

**Sustainable Development through the Clean Development Mechanism: An
examination of Malaysian business organisations**

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Abstract

Sustainable development and sustainability have become key ways of addressing the myriad of environmental and social problems faced on a global scale. The activities of business organisations are often linked to environmental degradation, global warming, human rights abuses and corruption. These organisations therefore, should be held more accountable for their actions. It is important to study and challenge the narratives of sustainable development produced by business organisations in different contexts.

Literature on sustainable development and business organisations is primarily business centric, focused on how sustainability is a ‘win-win’ for business, society and the environment. Further, ecological modernisation is often simply accepted as synonymous with sustainable development. Uncritical acceptance of these discourses fails to problematize the unsustainable activities of business. In this way, other critical narratives are silenced and the ways of carrying on business and governing society continue to serve the interests of only some stakeholders.

This study investigates how business organisations in Malaysia, a developing country, write and speak about sustainability in the context of the Clean Development Mechanism (CDM). The research examines the narratives used by these business organisations to determine if it is a discourse of sustainable development or whether other narratives are at play which mask an empty commitment to sustainability. This study contributes by providing evidence and interpretations of how business organisations within the CDM represent their contributions to sustainable development. Further, it shows how these conceptions are formed partly by the ecological modernisation (EM) discourse within which the CDM lies.

The empirical investigation consisted of three main components. The first and second were a qualitative content analysis and an interpretive textual analysis of project design documents produced by Malaysian business organisations writing about their response to sustainable development. Semi-structured interviews were then conducted with senior management of the participating business organisations to determine how they talked about sustainable development and what their motivations were for entering the CDM.

The results of the study demonstrate that business organisations are engaged in narratives that only have a symbolic commitment to sustainable development and are influenced by economic centric concerns. In ‘doing sustainable development’ the business organisations are driven by the ecological modernisation narrative of the CDM. It is argued that it is not possible for these business organisations to move beyond the ‘glass cage’ of EM because eco-

efficient 'managerialism' acts as a limiting conception of sustainable development. This narrow interpretation of sustainability, denies and ignores the tensions between growth and natural limits and the issues of justice and equity for existing and future generations.

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I would like to offer special thanks and dedicate this thesis to the memory of my supervisor, the late Professor David Campbell. His extraordinary intellect and willingness to spend time visiting me in my country of residence, to review my progress will never be forgotten. Special thanks go to his wife Amanda, for her review of my earlier draft chapters.

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Abbreviations

| | |
|-----------------|---|
| BCSD | Business Council for Sustainable Development |
| BR | Brundtland Report (1987) |
| BOP | Balance of Payments |
| CBA | Cost Benefit Analysis |
| CDM | Clean Development Mechanism |
| CER | Certified Emissions Reduction |
| CERES | Coalition for Environmentally Responsible Economies |
| CO ² | Carbon Dioxide |
| COP | Conference of the Parties |
| CSR | Corporate Social Responsibility |
| DNA | Designated National Authority |
| DOE | Department of Environment |
| EB | Executive Board |
| EIA | Environmental Impact Assessment |
| EM | Ecological Modernisation |
| EPU | Economic Planning Unit |
| FFB | Fresh fruit bunches |
| FIT | Feed in tariff |
| FRIM | Forest Research Institute Malaysia |
| EFB | Empty fruit bunches |
| ESG | Environmental, Social and Governance |
| ESO | Ecologically sustainable organisation |
| GCC | Global Climate Coalition |
| GHG | Greenhouse Gases |
| GKK | Gladwin, Kennelly and Krause, (1995) |
| GLC | Government Linked Company |
| GRI | Global Reporting Initiative |
| H&S | Health and Safety |
| ICC | International Chamber of Commerce |
| IIRC | International Integrated Reporting Framework |
| IMF | International Monetary Fund |
| IPCC | Intergovernmental Panel on Climate Change |

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| IRR | Internal Rate of Return |
| ITA | Interpretive Textual Analysis |
| LCA | Life Cycle Analysis |
| MD | Managing Director |
| MPOB | Malaysian Palm Oil Board |
| MNRE | Ministry of Natural Resources and Environment |
| NGO | Non-Governmental Organisation |
| NPV | Net Present Value |
| NSCCC | National Steering Committee on Climate Change |
| OA | Orang Asli/Orang Asal (indigenous) |
| PDD | Project Design Document |
| PO | Palm oil |
| POME | Palm oil mill effluent |
| PTM | Pusat Tenaga Malaysia |
| QCA | Qualitative Content Analysis |
| QCARI | Qualitative Content Analysis Research Instrument |
| RSPO | Roundtable on Sustainable Palm Oil |
| SD | Sustainable Development |
| SDG | Sustainable Development Goal |
| SEA | Social and Environmental Accounting |
| SER | Social and Environmental Reporting |
| S&R | Starik and Rands, (1995) |
| SSN | SouthsouthNorth |
| UN | United Nations |
| UNDP | United Nations Development Fund |
| UNEP | United Nations Environment Programme |
| UNEP-DTU | United Nations Environment Programme – Danish Technical University |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNGC | United Nations Global Compact |
| WBCSD | World Business Council for Sustainable Development |
| WWF | World Wildlife Fund |

Chapter One: Introduction

1.1 Background to the research

This study examines how business organisations in Malaysia, a developing country, write and speak about sustainability in the context of the Clean Development Mechanism (CDM). It focuses on what sustainable development¹ means to these organisations and whether alternative narratives of sustainability are being used, which are an empty commitment to sustainable development (SD) in the country (Gray, 2010; Baker, 2007). At the heart of the study is an exploration of what SD means based on a review of the literature. The definition and framing of SD is important as it determines the actions taken by those responsible for its implementation (Bebbington and Thomson, 2013). Further, developing countries such as Malaysia face many of the ‘wicked’ problems (Frame and Cavanagh, 2009) such as climate change, poverty, biodiversity loss, deforestation and human rights abuses, which SD goals (UN, 2015) are to tackle. It is appropriate therefore to consider how this might happen through a mechanism like the CDM.

The following sections outline the motivations for the research as well as the importance of the role business organisations should play in the SD and climate change agendas, particularly in a developing country. Section 1.2 presents the research aims and research questions of the study followed by the justification for the study in section 1.3. Section 1.4 outlines the different chapters and then the chapter concludes.

1.1.1 Motivations for the study

This section discusses the motivations for the study which are twofold. First, the research is driven by a concern for the apparent lack of sustainable development and climate change progress in developing countries, particularly Malaysia (Hezri, 2016). Secondly, there is a paucity of research on the ‘understandings’ of sustainable development by Malaysian business organisations and the implications of the CDM for the country (Joseph, 2013). Business organisations in the country, much like elsewhere may voluntarily engage in sustainability

¹ Sustainability and sustainable development are often used interchangeably. Sustainability is the goal reached through a process of sustainable development. The following definitions are useful “*sustainability is an inherent characteristic of healthy social and environmental systems. It is achieved by maintaining or enhancing various system capacities (such as family structure, community institutions in social systems or energy flows and carbon cycling in environmental systems) so that the system can withstand external shocks and return to normal functioning.*” Sustainable development on the other hand is a process towards the state of sustainability “*which necessitates integrating environmental policies and development strategies so as to satisfy current and future human need, improve peoples’ quality of life, and protect the environment, which we depend on for life support services.*” (Shields, Verga and Blengini, 2013, p. 2)

activities.² However, the imperatives of the CDM set up by United Nations Framework Convention on Climate Change (UNFCCC), were to mitigate climate change and bring SD to developing countries. The motivation of the research is to investigate if SD can be achieved through the CDM and to identify the role (non- role) of accounting in the CDM process. The CDM business organisations were chosen as the basis for collecting the empirical evidence for a few reasons. Firstly, climate change is a major global SD problem requiring action by the global community. The CDM was initiated through the Kyoto Protocol and subsequent Conference of the Parties (COPs). One of the main objectives of introducing such a mechanism was to ‘bring sustainable development’ to developing countries, therefore it was a good research opportunity to explore how these business organisations were engaging with the concept of SD when they were required to do so. Secondly, business organisations had to clearly demonstrate in their project design documents, the SD benefits which would accrue because of entering the carbon emissions reducing projects, opening a different accountability space to examine (Bebbington, Russell and Thomson, 2017). Annual reports of listed companies are largely used by SEA researchers to understand how companies address sustainability issues (Bebbington and Larrinaga, 2014; Tregidga, Milne and Lehman, 2012; Laine 2010; Cuganesan, Guthrie and Ward, 2010). This study enabled an examination of sustainable development conceptions, of all types of companies, private, public and government linked companies, within a climate change context.

