-section of both (i) independent O&G companies (IOCs) including some of the super-majors[2], and (ii) national oil companies (NOCs).

It was not a requirement for the company to be publicly listed, although it would be expected that most publicly listed companies would publish CSR Reports. Fourteen of the 20 O&G companies are listed companies but of those listed companies, some are NOCs. Approximately half of the companies are IOCs. These 20 O&G companies have operations in the following 59 developing nations:-

> Afghanistan, Algeria, Angola, Argentina, Azerbaijan, Bangladesh, Brazil, Brunei, Cameroon, Chad, China, Columbia, Congo, Croatia, Egypt, Equatorial Guinea, Ethiopia, Gabon, Ghana, Guinea, Guyana, India, Indonesia, Iraq, Ivory Coast, Kazakhstan, Kenya, Kurdistan, Lesotho, Liberia, Libya, Madagascar, Malaysia, Mauritania, Mexico, Morocco, Mozambique, Myanmar, Namibia, Nigeria, Oman, Pakistan, Philippines, Qatar, Senegal, South Africa, South Sudan, Sudan, Suriname, Swaziland, Tajikistan, Timor Leste, Thailand, Tunisia, Turkmenistan, Uganda, Uruguay, Venezuela and Vietnam.

The author aimed to select companies that represented a cross-section of the O&G industry. Twelve companies are integrated oil and gas companies (meaning they have both upstream, midstream and downstream businesses (The New York Times, 2016)). Eight companies are originally incorporated in the developed world and have O&G assets located in both developed and developing nations. Five companies are NOCs from developing nations. With the exception of one NOC, the NOCs have operations both within their home country and internationally. Two companies are originally incorporated in developing nations. Five companies are upstream O&G companies. Two of these upstream companies are originally incorporated in the developed world, but with operations solely in developing nations. One upstream company has operations both in the developed and developing world. This is important because it shows that the sample has O&G companies with different histories, both from the developed and the developed world, with different structures and participation in the full range of the O&G industry from

[2] These are the world's largest oil and gas producing companies.

upstream to downstream. What is consistent about these companies, is that they have operations in developing nations.

It is very difficult to identify all O&G companies operating in developing nations. For example, KPMG (2013) suggested there were 500 companies conducting O&G exploration activities in Africa. However, the author considers that the use of 20 companies which have operations in nearly 60 developing nations is a sufficiently robust sample due to the cross-section of the companies selected and that the companies selected includes six of the World's Biggest Oil & Gas Companies for 2015 by barrels of oil equivalent per day (boepd) produced (Forbes, 2016).

2.3. Evaluation of Qualitative and Quantitative Data

Since this research involves the collection of qualitative data, the author wanted to ensure that "…efficient and defendable procedures for analysing qualitative data…" were used (Thomas, 2006, p. 237). Quantitative data was also collected through a present/not present approach using the questionnaire. An inductive approach was used for this study. An inductive analysis means that data is evaluated and "…concepts, themes, or a model…" are developed from that data by the evaluator (Thomas, 2006, p. 238). The aim of using an inductive approach is to permit the data to guide and produce the research conclusions (Thomas, 2006). The output from an inductive analysis should aim to summarise the data in such a way that important trends can be identified (Thomas, 2006). Setting out a method for categorising or coding information is helpful (Thomas, 2006).

In order to create the evaluating criteria, a combination of approaches from Fournier (1995) and Levy & Kolk (2002) was used. Fournier (1995) suggested that in order to evaluate using general logic, a process should be followed as set out below (p. 16):-

1. **Establishing criteria of merit.** On what dimensions must the evaluand do well?
2. **Constructing standards.** How well should the evaluand perform?
3. **Measuring performance and comparing with standards.** How well did the evaluand perform?
4. **Synthesizing and integrating data into a judgment of merit or worth.** What is the merit or worth of the evaluand?

Evaluation entails the assessment of "…the merit or worth of something against criteria and standards." (Fournier, 1995, p. 16). Fournier (1995) notes that working logic is how the detail of the general logic is varied in order to conduct an evaluation. This research uses a general logic and working logic approach to the evaluation of the CSR Reports.

There are four aspects of working logic – the problem, the phenomenon, the question and the claim (Fournier, 1995). The literature review was used to identify the problem and the phenomenon and to give colour to the question. This understanding of the problem and the phenomenon allowed the author to identify the appropriate criteria to assess the CSR Reports against.

Fournier (1995) identified the working logic, connoisseurial approach which gives guidance as to how the CSR Reports should be assessed. The connoisseurial/critic approach involves the following reasoning method (Fournier, 1995, p. 23):-

Table 1 - Connoisseurial/Critic Approach Reasoning Method (Fournier, 1995)

Evaluation Approach	**Phenomenon of Interest**	**Source of Criteria (Locus of Values)**	**Evidence (Foundation for a Claim)**	**Warrant (authorises Inference)**
Connoisseurial/ critic approach to program evaluation	Program defined as a set of qualities identifiable by an expert	Personally held values of an expert	Expert values	Expert is reliable and credible

Since the review of the CSR Reports would be conducted by the author solely, it was determined that the connoisseurial/critic approach was most appropriate. Using the connoisseurial/critical approach, the set of qualities identifiable by the expert (the author) are the questions set out in Table 2 which build on those used by Levy & Kolk (2002). The evaluation of the CSR Reports was undertaken following this approach in order to give reliability and credibility to the results.

Levy & Kolk (2002) identified corporate positions and strategic responses to climate change which companies could use, which they then assessed four supermajor oil companies against (Table 4 at p.287). For this study, their questions were expanded upon to capture the various strategic responses to climate change including mitigations and adaptations that might be deployed by O&G companies as CSR (Table 2). The strategic response questions were framed as present/not present to enable a more objective approach to be adopted (i.e. this reduces interpretation of the researcher). In order to answer questions 2, 3 and 4 of Table 2, the websites of IPIECA[3], UN Global Compact[4] and GGFR[5] were used to confirm or complement the CSR Reports.

The author analysed the CSR Reports of the 20 O&G companies to identify and answered the questions in Table 2. As CSR Reports report on both activities undertaken (so are backward looking) and activities planned (forward looking), the author assessed the CSR Reports and the climate change activities only on activities reported as having been undertaken or ongoing. Future proposed activities were not considered. This allowed the author to identify climate change responses of these companies and whether those responses were being undertaken in developing nations.

[3] IPIECA is the global oil and gas industry association for environmental and social issues. http://www.ipieca.org/

[4] UN Global Compact is a voluntary organization aimed at advancing corporate sustainability by companies incorporating principles into their strategies and operations including addressing environmental issues such as climate change https://www.unglobalcompact.org/what-is-gc/our-work/environment

[5] The GGFR is a partnership of countries, companies and organisations who aim to achieve Zero Routine Flaring by 2030 http://www.worldbank.org/en/programs/gasflaringreduction#4

Table 2 – Strategic Responses to Global Climate Change through CSR Report Assessment Questions

No:	Questions	Answer	Strategic Response, Mitigation or Adaptation Activity	Research Question Answered
1	Does the company have a stated position with respect to climate change?	Yes/No	Strategic Response	Research Question 1 In order for a company to have climate change mitigations/adaptation activity, there must be a recognition of the issue of climate change.
2	Is the company an IPIECA member?[6]	Yes/No	Strategic Response	Research Question 1 CSR is by its nature voluntary. Membership of organisations such as IPIECA is voluntary is a strategic response to climate change which would make it more likely a company would have climate change mitigations/adaptations activity.
3	Is the company a United Nations Global Compact Member?[7]	Yes/No	Strategic Response	Research Question 1 CSR is by its nature voluntary. Membership of organisations such as UN Global Compact is voluntary is a strategic response to climate change which would make it more likely a company would have climate change mitigations/adaptations activity.
4	Is the company a partner in The World Bank's Global Gas Flaring Reduction Partnership (GGFR)?[8]	Yes/No	Mitigation	Research Question 1 & 2 CSR is by its nature voluntary. Membership of organisations such as GGFR is voluntary is a strategic response to climate change which would make it more likely a company would have climate change mitigations/adaptations activity.