1.1.2 Business organisations and sustainable development (SD)

The SEA literature on sustainable development and sustainability informs this research. The concepts of sustainability and sustainable development (SD) permeate a variety of discourses in the international community, national institutions, local government, businesses, academia, etc. Perhaps the most notable definition of ‘sustainability’ or sustainable development is that set out by the Brundtland Report published by the United Nations World Conference on Environment and Development, (UN, 1987 p. 43):

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

² Sustainability reporting has become compulsory by 31 December 2016, for companies listed on Bursa Malaysia (the Malaysian stock exchange). Listed business organisations must produce a Sustainability Statement (Kweh *et al.*, 2017). Bursa’s Sustainability Reporting Guidelines leave it up to business organisations as to the format but refers to the GRI guidelines as a possible framework to follow.

The study is pragmatic in its approach and driven by a normative belief that business organisations are not only responsible to shareholders for their wealth, but have an accountability to the wider community, under the ‘social contract’ (Gray, Brennan and Malpas, 2014; Deegan and Unerman, 2011) including their environmental and social externalities. A plethora has been written on the unsustainable activities of business organisations and the inability of governments and society to hold them to account, (Slawinski *et al.*, 2017; Banerjee, 2011; Gray, 2010; Beder, 2006; Bakan, 2004). Nonetheless, the anthropogenic activity driven by consumption and aided by corporate activity continues to consume natural resources at the same rates of the past, although some (e.g. ecological modernisers) believe that human ingenuity and technological advances will overcome this constraint (Rogers *et al.*, 2008). Approximately 25% of the world’s population consumes 80% of the world’s fossil fuel energy whilst the remaining 75% of the population (mainly in developing nations) accounts for only 20% (Pimental, 1994). Jackson (2009) elucidates the problem when he refers to the ‘iron cage of consumerism’ and the impetus for business organisations to continue to ‘feed’ consumers who are at the mercy of social comparison. South East Asian countries such as Malaysia, are examples of rapid development and the environmental destruction and social inequalities that accompany such progress, (Brock, 2015). Although the tensions are apparent, it is within this context that SD is supposed to alleviate the impoverished, ensure ecological protection and social equality for present and future generations.

1.1.3 Examining narratives of sustainable development (SD)

There is a useful body of work within social and environmental accounting research, which challenges the definition and construction of the term sustainable development by business organisations, (Tregidga, Milne and Kearins, 2015:2014; Tregidga, Kearins and Milne 2013; Milne, Tregidga and Walton, 2009; Laine, 2009, 2010; Spence 2007; Livesey 2002; Livesey and Kearins, 2002). It was considered apposite to examine the SD narratives within the context of the CDM to see if the unqualified acceptance of contributions labelled as SD should be challenged and called something else.

SD is a clearly stated goal for the implementation of CDM projects in host countries. The Designated National Authority (DNA) in the host country decides whether emissions reducing projects should be undertaken based on its potential SD contribution, before the project is approved (Paulsson, 2009). Therefore, developing countries must balance their

desire for investment with SD needs and in some cases, there is a risk of setting lower SD standards to ensure the investment materialises (Sutter and Parreno, 2007). Paulsson (2009) writes that the SD benefits of the CDM will depend on the design of the CDM and its implementation at local level by the individual project developers. Through identifying, interpreting and discussing what Malaysian business organisations refer to as ‘sustainable development’ or ‘sustainability’ exposes the assumptions and uncritical usage of the terms which mask a weak form of ecological modernisation in action.

1.1.4 The CDM as research setting

The Clean Development Mechanism (CDM) is the setting for the empirical work. The CDM is an offset programme, operational in 2006 under the UNFCCC. The programme enables polluters to earn ‘certified emissions reductions,’ (CER’s) by establishing projects in developing countries which reduce emissions to below a pre-specified base line. These projects must be verified and accredited before CER’s are issued for sale, (Cook, 2009; MacKenzie, 2009).

Article 12 of the Kyoto Protocol states:

“the purpose of the clean development mechanism shall be to assist Parties not included in Annex I (developing countries) in achieving sustainable development and in contributing to the ultimate objective of the Convention, (to stabilise greenhouse gases) and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments,” (p.11).

Priority is given to sustainable development (SD) in Article 12 in terms of ordering of its objectives. China and India develop most the projects in Asia, Malaysia ranks fourth after Vietnam. Malaysia has agreed to reduce carbon emissions by 40% by 2020 (Begum, 2017). According to the United Nations Environment Programme (UNEP), there are currently 145 projects ongoing as at March 2017 in Malaysia (UNEP-DTU, 2017) the majority being for methane avoidance and the production of biomass energy. The projects are performed by both public listed and private companies in conjunction with companies from Canada, Japan, Germany, Denmark, Switzerland, Netherlands and the UK. The business organisations involved are mainly from the palm oil, cement manufacturing, property development and power generation sectors.

The literature identifies several issues in relation to the operation of the CDM in various countries, ranging from the inequitable distribution of projects, high transaction costs particularly for small scale projects, lack of accountability once projects are approved, tensions between corporations, government and NGO perspectives and a weak stakeholder consultation process, (Phillips and Newell, 2013; Boyd and Goodman, 2011; Vlachou and Konstantinidis, 2010; Paulsson, 2009; Boyd *et al.*, 2009; Olsen, 2007; Lohmann, 2006). There is however, a paucity of research on the Clean Development Mechanism within SEA literature except for work by Lohman (2009) who argues that carbon accounting techniques and the cost benefit analysis used in the CDM projects help to create market spaces for consultants and agents and implement control across distances. Lohmann (2009) also critiques the assumptions underlying cost benefit analysis in the Project Design Documents (PDDs), the assumed equivalences of different gases in the pricing of certified emissions reductions (CERs) and the failure to consider the where and how emissions reductions are made (i.e. emissions reductions efforts are essentially exported from northern countries to southern countries).

Although the CDM is located within both the climate change and SD agendas, the focus of this research is sustainable development within a CDM context.

1.2 Research questions

This study adds to the SEA literature on SD discourse, and more specifically within a carbon emissions mechanism in a developing country. The research aims and objectives are now presented. This is the first comprehensive study in Asia of SD within the CDM using interpretive analysis of CDM documents and interviews with project developers. The identification of the SD conceptions of Malaysian business organisations will facilitate an understanding of their approaches to SD and how these might enable or impede SD progress.

The following questions guided the study.

Research question one:

How do CDM business organisations in Malaysia write and speak about sustainable development within the context of the CDM? How does this compare with existing academic literature on sustainability?

In answering this question, the study examines the extant literature on sustainable development and more specifically the various narratives of SD by business organisations. The existing narratives found in the literature act as a basis for identifying the ‘understandings’ of SD as presented in the CDM documentation and the perspectives of the project developers interviewed. The interviews complemented the documentary analysis in teasing out more nuanced ‘understandings’ of SD and perspectives on responsibilities for SD (Laine, 2010; Livesey, 2002). The interviews were also an opportunity to gauge how developers might try and manage the tensions between the various social, environmental and economic imperatives of SD and discover the motivations for entering the CDM.

Research question two:

Does the CDM aid or hinder sustainable development in a developing nation?

Taking the wider institutional, political and organisational context into consideration and examining the SD narratives emerging from the CDM, it was important to determine if certain constructions of SD hindered or supported a specific discourse and rendered invisible and silent other discourses (Tregidga, Milne and Kearins, 2015). The CDM is a carbon offset program governed by a supranational organisation in Europe and involves the collaboration of many actors with vested interests (Bailey, Gouldson and Newell, 2011). An examination of the literature surrounding the CDM reveals the mechanism to be a ‘*prescriptive illustration of ecological modernisation*’ (Ninan, 2011, p. 264). Therefore, whether the CDM can be a channel for SD implementation is examined.

Research question three:

What is the role/ (non-role) of accountants in the CDM process?

As stated in the literature, accountants have a role to play in accounting for sustainability and bringing about organisational change towards sustainability (Bebbington and Fraser, 2014). The CDM requires the use of cost benefit analysis (CBA) for projects (Lohmann, 2009) and the documentation of sustainable development benefits of the projects. This study explores whether accountants have a role to play in accounting for sustainability within the CDM and to what extent they contribute to the CDM process.

1.2.1 Research Design

The research follows an empirical process and is informed by a qualitative methodology. The research design is comprehensively presented in chapter 3, detailing how the empirical work is performed, analysed and presented in the findings. An interpretive approach is used in the study. Gergen (2009) states that all language based accounts mask implicit values or an ideology of what the political and social order should be like. In this way, the interpretive approach asks questions of meanings and understanding of the documents contents as well as how the content is produced and used by the CDM developer. The research is also concerned with transformation, a feature of a more critical approach but engages with this aspect to a much lesser extent. The qualitative nature of the research means that the researcher has been engaged in a process of sense making of the empirical data and this sense making may be regarded as a process of construction (Alvesson, Hardy and Harley, 2008; Elliot, 2005). Therefore, reflexivity in terms of acknowledging the researcher's ontological perspective, values and biases was important as part of the ongoing empirical research.

1.3 Contribution of the study

The qualitative nature of the research facilitates an understanding of the SD narratives of CDM developers, and contributes to the literature on the 'nature' and 'meaning' of corporate communication within the SD agenda. SEA research primarily concentrates on how public listed organisations in developed countries (Thomson, 2014) write about SD in their reports. This research focuses on public, private and government linked companies in a developing country, and how they write and speak about SD within PDDs designed specifically for the CDM. There is a need to focus on corporate communications apart from annual reports of listed entities (Deegan, 2015; Tregidga, Milne and Kearins, 2015; Thomson 2014) and this research is unique in that it focuses on PDDs. The PDDs are the giving of an account of how business organisations are to implement emissions reducing projects and how these contribute to SD. Many of the PDDs are produced by private companies and should facilitate a richer insight into the conceptions of SD within these business organisations. Private companies contribute over a third of Malaysia's Gross Domestic Product.

A major concern within the literature is the accountability – sustainability discourse, whereby organisations attempt to discharge accountability to stakeholders through voluntary sustainability reporting. This study also examines the SD discourse but within a different accountability space (Bebbington, Russell and Thomson, 2017), i.e. within the CDM.

Previous research has predominantly examined voluntary reporting within annual reports (Tregidga, Milne and Kearins, 2014; Laine, 2010) in developed countries, so this study aims to fill the gap in SD discourse research in a developing country and by examining CDM documentation instead of annual reports.

Further, the analysis of documents is augmented by interviews with those involved in the preparation of PDDs. Their views are sought on SD and the CDM, including their motivations for joining the CDM, the role of accountants and their stakeholder engagement experiences as part of the PDD preparation. In this way, adding to the literature as called for by Tregidga, Milne and Lehman (2012), who call for the exposition and highlighting of the current conceptions of SD by businesses specifically. Further, the context of this study is unique as it examines business organisations within the CDM as called for by Tregidga, Milne and Kearins (2015).

This study aims to also draw attention to the complex institutional and political context within which the CDM operates (Deegan, 2017). It is within this supranational institutional framework supported by scientific and economic experts and business organisations that SD is framed and acted upon. This framing is important since ‘wicked’ problems of SD and climate change are gradually being reframed as a “*technological, economically and politically tractable problem*” (Bailey, Gouldson and Newell, 2011, p. 685). Narrow framing of ‘wicked’ SD problems will inevitably lead to inadequate action. Much of the research on the CDM fails to critique the commodification of carbon instead being concerned with its practical implementation (Paulson, 2009, exceptions include Bachram 2004 and Lohmann, 2006, 2009). Consequently, Paulson (2009) calls for more theorising of the CDM and Olsen (2007) concludes that CDM research must focus on the integration of both the climate change and SD agendas as sustainable development is a primary aim of the CDM.

1.4 Organisation of the study

This study consists of four distinct parts covered in 7 chapters as shown in figure 1. A summary of each chapter follows.

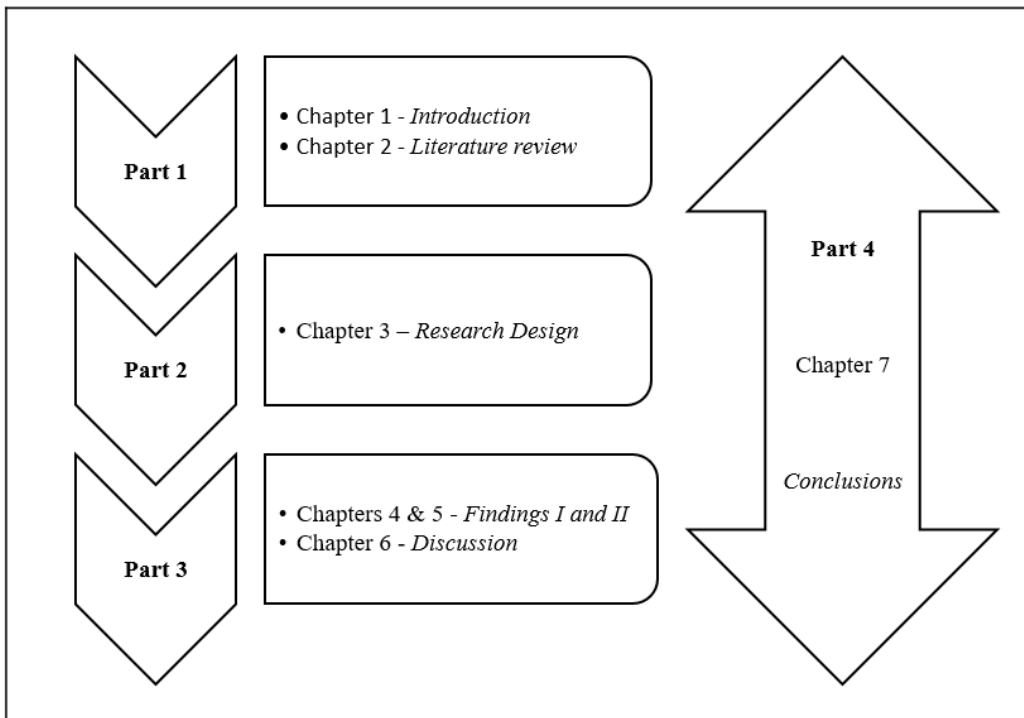


Figure 1: Structure of the thesis

Chapter one sets out the background to the research including the motivations of the researcher for engaging in the study, the role business organisations play in SD including the framing and constructing of narrow conceptions which form a basis for sustainability actions. The CDM is then introduced as the research setting. The research questions are then presented with the contributions of this study to the nascent literature on SD within SEA.

Chapter two presents a review of the SD literature. The nature of SD has resulted in substantial literature across many disciplines but this study will concentrate on accounting and management literature primarily. The conceptions of SD as identified in the literature are identified and discussed and then used to develop a theoretical basis for the empirical research in the study. This chapter also introduces the CDM, its objectives, participants and its role in bringing SD to a developing country, Malaysia. The CDM's ecological modernist features are

discussed and the implications for SD provided. An overview of Malaysia is presented with the current state of play in the SD and climate change agendas in the country.

Chapter three provides a comprehensive coverage of the research design including the researcher's ontological, epistemological and methodological approach to the study. The chapter covers in detail the research methods including the development of the qualitative content analysis research instrument (QCARI), the approach used in the interpretive textual analysis (ITA) and interviews. Before the chapter concludes the researcher reflexively acknowledges positioning in the research.

Chapter four presents the first part of the findings from the qualitative content analysis on the Project Design Documents (PDDs). The chapter begins with a general overview of the findings including examination of differences between different types of industry or company type. This is followed by a more detailed reporting on the major categories of the research instrument and major trends identified from the qualitative content analysis.

Chapter five continues with findings from the interpretive textual analysis and the interviews. An overview is given followed by an analysis of the PDD as a communication document using Thompson's (1990) analysis of symbolic forms. The chapter then addresses the key themes identified within the PDDs and the interviews. Business organisation motivations for entering the CDM are discussed, as well as perspectives on the suitability of the CDM to bring SD to Malaysia. The role of accountants is also considered in this chapter.

Chapter six brings together the overall findings and discusses the key themes arising and the CDM business organisation conceptions of SD in the context of the study's research questions. An explication of the differences between ecological modernisation and SD is presented to aid the discussion and illuminate the core issues arising from the findings. The chapter concludes on the possibility of the CDM bringing SD to a developing country.