[6] IPIECA is the global oil and gas industry association for environmental and social issues. http://www.ipieca.org/
[7] UN Global Compact is a voluntary organization aimed at advancing corporate sustainability by companies incorporating principles into their strategies and operations including addressing environmental issues such as climate change https://www.unglobalcompact.org/what-is-gc/our-work/environment
[8] The GGFR is a partnership of countries, companies and organisations who aim to achieve Zero Routine Flaring by 2030 http://www.worldbank.org/en/programs/gasflaringreduction#4

No:	Questions	Answer	Strategic Response, Mitigation or Adaptation Activity	Research Question Answered
5	Is the company taking steps to move to zero routine gas flaring?[9]	Yes/No	Mitigation	Research Question 2 Moving to zero routine gas flaring is a climate change mitigation activity. This is likely to be voluntary in developing countries due to lack of regulation.
6	Does the company monitor and report on GHG emissions?	Yes/No	Strategic response.	Research Question 2 Monitoring and reporting of GHG emissions is recognition of the issue of climate change.
7	Does the company have GHG emission targets?	Yes/No	Mitigation	Research Question 2 Reduction in GHG emissions is a voluntary climate change mitigation activity.
8	Has the company made a main investment in renewables?[10]	Yes/No	Mitigation/ Adaptation	Research Question 2 Investing in renewable energy can be both a mitigation activity, since it may reduce GHG emissions but can also be adaptation.
9	Does the company engage in climate change mitigation or adaptation activities such as:- • Carbon Capture and Storage/ CO_2 re-injection • Methane reduction • Tree planting/ reforestation	Yes/No	Mitigation	Research Question 2
10	If the answer to Question 9 is 'Yes', is the activity taking place in a developing nation?	Yes/No		Research Question 2 The answer to this question may indicate whether the CSR activities of the company are taking place because they operate in developing nations or if they are unrelated to their operations in developing nations.

[9] This is included as a company may not be a GGFR partner but may be taking steps towards zero routine gas flaring.
[10] In order to answer 'yes' to this question, the company must have done more than simply sponsorship or research activity.

3. Perspectives on CSR and Climate Change

This chapter reveals how the existing literature answers the two research questions. To put this discussion in perspective, firstly the concept of CSR is discussed. The link between CSR and climate change and the history of O&G companies and climate change is then considered. Finally, the challenges facing O&G companies in tackling climate change in developing nations is considered, along with a brief discussion of the relevance of oil price.

3.1. What is CSR?

CSR encompasses two principles (a) companies should go beyond basic legal compliance and voluntarily undertake activities that improve "…social, environmental and human rights performance and impacts…" (Utting & Ives, 2006, p. 11) while also mitigating the chances of their negligence resulting in damage, and (b) industry leaders should be cognisant of the concerns of various stakeholders and focus on the management of risk and reputation (Utting & Ives, 2006). CSR has also recently been associated with the notions of accountability and sustainability (Frynas, 2009, Michelon, et al., 2015). It is now accepted that CSR encompasses myriad activities that are conducted by corporations beyond legal compliance (Boasson, 2009).

Companies deploy CSR programmes to highlight to stakeholders, investors and customers that they are "…legitimate partners in the absence of governmental authority and accountability." (Doh, et al., 2015, p. 113). "[CSR] is an evolving and dynamic framework that aims at aligning normative public expectations with the conduct of the business sector" (Ortar, 2014, p. 3).

CSR Reports are reports that provide an indication of the company's status with respect to the impacts of their activities in the economic, environment and social spheres (World Business Council for Sustainable Development (WBCSD), 2002, Mobus, 2012). One of the leading criticisms of CSR Reports has been that they have lacked credibility and companies have engaged in 'greenwashing', the publishing of information that purports to present the company as a responsible corporate citizen but the company's actual behaviour does not match the public statement (Mobus, 2012). Mobus (2012, p. 50) noted that "…[t]he current voluntary nature of CSR reporting…allows this important reporting too much leeway for self-promotion rather than self-reflection." Another criticism of CSR and sustainability reporting is that it is not a robust method of ensuring that companies take action to tackle climate change (Rosen-Zvi, 2011). By taking a consistent and objective approach to the review of CSR Reports, this research-seeks to identify whether O&G companies operating in developing nations are taking steps to respond strategically to climate change including by adopting climate change mitigation and adaptation activities. However, this research evaluates the activities reported by companies in CSR Reports and not actual performance.

3.2. CSR and Climate Change

The link between CSR and climate change is relatively new (Ortar, 2014). With the increasing focus on sustainability and climate change by governments and business, O&G companies have started to report their positions with respect to climate change, with CSR Reports generally now including climate change reporting (Rine, 2014, Nurunnabi, 2016). Climate change positions and the steps that O&G companies are taking to address climate change are included in O&G companies' CSR Reports including monitoring and reporting of GHG emissions and renewable energy use and investment (Dragomir, 2012, Alazzani & Wan-Hussin, 2013, Global Reporting Initiative, 2016).

3.3. History of Oil & Gas Companies and Climate Change

The burning of fossil fuels including oil and natural gas is considered the primary cause of global warming and climate change (Rahman & Khondaker, 2012). Despite this, the consumption of fossil fuel is expected to increase as global demand for energy increases (Hansen & Steen, 2015).

In the past, some O&G companies were leading opponents to both the Kyoto Protocol and any regulatory measures that may be introduced to seek to limit GHG emissions (Levy & Kolk, 2002). Initially, some O&G companies took the position that climate change science was flawed and that there was no evidence for anthropogenic global warming (Levy & Kolk, 2002). In particular, US O&G companies lobbied strenuously against compulsory reductions in GHG emissions (Levy & Kolk, 2002). European O&G companies were the first to move towards supporting action to reduce greenhouse gas emissions and recognition of the global issue of climate change (Levy & Kolk, 2002). Some US O&G companies still ignore climate change and refuse to recognise it as an issue (Reilly, 2016). The shift in position of some O&G companies to recognition and support of climate change as an issue appears to be driven by shareholders requiring greater accountability and as a result of the recent global climate agreement reached in Paris (Dudley, 2015, Gallucci, 2016).

One of the key challenges (or contradictions) when considering O&G industry reponses to climate change is and sustainability is that (a) the industry is by its nature unsustainable as fossil fuels are finite non-renewable resources, and (b) the extraction and use of those fossil fuels is known to have been a leading contributor to climate change (Ihlen, 2009, Mobus, 2012). O&G companies cannot simply stop producing fossil fuels – they generate billions of dollars of revenue each year and have shareholders who expect profit and dividends (Dudley, 2015, Reilly, 2016).