Chapter seven concludes the study and revisits the research questions to show how each was answered and includes a reflection on the research process. It also includes the contribution to the SD discourse research and outlines practice implications and directions for future research. The limitations of the study are summarised before the chapter concludes.

1.5 Conclusion

This chapter has set out the foundations of the study. These include the motivations of the researcher for undertaking the study as well as the background and context for the research. A discussion on the background of the study highlights how business organisations are responsible for many of the global ‘wicked’ problems but are also tasked with the responsibility to ameliorate these problems through SD. The CDM is presented as the research setting and the features and objectives of the mechanism are introduced. One of the main aims of the CDM is to bring SD to developing countries, and this forms the basis of the research. The key research questions of the study are introduced along with the research methodology adopted in the study to address these questions. The primary focus of the research is to identify and expose the SD narratives used by business organisations involved in the CDM and to consider whether such mechanisms can bring SD to developing countries. The role of accountants in this process is also examined. The importance of the study and how it contributes to existing literature is discussed including the research gap it fills. Figure 1 provides an overview of the thesis structure. The thesis now proceeds with a detailed review of the literature relevant to this study including, sustainable development, and more specifically SD within Malaysia and the CDM.

Chapter 2. Sustainable development, the CDM and Malaysia

2.1 Introduction

This chapter has three main foci. Firstly, a brief exploration of the various meanings of sustainable development (SD) and the factors that contribute to these varying understandings within the literature. Secondly, introducing the CDM as a mechanism to bring SD to Malaysia. Thirdly, an examination of the role business organisations play in the SD agenda. This examination will then form the basis of developing a heuristic for the empirical investigation on the CDM business organisations.

The chapter proceeds as follows; section 2.2 explores in brief, the history of SD including the elements of and issues surrounding the Brundtland Report definition (United Nations, 1987) and the more contemporary developments in the last decade, particularly in the realm of physical ecological boundaries and Sustainable Development Goals (SDGs).

Section 2.3 introduces the understandings of the term ‘SD’ and how it is defined and written about in different way ranging from weaker to stronger forms of SD. The various ‘framings’ and ‘mappings’ of SD help to capture the complexity of the concept and the underlying ideological positions of the actors in the SD agenda. Section 2.4 presents the state of play for SD in Malaysia including the objectives of the CDM in bringing SD.

Section 2.5 reviews the literature on business organisations and SD including the responsibilities of business organisations for their activities beyond the economic, and how this has changed over the last few decades. The participation of business organisations in the SD agenda has seen a move from positions of inaction to participation in representative organisations, influencing policy and sustainability reporting. The role of some of the more prominent bodies representing business organisations is addressed in section 2.6 as well as the influence of NGOs on business organisations within the SD arena.

Climate change is an important issue within the wider SD agenda and it is within this context the study is undertaken. Section 2.7 therefore, examines the role of business organisations in the climate change agenda including a brief overview of issues surrounding the commodification of carbon emissions. Section 2.8 investigates the various conceptions of SD adopted by business organisations found within the literature and how these determine corporate responses to sustainable development. These conceptions range from ‘business as usual’ to ‘sustaincentrism’ and will form part of the basis of the theoretical framework of the study. An important conception is that of ‘ecological modernisation’, which is a technocratic and modernist conception usually made synonymous with SD. However, it lacks many of SD’s more radical attributes. To ensure a more complete examination of SD at organisational

level, section 2.9 investigates measuring and reporting on SD at the corporate level as well the more popular theories in explaining why business organisations report on sustainability issues, even voluntarily. Section 2.10, uses the ‘framings’ from the literature and the various business organisations conceptions on SD, to develop a heuristic to guide the subsequent empirical work. Section 2.11 concludes the chapter.

2.2 The emergence of sustainable development

The concept of SD is grounded in the conservationism and environmentalism of the 1960s and 1970s (Adams and Whelan, 2009; Redclift, 2005; Bebbington and Gray, 2001; Lélé, 1991). Concerns centred on the environmental degradation arising from development (Hardin, 1968) and the increasing population growth, (Meadows *et al.*, 1972).

A precursor to SD was the concept of ‘eco-development’ (Lele, 1991; Colby, 1991). The principles of eco-development were radical, calling for living within ecological limits, meeting the basic needs of present and future generations, alleviating poverty and developing self-reliance at a local level. Additionally, ‘eco-development’ required a reduced power imbalance in development issues (consumption, growth, education, health) between the developed and developing countries (UNEP, 1972). However, due to the concept’s perceived constraints on economic growth (Paton, 2011) ‘eco-development’ received limited support from governments and business (Berr, 2015; Berstein, 2001) and was subsequently overshadowed by SD.

2.2.1 The Brundtland Report 1987

Perhaps the most influential SD definition is that of the United Nation’s (UN) Brundtland Report, (UN, 1987). The Brundtland Report was the product of a consultative process between developed and less developed countries, highlighting the challenges of poverty versus the environment and the links between development and the environment, (Springett and Redclift, 2015). The definition of SD given in the report is:

“Sustainable development is development which meets the needs of the present without compromising the ability of future generations to meet their own needs.”

(UN, 1987, p.43).

The report emphasised the need for a new approach to economic development:

“One that must be based on policies that sustain and expand the environmental resource base..... such growth to be absolutely essential to relieve the great poverty that is deepening in much of the developing world,” (UN, 1987, p. 43).

The Brundtland Report (UN, 1987) has three imperatives. Firstly, an ecological imperative for humanity to protect biodiversity and live within the limits of the earth’s biophysical capacity. Secondly, an economic imperative ensuring basic needs are met for present and future generations, including equal access to resources. Thirdly, a social imperative to develop governance structures that generate and sustain values by which people wish to live (Dale, 2001). The emphasis given to each imperative varies and achieving the right balance between them is an enormous challenge which the Brundtland Report fails to fully address (Redclift and Springett, 2015). The ambiguity of the definition has enabled consensus between varying stakeholders but at the same time created difficulty in actual implementation (Baker, 2015; Dresner, 2008; Hopwood, Mellor and O’Brien, 2005; Daly, 1993; Lele, 1991). Further, and of importance to this study, the term allows for a variety of conceptions and interpretations in its framing (Bebbington and Larrinaga, 2014) which determines the actions taken in implementing SD.

2.2.2 Sustainable development in the last decade

Since the publication of the Brundtland Report a vast body of literature has developed across many disciplines (economic, accounting, sociology, politics, and engineering) demonstrating the ambiguous and complex nature of SD. A few of the more important developments in the last decade, identified from the literature are now discussed (Bebbington, Unerman and O’Dwyer, 2014).

The Brundtland Report (UN, 1987) suggests economic growth is still possible within ecological limits, however Jackson (2009) surmises current economic growth models are unable to ensure a transition to SD. He identifies specific recommendations including the setting of limits, fixing the economic model and changing the social logic (Jackson, 2009). In relation to climate change specifically, Stern (2007) writes that climate change is an example of a great market failure.

Current economic models of analysis are not suited to climate change problems and instead must be:

“global, deal with long time horizons, have the economics of risk and uncertainty as its core and examine the possibility of major, non-marginal change,”

(Stern, 2007, p. 1).

A recent study on the economic impact of global biodiversity loss, identifies humanity's relationship to nature and the current economic model which promotes increased consumption, private wealth and human made versus natural capital, as the root causes of biodiversity loss (TEEB, 2010).

Research by the UNEP's Millennium Ecosystem Assessment (2005) on ecological systems and more contemporary planetary boundaries research seek to determine which physical boundaries are in danger of being breached, (Rockström *et al.*, 2009). The three critical areas are biodiversity loss, nitrogen cycle and climate change (Steffan *et al.*, 2015; Whiteman, Walker and Perego, 2013). The possible transitions needed to achieve SD require combining planetary boundaries (Rockström *et al.*, 2009) with the social needs of humanity (Raworth, 2012) as illustrated in Figure 2. The transitions include a greater equity in the distribution of incomes, equity in resource use globally and greater efficiency in use of natural resources such as water, and fossil fuels.

The SDGs (UN, 2015a) bring together a plurality of issues to promote *“sustained, inclusive and sustainable economic growth,”* including full employment and sustainable industrialisation. However, how full employment and sustainable industrialisation might be achieved is absent from the SDGs (Le Blanc, 2015). The 'political' mapping of the SDGs with alternative 'scientific' and 'social' mappings fails to properly link the SDGs together resulting in potential conflicts for policy implementation (Le Blanc, 2015). Overcoming these conflicts will require a radical restructuring of existing economic systems, the redistribution of resources and new ways of producing, (Stewart, 2015).

In summary, SD is both a natural system and a social system concept. 'Natural', in that it is concerned with planetary boundaries such as climate change, biodiversity loss and 'social' as it is contestable and can be framed in multiple ways (Bebbington and Larrinaga, 2014).

Understandings of SD are both political and ideological, (Davidson, 2014). Some conceptions are developed within the mainstream neo-liberal framework and others are framed in opposition to the mainstream (Tregidga, Kearins and Milne, 2013; Söderbaum, 2009). It is the latter characterisation that this study is concerned with, as it determines how business

understandings of SD are formed. The next few sections explore these ‘contestable’ understandings and framings of SD found within the literature.

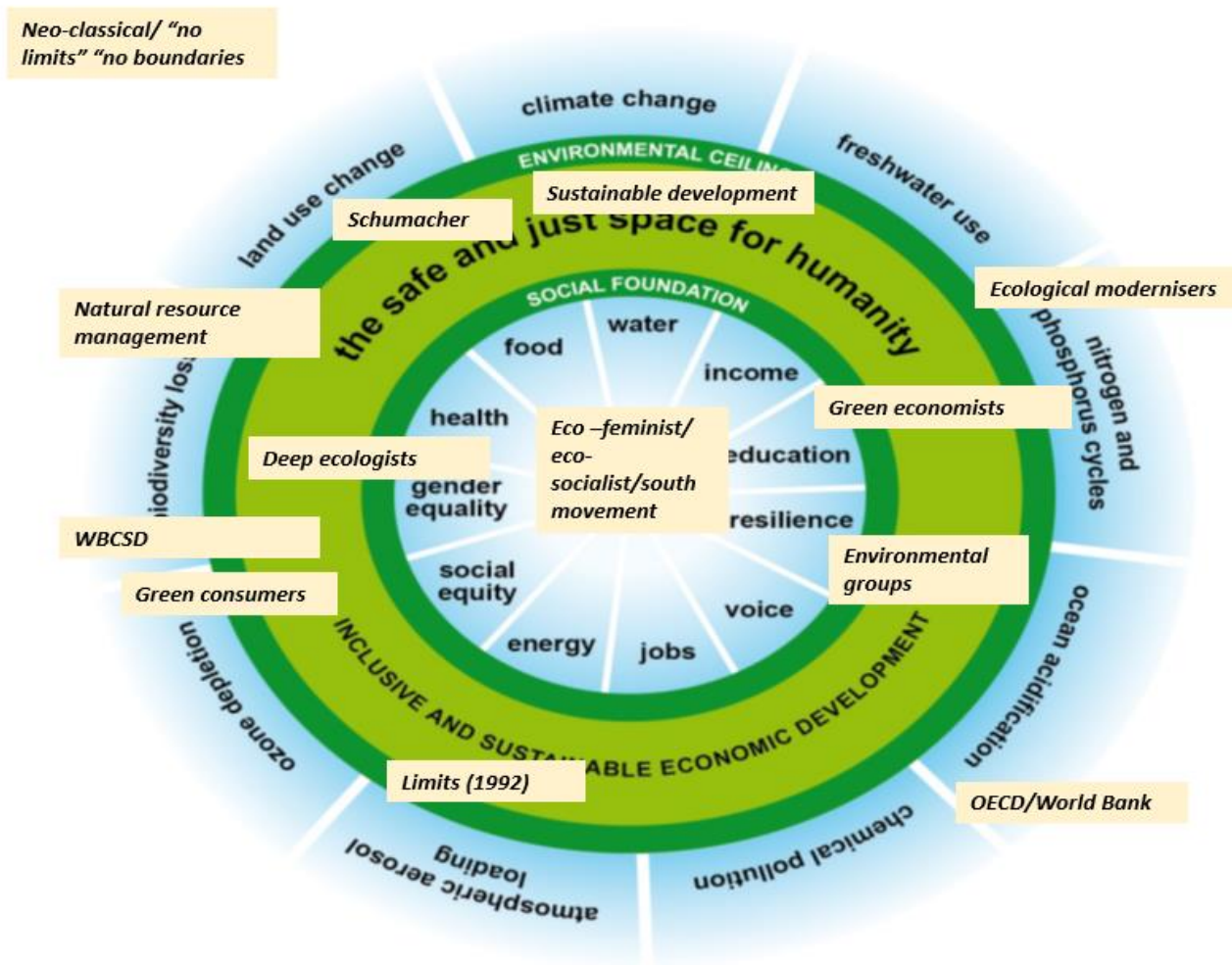


Figure 2: The sustainable development debate, planetary boundaries and social well-being (adapted from Raworth, 2012)

2.3 Understandings of sustainable development

The study is concerned with the corporate conceptions of SD within the CDM, the following sections will explore the various understandings found in the management and accounting literature. Questions such as what is SD? What should be sustained? How should it be sustained? depend on which ‘understanding’ is adopted (Baumgartner, 2011). Many have attempted to map ‘SD’ based on these different ‘understandings’ (Hopwood, Mellor and O’Brien, 2005; Gladwin, Kennelly and Krause, 1995; Colby 1991). Some refer to ‘understandings’ as ‘paradigms’ (Gladwin, Kennelly and Krause, 1995; Colby, 1991) and others refer to them as ‘interpretations,’ (Hopwood, Mellor and O’Brien, 2005).

2.3.1 Sustainable development: different things to different people

“The problem with referring to ‘sustainable development’ is that its very appeal is its vagueness,” (Redclift, 1991 p. 36).

Many specific groups are interested in defining what SD means whether ecologists, environmental planners, economists and activists. Therefore, knowing the ideologies underpinning conceptions of sustainable development helps to open the SD debate and see how ideology influences actors in decision and policy making, (Davidson, 2014). Ideological positions on SD range from neo-liberalism, through social democratic to eco Marxist views (Davidson, 2014) resulting in weaker and stronger forms of SD.

Weak sustainable development allows for the substitution of economic (man-made) capital for natural capital, in other words meeting the needs of humanity takes priority over biodiversity loss, climate change, and eco system changes. Strong sustainable development does not allow for substitution between man-made and natural capital. In various forms in between, substitutions would only be allowed if natural capital could be compensated for, (Neumeyer, 2013; Gray 2010; Dresner, 2008). The ‘weak’ versus ‘strong’ SD continuum, leaves a number of potential paths to SD. This plurality is evident from the discourse surrounding the environment and SD. Dryzek (2013) identifies discourses with either reformist or radical aims and classifies them as the global limits argument, solving environmental problems, the quest for sustainability and green radicalism (see also Hajer, 1995). Currently, there are calls for a more eco-centric reinterpretation of SD due to the state of current planetary boundaries, more specifically climate change and biodiversity loss (Imran, Alam and Beaumont, 2014; Rockström *et al.*, 2009).

2.3.2 'Mapping' Sustainable development

"How sustainable development is understood reflects which problems are recognized, how problems are constructed, and how responses are conceived and enacted,"
(Byrch *et al.*, 2009 p. 1).

'Mapping' the differing positions on the relationship between man and nature and identifying paradigms within which discourses of SD take place, has produced varying 'understandings' of SD. Figure 3 illustrates these 'understandings' ranging on continuums from anthropocentric to eco-centric, 'business as usual' to radical ecology, shallow green to deep green, frontier economics to deep ecology, weak sustainability to strong sustainability with overlapping paradigms in between, none being neatly defined (Milne, Tregidga and Walton, 2009; Söderbaum, 2007; Buhr and Reiter, 2006; Hopwood, Mellor and O'Brien, 2005; Laine, 2005; Bebbington and Gray, 2001; Gray, Owen and Adams, 1996; McManus, 1996; Gladwin, Kennelly and Krause, 1995; Colby, 1991).