O&G companies have access to financing, technological and organisational resources which could be deployed to great effect in reducing GHG emissions and mitigating the effects of climate change (Kolk & Levy, 2001). Among other things, companies in the O&G industry may use CSR programmes to respond to climate change (Frynas, 2009, Schneider, et al. 2013).

3.4. Challenges to requiring Oil & Gas companies to tackle climate change in developing nations

Developing nations are identified as those defined by the IMF (International Monetary Fund, 2015). Characteristics of developing nations include:-

1. Low levels of per-capita income;
2. High levels of poverty;
3. High population growth;
4. Low levels of industrialisation, largely agricultural; and
5. Underdeveloped markets.

(Kumar, 2016)

The greatest challenge facing developing nations, is balancing climate change mitigation and adaptation against the need for economic development (Rahman & Khondaker, 2012). In these nations, there is often an absence of legislation, awareness and access to technology (Rahman & Khondaker, 2012). Energy pricing including subsidies also create problems for developing nations in addressing climate change (Rahman & Khondaker, 2012). Demand for energy in developing nations is expected to rise significantly in the coming decades (Rahman & Khondaker, 2012). The availability of cheap fossil fuels will create barriers to the adoption of alternative renewable energy in developing nations (Rahman & Khondaker, 2012).

O&G companies operate beyond borders and are subject to varied regulatory systems requiring different standards of behaviour in different countries (Doh, et al., 2015). In developing nations, companies may be held to a lower standard than in their home countries and thus the need for legislation (Doh, et al., 2015). CSR and sustainability programmes are voluntary but are a tool for companies to ensure that their behaviour abroad is the same as their behaviour at home (Doh, et al., 2015).

In O&G producing developing nations, key challenges to requiring O&G companies to deploy technology or other measures to mitigate or adapt to climate change include the absence of the capacity, capability and political drive on the part of the governments to do so (Baumuller, et al., 2011). In some of these developing nations O&G industry giants can replace the state as the main rule-maker through the setting of internal corporate standards (Raufflet, et al., 2014). In countries with deep corruption or ineffective or absent governmental regulation, adoption of new technology or other measures to mitigate or adapt to climate change is likely to be self-driven and voluntary under CSR programmes (Spence, 2011, Schneider, et al., 2013). In addition, the existing "...global regulatory framework…" which attempts to take on the issue of climate change is deficient and lacks legitimacy, with only a small number of countries having enacted legislation aimed at reducing GHG emissions (Ortar, 2014, p. 13). Therefore, the only mechanism available for O&G companies to respond to climate change is through CSR (Ortar, 2014).

Levy & Kolk (2002) posited that convergent pressures such as the global nature of the O&G industry and the global nature of climate change would become more influential on global companies as the issue of climate change became more mature. As such, the home country environment and the company's history and experience, both divergent issues, would become less influential (Levy & Kolk, 2002). Almost 15 years after Levy & Kolk's (2002) article, in relation to this research, the author expects that O&G companies operating in developing nations, irrespective of their country of origin, will have similar positions to one another with respect to climate change.

3.5. Strategic Responses and Climate Change Mitigations and Adaptations

O&G companies may act strategically and join various voluntary membership bodies (Boasson, 2009) including:-

a. IPIECA – The global O&G industry association for environmental and social issues (IPIECA, 2013);
b. United Nations Global Compact – the world's largest corporate sustainability initiative (United Nations Global Compact, 2016);
c. Global Gas Flaring Reduction Partnership (GGFR) lead by The World Bank, a public-private collaboration including O&G companies (NOCs and IOCs), governments and international institutions (The World Bank, 2016).

Monitoring and reporting GHG emissions and setting GHG reduction targets would also be mitigation strategies that could be deployed by O&G companies. Other types of mitigation and adaptation activities that O&G companies can deploy include:-

- Moving to zero routine gas flaring (Abdulrahman, et al., 2015, The World Bank, 2016).

- Deploying technologies such as CO_2 re-injection, carbon capture and storage (Rahman & Khondaker, 2012).
- Deploying renewable technologies such as wind, solar, water to reduce carbon emissions (Rahman & Khondaker, 2012).

GHG emission reporting and reduction has become more common in recent years as corporations attempt to display accountability for climate change mitigation (Raufflet, et al., 2014) but it may also be mandatory as some countries now require companies to report GHG emissions. Moving to zero routine gas flaring has a number of benefits, not least of which is the reduction in the amount of GHG emitted into the atmosphere (Netalieva, et al., 2005, Abdulrahman, et al., 2015). Gas flaring causes health and environmental problems for ecosystems and communities near to the flaring site (Netalieva, et al., 2005, Abdulrahman, et al., 2015). A key challenge to reducing routine gas flaring is the need to invest significantly in infrastructure to enable the cessation of flaring on a normal basis (Abdulrahman, et al., 2015).

3.6. Oil Price and Carbon Emissions – the Relationship

While not a central tenet to this research, one cannot discuss O&G companies and CSR without noting the current major issue facing the industry – the drop in oil price. Between the years 2010 and 2014, the Brent crude oil price hovered around the $100 per barrel mark (Nasdaq, 2016). In June 2014, oil prices began to drop (Arnsdorf, 2014). At the start of 2015, oil prices were less than $50 per barrel with 2016 seeing prices fall below $30 per barrel (Nasdaq, 2016).

In times of low oil price, global carbon emissions increase (Wang & Li, 2016). This is because low oil prices promote economic growth and economic growth is linked to the growth in carbon emissions (Wang & Li, 2016). The fall in oil prices also increases the costs of carbon reduction activities and thus impact on climate change mitigation activities (Wang & Li, 2016). In short, with respect to CO_2 reduction, "…mitigation options become significantly more expensive with lower oil prices…" (Wang & Li, 2016, p. 927). In particular, the move towards renewable energy will be slowed: if the oil price stays low too long, it may be reversed (Wang & Li, 2016). Further research may seek to explore whether O&G companies have reduced their CSR budgets as a result of low oil price.

With respect to Research Question 1, the literature review (noting that the literature available regarding the use of CSR for climate change mitigation and adaptation is limited) indicates that the selected O&G companies will likely recognise the issue of climate change and include an account of it within the CSR Reports. The expectation is that the companies from developing nations will be less likely to recognise climate change as an issue and deploy strategies as CSR to mitigate or adapt to it. The types of strategic responses that are expected are memberships of voluntary organisations such as IPIECA and UN Global Compact. With respect to Research Question 2, the literature review indicates that the types of mitigation and adaptation activities that are expected to be seen as CSR activities are efforts to reduce GHG emissions, whether through monitoring and reporting or by deploying technology, and the investment in renewable energy.

4. Strategic Responses to Global Climate Change through CSR Report Assessment

Of the 20 O&G companies selected for this research, all published a separate CSR Report (called Sustainability Reports, Corporate Social Responsibility Reports or similar) except for four companies. For these four companies, only their websites were used to collect information related to CSR and for the purposes of this research, their websites are considered to represent de facto CSR Reports. One company publishes its CSR activities in its Annual Report and thus the Annual Report for that company is considered its CSR Report.

Responses to the questions seeking to identify the strategic responses and climate change mitigation and adaptation activities by O&G companies in developing nations are set out in in Figure 1. below.

4.1. Strategic Responses – Research Question 1

The CSR Reports of 16 out of the 20 O&G companies included a stated position with respect to climate change. The expressly recognised climate change as a real and important issue. It is notable that 3 of the 4 companies who did not have a stated position with respect to climate change are purely upstream players (they are involved in exploration, development and production of hydrocarbons only (PSAC, 2016)). This is relevant because upstream companies are oil and gas producers only – they do not sell products or produce electricity unlike integrated companies that do. As such, the integrated companies can explore the use of renewable technologies as replacements for fossil fuels, whereas upstream companies have the sole aim of getting oil and gas out of the ground for sale – there is no alternative for them.

The 16 O&G companies from the sample that do have stated positions with respect to climate change are largely integrated O&G companies, with the exception of three upstream companies only. It was expected that O&G companies operating solely in developing nations and those incorporated in developing nations would be less likely to have a position with respect to climate change due to a lack of regulation. This is partially true. The four companies who do not have a climate change position include two indigenous developing nation companies and two companies with operations solely in developing nations. However, five companies are NOCs from the developing world and they do have recognition of the issue of climate change. This is indicative of the now acceptance of climate change as a global issue and signifies it is of importance to the governments and stakeholders of these developing nations’ companies as well as the companies themselves.

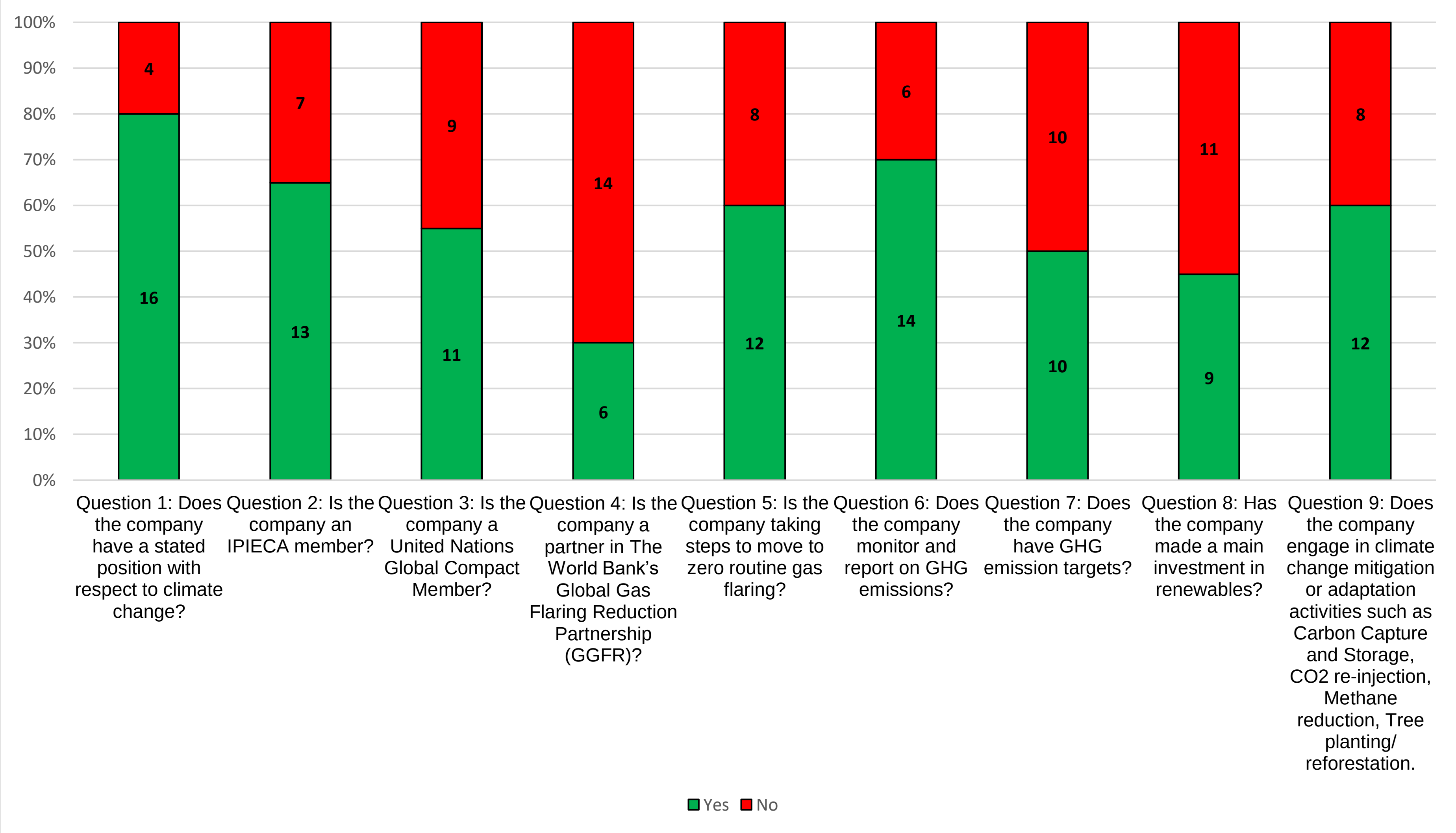
Membership of IPIECA[11], UN Global Compact and GGFR[12] reflects a beyond-compliance approach to responding to climate change as membership of these organisations is voluntary. 60% of the 20 O&G companies are members of IPIECA. Of that 60% (13 companies), 10 of those companies are integrated O&G companies and three are upstream only.

Approximately half of the 20 O&G companies are United Nations Global Compact members. Only 30% of the O&G companies are members of GGFR. Of the companies that are members of GGFR, many are NOCs or have their founding histories in the countries who are partners in GGFR.

The results for Research Question 1 are: Yes, 80% of companies recognise the issue of climate change and have a stated position with respect to climate change in their CSR Reports. More than half are members of industry bodies supporting their commitment to addressing climate change.

[11] IPIECA is the global oil and gas industry association for environmental and social issues.
[12] The World Bank's Global Gas Flaring Reduction Partnership

Figure 1- Strategic Responses to Global Climate Change through CSR Programmes Assessment



4.2. *Mitigations and Adaptations – Research Question 2*

Although only six of the companies are members of GGFR, double that number (12) (including the six GGFR members), have stated positions in their CSR Reports that they aim to move to zero routine gas flaring. Of the four companies who had a 'No' answer to Question 1, three of those had 'No' answers to Questions 2, 3 & 4. This is not a surprising result since the joining of IPIECA, United Nations Global Compact and GGFR are strategic responses to climate change (Levy & Kolk, 2002). If there is no recognition by a company of the issue of climate change, one would not expect to see responses to it by the company. It should also be noted that United Nations Global Compact is a corporate sustainability initiative that is not solely focussed on climate change, but rather on broader sustainability issues including human rights, labour and anti-corruption (United Nations Global Compact, 2016). Therefore, membership of UN Global Compact by one of the companies may be for reasons other than climate change, because that company does not have a stated position with respect to climate change.