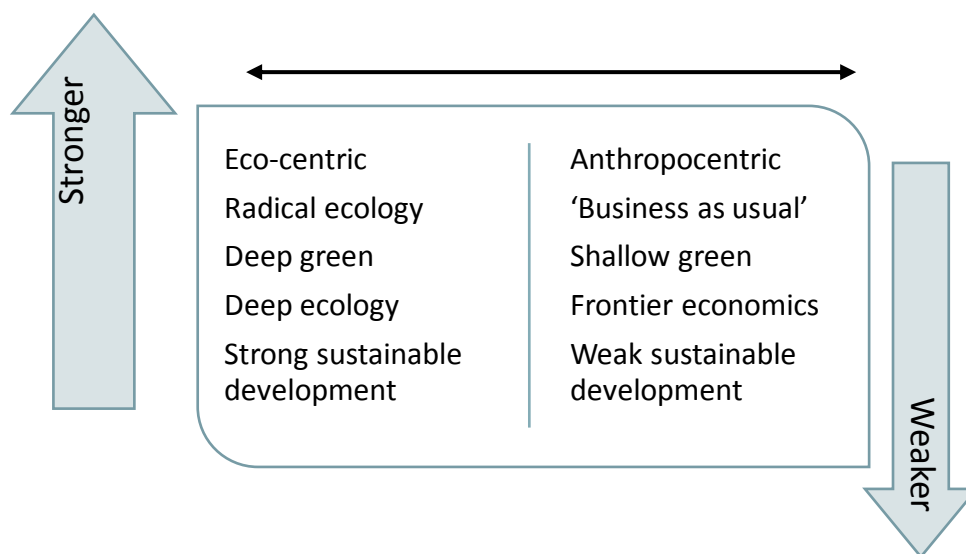


Figure 3 Continuums of SD 'understandings'

The search for clear cut paradigms can result in losing some of the contradictions and ambiguities within the SD discourses. There are also dangers of conflating discourses as in the case of SD and EM (Langhelle, 2000). EM is often used as synonymous with SD particularly in policy initiatives. This is counterproductive to the broad agenda of SD (Wright and Kurian, 2010; Brand, 2010; Baker, 2007; Langhelle, 2000), because EM lacks the aspirational objectives of SD regarding ecological limits and social values of eco-justice and eco-effectiveness.

2.3.3 *The paradigms of sustainable development*

Paradigms provide the framing for the meaning and understanding of a phenomena and function as ideologies, as they legitimize different courses of action (Olsen, Lodwick and Dunlap, 1992 in Milne, Tregidga and Walton, 2009, p. 1217). Colby's (1991) five paradigms of the '*relationship between humans and nature*' (p. 194) shows an evolutionary relationship from paradigms of 'frontier economics' to 'deep ecology' through paradigms of 'environmental protection' 'resource management' and 'eco-development.' These paradigms provide the basis for examining and comparing the SD literature in this area.

'Frontier economics' is a state of unrestrained exploitation, earth's resources are unlimited and environmental externalities such as environmental pollution and waste are not considered (Colby, 1991). Hopwood, Mellor and O'Brien, (2005) refers to this view as a 'neo liberal economics' approach, and certain aspects of this paradigm overlap with both the 'technocentrist' (Gladwin, Kennelly and Krause, 1995) and 'technological social paradigm,' (Olsen, Lodwick and Dunlap, 1992). The 'technocentrist' paradigm views nature as an inexhaustible exploitable resource. Nature is for the benefit of humanity and science and technology can overcome all possible natural limitations (Gladwin, Kennelly and Krause, 1995; Olsen, Lodwick and Dunlap, 1992). The 'business as usual' approach (Bebbington, 2001) or Hopwood, Mellor and O'Brien's (2005) 'status quo' sits within this paradigm. 'Environmental protection' attempts to overcome the problems of the 'frontier economics' approach to the environment and include the environment as an economic externality. Environmental protection includes 'command and control' approaches to pollution but rarely (if ever) includes positive externalities such as improved health or better aesthetics (Colby, 1991). This approach ignores the 'social costs' associated with business activities and limited environmental costs are included even for businesses with environmental management accounting systems, (Deegan, 2008). Using cost information results in 'eco-efficiency' benefits such as reduced energy and material usage, better wastage processes, materials recycling and innovation in production processes to reduce costs (Ferreira, Moulang and Hendro, 2010). In summary, this paradigm is a "neoclassical economics plus" approach (Colby, 1991). This paradigm is like both the current 'business case' and weak EM approaches to business activities, (Dyllick and Muff, 2015).

The 'resource management' paradigm is both an extension of neo classical economics and an 'evolutionary' change in practice. It is the economisation of ecology, (Colby, 1991, p. 204) and involves managing biophysical, human, infrastructural, and monetary capitals and including them into national accounts and development policies, (Colby, 1991). However, the

current institutional, political, economic and legal structures are inadequate to handle these issues effectively. Colby (1991) equates this paradigm to Brundtland's SD. 'Resource management,' has many similarities to 'Sustaincentrism' in terms of the interdependence of the economy with ecology, the anthropocentric emphasis and the desire to stabilize population growth (Gladwin, Kennelly and Krause, 1995). In addition, the paradigm requires the efficient allocation of resources through markets.

'Sustaincentrism' differs from 'resource management' in that technology is used in a more cautious and humane way, rather than to enhance carrying capacity of ecological limits. Further, 'sustaincentrism' emphasises eco justice and inter/intra generational interests, both key aspects of SD. The paradigm focuses on 'inclusiveness' of humanity and ecology now and for future generations; 'Connectivity' of all life systems requiring equal treatment of the economy, society and the environment; 'Equity' that ensures humanity is treated fairly in terms of the distribution of sufficient resources between current and future generations; alleviation of poverty and the equitable treatment of non-human species. 'Prudence' (like the precautionary principle) in the management of eco systems ensures they are self-sustaining, restorative and not irreversibly damaged. Establishing a 'secure' future in terms of the carrying capacity of the earth's resources, sustaining humanity's basic needs for safety and health and ensuring there is no net loss in eco systems is a priority in this paradigm.

'Sustaincentrism' is located between 'technocentrism' and 'ecocentrism' (Gladwin, Kennelly and Krause, 1995).

In visualising a 'sustaincentric' organisation Gladwin, Krause and Kennelly (1995) set out the features for a 'socially sustainable enterprise' and Gladwin and Krause (1996) for an 'ecologically sustainable enterprise.' A combined summary of these 'sustaincentric' features are presented in table 1. However, operationalising 'sustaincentrism' at the business organisation level has limited empirical evidence in the management literature (Valente, 2012) and it remains primarily a theoretical concept. Olsen, Lodwick and Dunlap's (1992) 'sustainable development social paradigm' is similar to both Colby's (1991) 'resource management' and Gladwin, Kennelly and Krause's (1995) 'sustaincentrism' in that it is broadly anthropocentric, requiring both economic and population growth to be stabilized, and the earth's limited resources to be managed through science.

'Eco-development' is analogous to that coined prior to the Brundtland Report by the UNEP (1972). Colby's version requires human activities to reduce output impacts on the eco system, ensure sustainable levels of ecological and economic throughput and maintain both the ecosystems and human welfare. Eco-development requires "*ecologising the economy or whole social systems*" (Colby, 1991 p. 207) whereby economic activities would mimic natural

eco systems and use industrial ecology, biomimicry and redesign of energy and material throughput (Starik and Rands, 1995; Colby, 1991). A decoupling of economic growth from material throughput to keep within ecological limits is an essential aspect of ‘eco-development,’ (Jackson, 2009). ‘Eco development’ recognises the value of indigenous knowledge on managing eco systems, aiming to include issues of social equity and culture (Colby, 1991). This paradigm would require a complete transformation of the economic and social structures in society to include social equity and eco justice (Hopwood, Mellor and O’Brien, 2005).