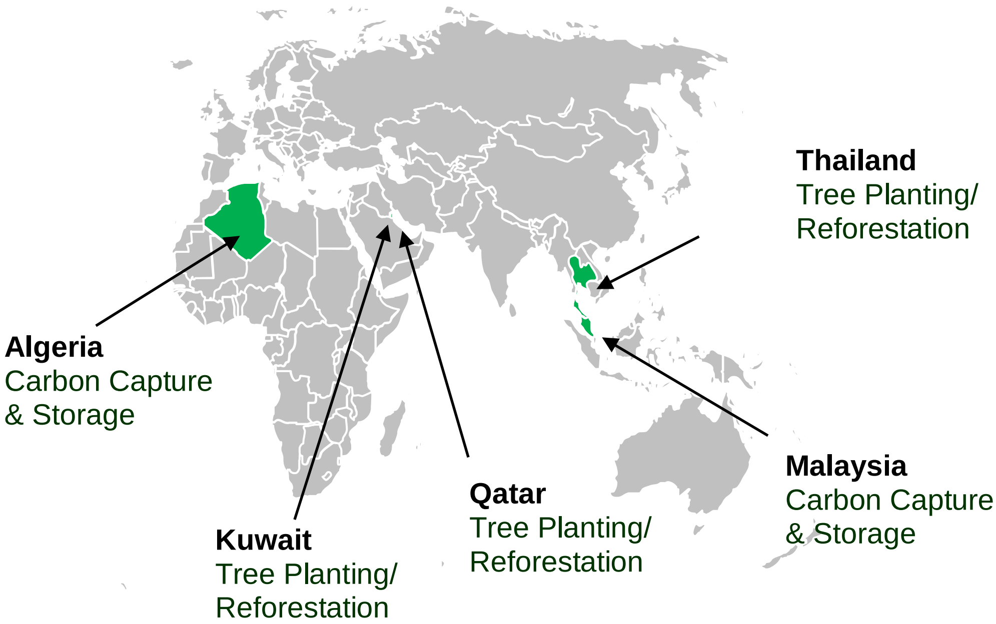
Seventy five percent of the companies quantify and report their GHG emissions (Question 6), however only 50% have set GHG emissions targets (Question 7). All the four companies who received a 'No' to Question 1, received a 'No' answer for Questions 6 and 7. However, it should be noted that one of the companies is required in the future to quantify and report its emissions as a result of its loan from the International Finance Corporation (a section of The World Bank) and therefore this is not a voluntary response so cannot be CSR (Environmental Resources Management Ltd, 2016). Similarly, the reporting of GHG emissions for some companies cannot be considered as CSR. This is because they are required to report GHG emissions by law so the country can assess its GHG reduction commitments under the Clean Development Mechanism (Abdulrahman, et al., 2015, Raufflet, et al., 2014). For instance, companies listed on the London Stock Exchange, New York Stock Exchange or Amsterdam Stock Exchange are legally required to report GHG emissions (Department for Environment, Food & Rural Affairs, 2013). American companies are also required to report their GHG emissions under the US Environmental Protection Agency's Greenhouse Gas Reporting Program Rules (United States Environmental Protection Agency, 2016). This research did not extend to the analysis of whether all companies are required to report their GHG emissions. However, it may be noted that the inclusion of GHG emissions reporting in Table 2 as a strategic response may not be appropriate if it is mandatory by law. Now, in 2016, GHG reporting may be considered a poor indicator of voluntary strategic response to climate change since Levy & Kolk (2002) published their article nearly 15 years ago. The setting of GHG emissions reduction targets, however, can still be considered as CSR since this is currently a voluntary activity. It is notable that two of the companies that have set GHG emissions reduction targets are companies from developing nations, it would not be expected that developing nations would have regulation requiring emissions reduction targets, and thus this is likely to be a truly voluntary response.

With respect to Question 8, nearly half of the companies have made a main investment in renewables. The renewables in which investments have been made include solar, wind, biofuels (including bio-oil) and biomass. Five companies have a solar investment, six companies have a biofuels or biomass investment and three have wind investment. It is noteworthy that apart from one upstream company (which purchases wind power for its operations), only the integrated O&G companies have made a main investment in renewables. None of the other upstream companies have any investment in renewable energy. This is likely because, unlike the integrated O&G companies, upstream O&G companies are not in the business of providing electricity, power generation or fuel products. Upstream companies are purely in the business of producing oil and gas for sale.

Sixty percent (60%) of the companies engage in climate change mitigation and adaptation activities (Question 9). These activities include methane reduction (6 companies), carbon capture and storage or CO_2 re-injection (6 companies) and tree planting and reforestation (3 companies). One company engages in both methane reduction and carbon capture and storage.

Figure 2 shows the developing nations in which companies are undertaking climate change mitigation and adaptation activities (Question 10). Three developing nations' O&G companies engage in tree planting and reforestation activities. Two developing nations' O&G companies engage in CO_2 re-injection and carbon capture and storage activities. With respect to the answers to Question 10, it is notable that all the companies that are conducting climate change mitigation or adaptation strategies in developing nations are O&G companies from developing nations because it was expected that countries from developing nations would be less likely to be engaging in climate change mitigation or adaptation strategies and it would be more likely that it would be companies from the developed world.

Figure 2 - Strategic Responses to Global Climate Change through CSR Reports Assessment Question 9



The results for Research Question 2 are: Yes, O&G companies who operate in developing nations are using CSR programmes to conduct mitigation and adaptation activities, but not all. 75% of the companies quantify and report their GHG emissions. 50% have set GHG emissions reduction targets. Some have made investments in solar, wind, biofuels, bio-oil and biomass. Other activities include methane reduction, tree planting and reforestation and CO_2 re-injection, carbon capture and storage. However, only 40% are carrying out climate change mitigation or adaptation activities in a developing nation, and these 40% are all from developing nations.

5. Conclusion

This research analysed the CSR Reports of 20 O&G companies operating in developing nations using the combination of a literature review with the analysis of the CSR Reports based on a set of questions adapted from Levy & Kolk (2002).

Research Question 1:

Is there recognition of the issue of climate change in the CSR Reports of O&G companies operating in developing nations? If so, what are the strategic responses by these companies to climate change?

Yes, there is recognition of the issue of climate change in 80% of the CSR Reports of the O&G companies that operate in developing nations. The types of responses to climate change include the voluntary membership of IPIECA (60%), United Nations Global Compact (55%) and GGFR (30%) in addition to climate change mitigation and adaptation activities. 75% of the companies quantify and report their GHG emissions (however some of these companies are required to report at law so this may not be considered as CSR) and 50% have set GHG emissions reduction targets. As a result of the literature review, it was expected that many of the selected companies would have a position with respect to climate change. It was interesting to see that the result was as high as 80% and included companies from developing nations as the potential lack of regulation in developing nations around climate change would make it less likely that such companies would have a position. Consistent with the literature review, voluntary membership of various organisations was a strategic response but one that was adopted only by slightly more than half of the companies.

Research Question 2

Are O&G companies who operate in developing nations using CSR programmes to conduct climate change mitigations and adaptation activities? If so, what are these mitigations or adaptations that are being deployed voluntarily as CSR?

Most O&G companies operating in developing nations are using CSR Reports to report on CSR programmes that include climate change mitigation and adaptation activities. These activities include investment in renewable energy technologies (solar, wind, biofuels, bio-oil and biomass). Other activities include methane reduction, tree planting and reforestation and CO_2 re-injection, carbon capture and storage. This finding is consistent with the literature review in terms of the types of mitigation and adaptation activities one would expect to see being deployed as CSR. While the majority of O&G companies operating in developing nations recognise the issue of climate change as serious and requiring action in their CSR Reports, only 40% of those companies report carrying out climate change mitigation or adaptation activities in a developing nation. The small number of companies carrying out mitigation and adaptation activities in a developing nation is consistent with the literature review. The issues facing developing nations (lack of regulation, corruption, focus on other issues such as poverty and unemployment) suggests that CSR activities in developing nations may be focussed on issues other than climate change such as providing health and medical aid, constructing basic facilities such as clean water and sewerage facilities or providing support to educational services.

In the case of renewable energy investment, the lack of investment in renewables in developing nations is likely to be indicative of the stage of development of the energy industry in those countries. Developing nations depend on energy from fossil fuels and thus the ability to invest in and promote renewable energy use by their populations is limited. With respect to methane reduction, CO_2 re-injection and carbon capture and storage technologies, these are not market related, but rather are activities that can be adopted by O&G companies to mitigate climate change and indeed are being used by some O&G companies to do so.

While significant steps have been made by O&G companies in the past thirty years to recognise the issue of climate change, this research indicates that the CSR programmes of O&G companies are not necessarily addressing climate change ‘on the ground’ in developing nations. This appears to indicate that voluntary CSR is not enough to make up for a lack of regulation in developing nations. Stricter regulation by governments or pressure from external stakeholders is likely necessary to require O&G companies to do more to respond to climate change in developing nations. Implementing regulations by developing nation governments to make mitigation or adaptation activities mandatory, would remove reliance on O&G companies acting voluntarily, such as through CSR, to address climate change to requiring them to comply with the law.

Bibliography

Abdulrahman, A. O., Huisingh, D., & Hafkamp, W. (2015). Sustainability improvements in Egypt's oil & gas industry by implementation of flare gas recovery. *Journal of Cleaner Production, 98*, 116-122.

Africa Oil Corp. (2016, August 13). *Investors*. Retrieved August 13, 2016, from Africa Oil Corp: http://www.africaoilcorp.com/s/investors.asp

Africa Oil Corp. (2016, June). *Corporate Presentation June 2016.* Retrieved August 13, 2016, from Africa Oil Corp.: http://www.africaoilcorp.com/i/pdf/AOI-Corporate-Presentation-June-2016.pdf

Africa Oil Corporation. (2011, September 2). *Information Summary.* Retrieved August 13, 2016, from Africa Oil Corp: http://www.africaoilcorp.com/i/pdf/aoi-info-summary.pdf

Alazzani, A., & Wan-Hussin, W. N. (2013). Global Reporting Initiative's environmental reporting: A study of oil and gas companies. *Ecological Indicators, 32*, 19-24. doi:10.1016/j.ecolind.2013.02.019

Arnsdorf, I. (2014, October 30). *Why Oil Prices Went Down So Far So Fast*. Retrieved March 19, 2016, from Bloomberg Business: http://www.bloomberg.com/news/articles/2014-10-29/why-oil-prices-went-down-so-far-so-fast

Baumuller, H., Donnelly, E., Vines, A., & Weimer, M. (2011). *The Effects of Oil Companies' Activities on the Environment, Heath and Development in Africa.* Directorate-General for External Policies of the Union, Directorate B Policy Department. Brussels: European Parliament. Retrieved March 25, 2016, from https://www.chathamhouse.org/sites/files/chathamhouse/0811ep_report_0.pdf

BG Group. (2016). *BG Group Sustainability Report 2015.* Retrieved August 13, 2016, from Shell: http://www.shell.com/investors/pre-combination-bg-group-publications/_jcr_content/par/textimage.stream/1470043148296/62762583c2f16f261aafe9f557b4db5a2303c27c006464222a91fb417fb467d2/bg-group-sustainability-report-2015.pdf

Boasson, E. L. (2009). On the management success of regulative failure: standardised CSR instruments and the oil industry's climate performance. *Corporate Governance, 9*(3), 313-325. doi:10.1108/14720700910964361

Burja, V., & Mihalache, S.-S. (2010). Corporate Social Responsibility. Example Rosia Montana Gold Corporation. *Annales Universitatis Apulensis Series Oeconomica, 12*(2), 523-532. Retrieved January 27, 2017, from http://oeconomica.uab.ro/upload/lucrari/1220102/01.pdf

ConocoPhillips. (2016). *2015 Sustainability Report.* Retrieved August 13, 2016, from ConocoPhillips: http://www.conocophillips.com/sustainable-development/SD%20Report%20Download/16-0310%20SD%20Book.pdf

Contrafatto, M. (2014). The institutionalization of social and environmental reporting: An Italian narrative. *Accounting, Organizations and Society, 39*, 414-432. doi:http://dx.doi.org/10.1016/j.aos.2014.01.002

Department for Environment, Food & Rural Affairs. (2013, October 3). *Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance.* Retrieved August 13, 2016, from Gov.uk: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/206392/pb13944-env-reporting-guidance.pdf

Doh, J. P., Littell, B., & Quigley, N. R. (2015). CSR and sustainability in emerging markets: Societal, institutional, and organizational influences. *Organizational Dynamics, 44*, 112-120. doi:10.1016/j.orgdyn.2015.02.005

Dragomir, V. D. (2012). The disclosure of industrial greenhouse gas emissions: a critical assessment of corporate sustainability reports. *Journal of Cleaner Production, 29-30*, 222-237. doi:10.1016/j.jclepro.2012.01.024

Dragon Oil. (2016, August 13). *About Us*. Retrieved August 13, 2016, from Dragon Oil: https://www.dragonoil.com/about-us/

Dudley, B. (2015, November 11). *Why are oil and gas companies calling for more action on climate change?* Retrieved January 27, 2017, from Reuters: http://www.reuters.com/article/us-climatechange-summit-dudley-idUSKCN0T103T20151112

ENI. (2015). *Eni for 2015 Sustainability Report.* Retrieved August 13, 2016, from ENI: https://www.eni.com/docs/en_IT/enicom/sustainability/eni_for_2015_report_eng_.pdf

Environmental Resources Management Ltd. (2016, January 26). *Independent Monitoring Group: HSEC Monitoring Review, Africa Oil Corporation.* Environmental Resources Management Limited. Retrieved August 13, 2016, from Africa Oil Corp.: http://www.africaoilcorp.com/i/pdf/hsec/3-IMG-Jan-2016.pdf

Forbes. (2016). *The World's Biggest Oil and Gas Companies - 2015*. Retrieved August 5, 2016, from Forbes: http://www.forbes.com/pictures/mef45egjmi/the-worlds-biggest-oil-a/#344cbe7f26d7

Fournier, D. M. (1995). Establishing Evaluative Conclusions: A Distinction Between General and Working Logic. *New Directions for Program Evaluation, 68 (Winter 1995)*, 15-32.

Frederick, W. C. (2008). *Corporate Social responsibility: Deep roots, flourishing growth, promising future.* Oxford University Press.