Features of a ‘sustaincentric’ organisation

Ecological

Eliminate all harmful pollution to the biosphere. Include negative and positive ecological externalities

Preserve/restore ecological systems to the extent appropriated or damaged

Use ecological resources less than or equal to the rates they can be regenerated

Use non-renewable resources at rates lower than the creation of renewable resources to replace them

Redesign processes and products into closed cyclical flows which mimic ecological systems

Dematerialise production cycles by substituting information for material matter

Continually reduce environmental risks

Social

Include all positive and negative externalities and return to communities as much as is gained from them

Include all stakeholders in planning and decision-making processes which impact them

Reduce or eliminate any inequalities whether economic or other and promote political and civil rights

No net loss of human capital or direct/indirect productive employment

Provide vital needs of employees and local communities

Fulfil basic needs of humanity prior to serving luxury wants

Table 1: Features of a ‘sustaincentric’ business (adapted from Gladwin, Krause and Kennelly 1995 and Gladwin and Krause, 1996)

‘Deep ecology’ is a ‘back to nature’ paradigm rooted in values of ‘anti-growth’ and ‘constrained harmony with nature,’ (Colby, 1991 p. 196). This paradigm, unlike many of the others is not anthropocentric and puts nature before humanity respecting the intrinsic value of ecological systems. Deep ecology has many variants within, (Colby, 1991) ranging from those that ignore issues of equity and justice, to those that are inclusive of socio-economic issues (Dryzek, 2013; Hopwood, Mellor and O’Brien, 2005). ‘Deep ecology’ is consistent with the ‘ecocentrism’ paradigm of Gladwin, Kennelly and Krause (1995) and the ‘new

ecological social’ paradigm of Olsen, Lodwick and Dunlap (1992). Appendix A presents a summary of Colby’s five paradigms. The range of paradigms discussed above are presented in table 2. It is difficult not to simplify the representation of these paradigms in such a presentation as table 2 but as Milne, Tregidga and Walton (2009) write the emerging ‘middle’ ground of sustainable development is diverse and complex with a variety of values and beliefs which are difficult to categorise. There is therefore no unified approach to SD and the same words have different meanings and understandings due to differing political and ideological views (Davidson, 2014; Dryzek, 2013; Hopwood, Mellor and O’Brien, 2005).

| Source | ← Sustainable Development Continuum → | | | | |
|-------------------------|---------------------------------------|---|---|----------------------------------|-------------------------------|
| Colby, (1991) | Frontier economics | Environmental protection | Resource management | Eco-development | Deep Ecology |
| Olsen, (1992) | Technological social paradigm | Sustainable development social paradigm | | | New ecological paradigm |
| Gladwin, et al., (1995) | Technocentrist | Sustaincentrism | | | Ecocentrist |
| Hopwood, et al., (2005) | Status quo e.g neo-liberalism | Reformation, e.g. ecological modernisation; Brundtland (1987) | | Transformation e.g. Ecosocialist | |
| Davidson, et al., 2014 | Neo-liberal/free markets | Market intervention/ green signallers | Social democratic/steady state/ecological economics and bioregional community participation | | Radical, ecological democracy |

Table 2 : Sustainable Development paradigms

2.3.4 Positioning the study

SD as coined by the Brundtland Report has resulted in a plurality of understandings and approaches due to its vagueness and ability to suit varying stakeholders, (Bebbington and Larrinaga, 2014). The middle ground lies between the two extremes of ‘neo-classical economics’ and ‘deep green ecology’ with varying degrees of concern for ecological and social issues. The more powerful stakeholders (e.g. business and supranational organisations) can determine the nature of the narratives within the ‘middle ground,’ (Milne and Gray, 2013). These paradigms fall into three broad approaches to sustainable development, these are the status quo, reform and transformation of existing political and economic structures (Hopwood, Mellor and O’Brien, 2005). Figure 4 (adapting Milne, Tregidga and Walton,

2009) provides an overview of where the study is located within the SD debate, highlighting the 'middle ground' concepts of eco-development, 'sustaincentrism', Brundtland and ecological modernisation relevant to this study.

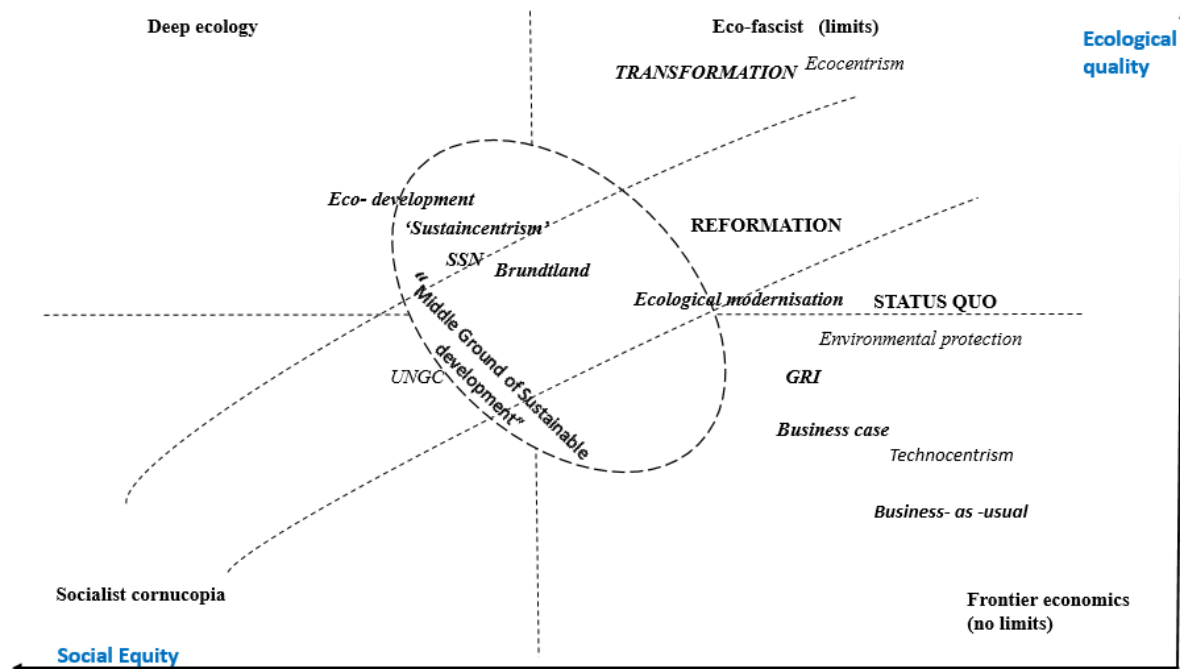


Figure 4: The middle ground of the SD debate (adapted from Milne, Tregidga and Walton, 2009 building on Hopwood, Mellor and O'Brien, 2005)

2.4 Sustainable development in Malaysia

To understand SD within the Malaysian context, this section will introduce briefly the geographic and socio-economic background of the country.

Malaysia is in south east Asia and is 2° and 7° to the north of the equator. The country covers approximately 327,000 km², sixty percent being in Borneo, (East Malaysia). It has 4800 km of coast line and its topography consists of mountainous and coastal areas (Ministry of Natural Resources and Environment, 2011). Agriculture, manufacturing, construction, food and beverage provide approximately two thirds of the employment in the country (Economic Planning Unit, 2017).

Malaysia is one of the 17 mega diversity countries in the world due to its rich and diverse flora, endemic species and intact natural ecosystems (Mittermeier *et al.*, 1988). Forested areas stand at 55% of the land area and are home to very complex ecosystems (MNRE, 2011). However, deforestation and degradation are continuing issues for the country (Vijay *et al.*, 2016). The main cause of deforestation is the expansion of commodity plantations such as palm oil and rubber, food agriculture, shifting cultivation and the building of large dams resulting in the flooding of thousands of hectares of primary forest (MNRE, 2011). Historically, Malaysian industries were tin mining and rubber plantations but today the primary sector is driven by oil and gas, palm oil, timber and fisheries, which are leading to natural resource depletion and environmental degradation, (Sumiani, 2008).

2.4.1 SD progress in Malaysia

Malaysia's concern for the environment has come in three waves of environmental protection, governmental reform and green investment, (Hezri, 2011). In the 1970s, Malaysia focused on the protection of land, forest, natural eco systems, pollution and population health (Hezri and Hasan, 2012). Governmental reform took place in the 1970's and 1980's, with the introduction of laws covering environmental quality, national forestry and parks, national energy, water pollution and protection of wildlife, (Razman *et al.*, 2007). In the last few decades, Malaysia has ratified various international conventions (refer appendix B).

Development is high on Malaysia's national agenda and in 2002, the National Policy on the Environment was formulated to harmonise economic development and

environmental protection. The policy includes, stewardship of the environment and sustainable use of natural resources. However, the main environmental issues facing the country are destruction of coastal reefs, degradation of forests and loss of biodiversity, (Abdullah and Nakagoshi, 2007).