Frynas, J. G. (2009). Corporate social responsibility in the oil and gas sector. *Journal of World Energy Law & Business, 2*(3), 178-195. Retrieved February 27, 2016, from http://jwelb.oxfordjournals.org/

Gallucci, M. (2016, July 4). *Climate Change 2016: As Proxy Season Arrives, Shareholder Activists File Record Number of Environmental Resolutions.* Retrieved January 27, 2017, from International Business Times: http://www.asyousow.org/wp-content/uploads/2016/04/Intl-Business-Times-Climate-Change-2016-As-Proxy-Season-Arrives-Shareholder-Activists-20160407.pdf

Galp Energia. (2015). *Energy Creates Future Sustainability Report 2015.* Retrieved August 13, 2016, from Galp Energia: http://www.galpenergia.com/EN/Investidor/Relatorios-e-resultados/relatorios-anuais/Documents/Sustainability_Report_2015.pdf

Global Reporting Initiative. (2016, October 21). *About Sustainability Reporting*. Retrieved from Global Reporting Initiative: https://www.globalreporting.org/information/sustainability-reporting/Pages/default.aspx

Hansen, G. H., & Steen, M. (2015). Offshore oil and gas firms' involvement in offshore wind: Technological frames and undercurrents. *Environmental Innovation and Societal Transitions*, 14. doi:http://dx.doi.org/10.1016/j.eist.2015.05.001

Heede, R. (2014). Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854-2010. *Climate Change, 122*, 229-241. doi:10.1007/s10584-013-0986-y

Hess Corporation. (2015). *2015 Corporate Sustainability Report.* Hess Corporation. Retrieved July 30, 2016, from http://www.hess.com/docs/default-source/sustainability/hess-2015-csr.pdf?sfvrsn=2

Ihlen, Ø. (2009). The Oxymoron of 'Sustainable Oil Production': the Case of the Norwegian Oil Industry. *Business Strategy and the Environment, 18*, 53-63. doi:10.1002/bse.563

International Monetary Fund. (2015, October). *World Economic Outlook: Adjusting to Lower Commodity Prices.* Retrieved March 18, 2016, from International Monetary Fund: http://www.imf.org/external/pubs/ft/weo/2015/02/pdf/text.pdf

IPIECA. (2013). *IPIECA Home*. Retrieved August 5, 2016, from IPIECA: http://www.ipieca.org/

Kolk, A., & Levy, D. (2001). Winds of Change: Corporate Strategy, Climate Change and Oil Multinationals. *European Management Journal, 19*(5), 501-509. Retrieved February 27, 2016, from https://www.researchgate.net/profile/David_Levy16/publication/222665352_Winds_of_Change_Corporate_Strategy_Climate_Change_and_Oil_Multinationals/links/02bfe510d3c1a40af5000000.pdf

KPMG. (2013). *Oil and Gas in Africa: Africa's Reserves, Potential and Prospects.* KPMG Africa Limited. Retrieved August 5, 2016, from https://www.kpmg.com/Africa/en/IssuesAndInsights/Articles-Publications/Documents/Oil%20and%20Gas%20in%20Africa.pdf

Kumar, A. (2016). *Lecture 2 Major Characteristics of Developing Countries.* Retrieved August 20, 2016, from University of Victoria: http://web.uvic.ca/~kumara/econ420/characteristics-dev.pdf

Kuwait Energy Company. (2016). *Annual Report 2015.* Retrieved August 13, 2016, from Kuwait Energy: http://www.kuwaitenergy.co/Frontend/KEC/FlipBook/230520160136006672/files/assets/common/downloads/publication.pdf

Kuwait Energy Company. (2016, August). *Who We Are*. Retrieved August 13, 2016, from Kuwait Energy: http://www.kuwaitenergy.co/About-Kuwait-Energy/Who-we-are

Levy, D. L., & Kolk, A. (2002). Strategic Responses to Global Climate Change: Conflicting Pressures on Multinationals in the Oil Industry. *Business and Politics, 4*(3), 275-300.

Mallin, C. A. (2009). *Corporate Social Responsibility: A case study approach.* Northhampton, MA: Edward Elgar. Retrieved January 21, 2017, from https://sukmawinarya.files.wordpress.com/2012/08/corporate-social-responsibility.pdf

Marathon Oil Corporation. (2015). *2015 Corporate Sustainability Report*. Retrieved August 13, 2016, from Marathon Oil Corporation: http://www.marathonoil.com/lov2015/

Michelon, G., Pilonato, S., & Ricceri, F. (2015). CSR reporting practices and the quality of disclosure: An empirical analysis. *Critical Perspectives on Accounting, 33*, 59-78. doi:10.1016/j.cpa.2014.10.003

Mobus, J. L. (2012). Corporate Social Responsibility (CSR) Reporting by BP: Revealing of Obscuring Risks? *Journal of Legal, Ethical and Regulatory Issues, 15*(2), 35-52. Retrieved June 11, 2016, from http://search.proquest.com/openview/7f586d314a13f2702e08342c54227749/1?pq-origsite=gscholar

Nasdaq. (2016, March 19). *Nasdaq Crude Oil*. Retrieved March 19, 2016, from Nasdaq: http://www.nasdaq.com/markets/crude-oil.aspx?timeframe=7y

Netalieva, I., Wesseler, J., & Heijman, W. (2005). Health costs caused by oil extraction air emissions and the benefits from abatement: the case of Kazakhstan. *Energy Policy, 33*, 1169-1177.

Nurunnabi, M. (2016). Who cares about climate change reporting in developing countries? The market response to, and corporate accountability for, climate change in Bangladesh. *Environment, Development and Sustainability, 18*(1), 157-186. doi:10.1007/s10668-015-9632-3

Oando plc. (2014). *Oando Sustainability Report 2013*. Retrieved August 13, 2016, from Oando plc: http://www.oandoplc.com/wp-content/uploads/Oando-Sustainability-Report_260315_D44.pdf

Ortar, L. (2014). *Climate Change and CSR: Can Voluntarism Pay?* Retrieved March 19, 2016, from Konrad Adenauer Stiftung: http://www.kas.de/wf/doc/kas_42648-1522-2-30.pdf?150927101406

Petronas. (2016). *Thriving Through Tough Times Sustainability Report 2015.* Retrieved August 13, 2016, from Petronas: http://www.petronas.com.my/sustainability/Documents/sustainability-report/SustainabilityReport2015.pdf

PSAC. (2016). *Industry Overview*. Retrieved August 13, 2016, from PSAC: http://www.psac.ca/business/industry-overview/

PTTEP. (2016). *2015 Sustainability Report.* Retrieved August 13, 2016, from PTTEP: http://www.pttep.com/en/News-n-Media/Publications/PTTEP%20Publications/download.aspx?Content=1995

PTTEP, & Weerawong, A. (2015, January). *CO2 Coversion to Methane Projec t*. Retrieved August 30, 2016, from PTTEP: https://www.pttep.com/en/SustainableDevelopment/Business/Innovationandknownledgemanagement/download.aspx?Content=255

Qatar Petroleum. (2015). *1974-2014 40 Years of Excellence, Annual Report 2014*. Retrieved August 13, 2016, from Qatar Petroleum: https://www.qp.com.qa/en/MediaCentre/Documents/2014%20Annual%20Report%20-%20English.pdf

Rahman, S. M., & Khondaker, A. N. (2012). Mitigation measures to reduce greenhouse gas emissions and enhance carbon capture and storage in Saudi Arabia. *Renewable and Sustainable Energy Reviews, 16*, 2446-2460.

Raufflet, E., Cruz, L. B., & Bres, L. (2014). An assessment of corporate social responsibility practices in the mining and oil and gas industries. *Journal of Cleaner Production, 84*, 256-270.

Reilly, M. (2016, May 26). U.S. Oil Companies Ignore Climate Change While the Rest of the Industry Evolves. *MIT Technology Review*. Retrieved January 27, 2017, from https://www.technologyreview.com/s/601584/us-oil-companies-ignore-climate-change-while-the-rest-of-the-industry-evolves/

Repsol. (2016). *Sustainability Report 2015*. Retrieved August 13, 2016, from Repsol: https://www.repsol.com/creatividad/responsabilidad_corporativa/Informe_sostenibilidad_2015_ENG.pdf

Rine, J. M. (2014, December). An examination of carbon budgets, carbon taxes, industry attitudes to global warming, and AAPG. *Environmental Geosciences, 21*(4), 127-140.

Rosen-Zvi, I. (2011). You Are Too Soft!: What Can Corporate Social Responsibility Do For Climate Change? *Minnesota Journal of Law, Science & Technology, 12*(2), 527-72.

Rowley, J., & Slack, F. (2004). Conducting a Literature Review. *Management Research News, 27*(6), 31-39. doi:http://dx.doi.org/10.1108/01409170410784185

Royal Dutch Shell plc. (2015). *http://reports.shell.com/sustainability-report/2015/.* Retrieved August 13, 2016, from Shell Global: http://reports.shell.com/sustainability-report/2015/

SASOL. (2014, June 30). *A New Era for SASOL Sustainable Development Report 30 June 2014.* Retrieved August 13, 2016, from SASOL: http://www.sasol.com/sites/sasol/files/content/files/SDREPORT_0.pdf

SASOL. (2015). *SASOL Online Sustainable Development Information 2015, Responding to environmental challenges*. Retrieved August 13, 2016, from SASOL: http://www.sasol.com/extras/AIR_2015/sites/sasrep_live_sdr2015/files/Responding%20to%20environmental%20challenges.pdf

Schneider, J., Ghettas, S., Merdaci, N., Brown, M., & Martyniuk, J. (2013). Towards Sustainability in the Oil and Gas Sector: Benchmarking Environmental, Health, and Safety Efforts. *Journal of Environmental Sustainability, 3*(3), 102-117.

Sonatrach. (2016). *HSE & Sustainable Development, a major concern.* Retrieved August 19, 2016, from Sonatrach: http://www.sonatrach.com/en/hse-developpement-durable.html

Spence, D. B. (2011). Corporate Social Responsibility in the Oil and Gas Industry: The Importance of Reputational Risk. *Chicago-Kent Law Review, 86*(1), 59-85. Retrieved February 27, 2016, from http://scholarship.kentlaw.iit.edu/cgi/viewcontent.cgi?article=3776&context=cklawreview

Statoil. (2016). *2015 Sustainability Report.* Retrieved August 13, 2016, from Statoil: http://www.statoil.com/no/InvestorCentre/AnnualReport/AnnualReport2015/Documents/DownloadCentreFiles/01_KeyDownloads/2015_Sustainability_report.pdf

The New York Times. (2016, August 13). *Markets - Integrated Oil & Gas*. Retrieved August 13, 2016, from The New York Times: http://markets.on.nytimes.com/research/markets/usmarkets/industry.asp?industry=50121

The World Bank. (2010, June). *Environmental Governance in Oil-Producing Developing Countries, Extractive Industries for Development Series #17.* (E. M. Alba, Ed.) Retrieved March 19, 2016, from The World Bank: http://siteresources.worldbank.org/EXTOGMC/Resources/336929-1266963339030/eifd17_environmental_governance.pdf

The World Bank. (2016). *Global Gas Flaring Reduction Partnership (GGFR)*. Retrieved August 5, 2016, from The World Bank: http://www.worldbank.org/en/programs/gasflaringreduction#1

Thomas, D. R. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation, 27*(2), 237-246. doi:10.1177/1098214005283748

TOTAL. (2014). *Sustainable Growth Report 2014.* Retrieved August 13, 2016, from TOTAL: http://www.total.com/sites/default/files/atoms/files/rapport_croissance_durable_va.pdf

Tullow Oil plc. (2015). *2015 Corporate Responsibility Report Creating Shared Prosperity.* Tullow Oil plc. Retrieved July 30, 2016, from http://www.tullowoil.com/sustainability/our-reporting

United Nations. (2016, April 21). *World Leaders Urge Real Action on Combating Climate Change, as General Assembly Debates Implementation of Sustainable Development Goals.* Retrieved August 5, 2016, from United Nations: http://www.un.org/press/en/2016/ga11776.doc.htm

United Nations Global Compact. (2016). *What is UN Global Compact?* Retrieved August 5, 2016, from United Nations Global Compact: https://www.unglobalcompact.org/what-is-gc

United States Environmental Protection Agency. (2016). *Welcome to the Greenhouse Gas Reporting Program's FAQ Site.* Retrieved August 13, 2016, from EPA United States Environmental Protection Agency: https://www.ccdsupport.com/confluence/display/faq/FAQs

Utting, P., & Ives, K. (2006). The Politics of Corporate Responsibility in the Oil and Gas Industry. *Stair, 2*(1), 11-34. Retrieved March 18, 2016, from http://users.ox.ac.uk/~stair/2_1/utting&ives.pdf

Wang, Q., & Li, R. (2016). Impact of cheaper oil on economic system and climate change: A SWOT analysis. *Renewable and Sustainable Energy Reviews, 54*, 925-931. doi:10.1016/j.rser.2015.10.087

WBI Evaluation Group. (2007). *Document Review, Needs Assessment Knowledge Base.* Retrieved March 25, 2016, from World Bank Institute: http://siteresources.worldbank.org/WBI/Resources/213798-1194538727144/11Final-Document_Review.pdf

World Business Council for Sustainable Development (WBCSD). (2002). *Sustainable development reporting: Striking the balance.* Hertfordshire: World Business Council for Sustainable Development. Retrieved June 11, 2016, from http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=144&nosearchcontextkey=true

Appendix A

Company	CSR Reports
Africa Oil Corp.	Website, IFC - Environmental and Social Review Summary, Independent Advisory Report, IFC - Environmental and Social and Action Plan 2016 (Africa Oil Corporation, 2011, Africa Oil Corp, 2016, Africa Oil Corp., 2016)
BG Group	Sustainability Report 2015 (BG Group, 2016)
ConocoPhillips	Website, Sustainable Development Report 2015 (ConocoPhillips, 2016)
Dragon Oil	Website (Dragon Oil, 2016)
ENI	Sustainability Report 2015 (ENI, 2015)
Galp Energia	Sustainability Report 2015 (Galp Energia, 2015)
Hess Corporation	Sustainability Report 2015 (Hess Corporation, 2015)
Kuwait Energy Company	Website, Press Release 6 October 2012, Annual Report 2015 (Kuwait Energy Company, 2016, Kuwait Energy Company, 2016)
Marathon Oil Corporation	Sustainability Report 2015 (Marathon Oil Corporation, 2015)
Oando plc	Sustainability Report 2013 (Oando plc, 2014)
Petronas	Sustainability Report 2015 (Petronas, 2016)
PTTEP	Sustainability Report 2015, CO2 to Methane Report 2015 (PTTEP, 2016, PTTEP & Weerawong, 2015)
Qatar Petroleum	Website, Annual Report 2014 (Qatar Petroleum, 2015)
Repsol	Sustainability Report 201 (Repsol, 2016)
Royal Dutch Shell plc	Sustainability Report 2015 (Royal Dutch Shell plc, 2015)
SASOL	Responding to Environmental Challenges, Sustainable Development Information 2015, Sustainable Development Report 30 June 2014 (SASOL, 2014, SASOL, 2015)
Sonatrach	Website (Sonatrach, 2016)
Statoil	Sustainability Report 2015 (Statoil, 2016)
TOTAL	Sustainable Growth Report 2014 (TOTAL, 2014)
Tullow Oil plc	2015 Corporate Responsibility Report (Tullow Oil plc, 2015)