In 2009, the Economic Planning Unit (EPU) focused on social aspects (poverty, healthcare, public safety and housing) in the Malaysian Transformation Programme intending to increase Malaysia's human and social capital (Pemandu, 2014). The most recent Eleventh Malaysian Plan (2006-2020) focuses on 6 key areas including inclusiveness in an equitable society; improving well-being for all; human capital development; green growth for sustainability (via renewables, resource efficiency) strengthening economic infrastructure and re-engineering economic growth for greater prosperity (EPU, 2015). Nonetheless, there is less emphasis on protection of the environment compared to previous plans. The policy approach is one of ecological modernisation as the main aim is '*green growth for sustainability and resilience.*' The policy includes the creation of green markets, management of waste, establishment of green financing mechanisms, promotion of low carbon, disaster risk management, flood mitigation, climate adaptation, natural resource security and alternative livelihoods for the indigenous population (EPU, 2015, p. 6-1).

2.4.2 The CDM and sustainable development

The CDM in Malaysia is the main context for the study. The mechanism enables developing countries to be involved in the climate change mitigation process. The CDM is an offset mechanism that enables polluters in Europe (annex I countries) to meet their GHG emissions obligations under the Kyoto Protocol by earning CDM certified emissions reductions, (CER's). CERs are accepted in the European Trading System as part of the 'cap and trade' system. The CDM involves establishing projects in developing countries, which have a two- fold objective. Firstly, to contribute to sustainable development in the developing country and secondly to reduce carbon emissions (Paulsson, 2009). Only projects which produce emissions reductions additional to what would have happened in the absence of the CDM project will be considered for approval by the EB (UNDP, 2003). The projects must be verified and accredited before CER's are issued (Cook, 2009; MacKenzie, 2009). According to the UNEP CDM database (UNEP-DTU, 2017) at 1 July 2017 there are approximately

8,436 CDM projects worldwide with 7,774 already registered. The total issuance of CERS in the period 2013-2030 is expected to be approximately 3.5 billion, (UNEP-DTU, 2017). China, India, South Korea and Brazil are the top host countries in terms of issued CERs. The CDM has a plurality of participants operating globally and locally. The participants, the relationship between them and their motivations are covered in the following paragraphs.

2.4.3 The objectives of the Clean Development Mechanism

The purpose of the CDM is to reduce carbon emissions and the dependence on fossil fuels and incentivise a move to renewable energy sources. The cost of reducing emissions in developing countries is significantly lower than in developed countries and the CDM fits this criterion. The CDM enables the Annex I countries (developed countries) to meet their emission reduction targets by investing in clean technology projects in developing countries.

Article 12 of the Kyoto Protocol states:

“the purpose of the clean development mechanism shall be to assist Parties not included in Annex I (developing countries) in achieving sustainable development and in contributing to the ultimate objective of the Convention, (to stabilise greenhouse gases) and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments...”

Priority is given to sustainable development (SD) in Article 12 in terms of ordering of the CDM objectives (Boyd *et al.*, 2009).

2.4.4 The CDM participants

Under the Kyoto Protocol only developed countries, (identified as Annex 1 countries in Kyoto Protocol) have carbon emissions reductions obligations. There is no requirement for developing countries to reduce carbon emissions. However, the CDM allows parties from developed countries to meet their CO² reduction obligations by investing in or providing technological know-how to emissions reducing projects in developing countries (non-Annex 1 countries). The main benefit to parties from

developed countries for engaging in the CDM is the lower costs of obtaining CERs to meet their emission obligations in their home countries. The projects are mainly ‘low hanging fruit’ in developing countries requiring less cost and effort to obtain the CERs (Newell and Paterson, 2010). Not all companies from developed countries will invest in the projects, but may provide technological know-how and a commitment to buy the CERs (Newell and Paterson, 2010). The project developers in the developing countries contribute to sustainable development in their home countries while earning income from the sale of the CERs from their projects. Although the benefits from the CDM are questionable, particularly in relation to sustainable development (Pearse and Böhm, 2014; Boyd and Goodman, 2011; Lohmann, 2009, 2010) the CDM has spawned a market worth billions (Pearse and Böhm, 2014).

Figure 5 shows the various participants in the CDM process and their role is outlined in the subsequent paragraphs.

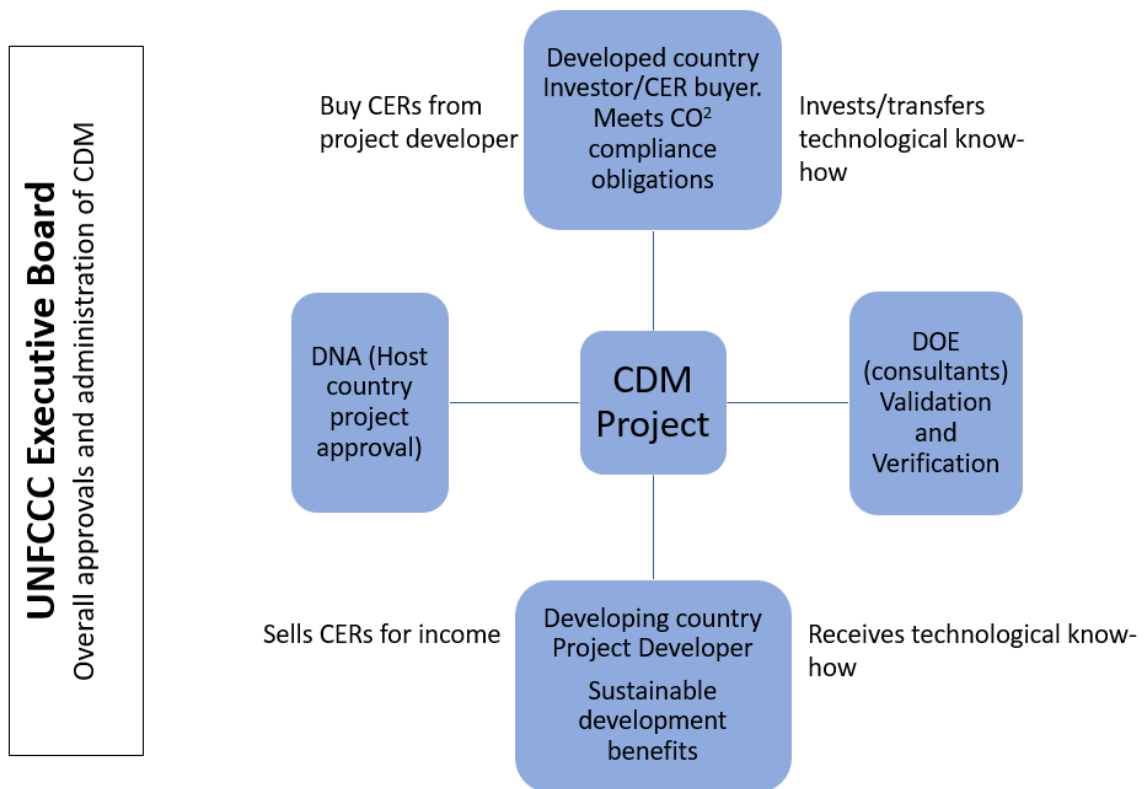


Figure 5: The CDM participants

The participants in the CDM process include, the UNFCCC's Executive Board (EB), the Designated National Authorities (DNA) of host countries, accredited Designated Operational Entities, CDM project developers, investors, CER buyers and various stakeholders in the projects such as local community and employees.

Figure 5 illustrates the relationship between the various parties in the CDM process. The CDM became operational in 2005 and is supervised by the CDM EB under the authority and guidance of the Conference of Parties (COP) of the UNFCCC (UNFCCC, 2012). The role of the EB is set out in appendix C.

The Designated National Authority (DNA) is the host country institution which scrutinises eligible CDM projects to ensure they meet specific criteria relevant to the host country. The DNA has the final authority to approve projects including an acknowledgement that the project assists in meeting the host country's sustainable development objectives. The detailed role of the DNA is presented in appendix D. Project developers may be government bodies, municipalities, foundations, financial institutions, private companies and NGOs. Any project developer desiring to obtain credits from a CDM project must follow a specific process as set out in figure 6.

Likewise, those that buy Certified Emissions Reductions (CERs) may be government bodies, municipalities, foundations, financial institutions, private companies and NGOs from any of the Annex 1 countries (Schreuder, 2009).

Designated Operational Entities are independent audit organizations accredited by the CDM EB. Designated Operational Entities validate projects prior to approval by the EB and/or verify actual emissions reductions when the project is completed and operational (UNFCCC, 2017a). There are 30 Designated Operational Entities worldwide, many of these are from mainland Europe or Japan (UNFCCC, 2017b). There have been issues with Designated Operational Entity independence and their selective communication with stakeholders when validating projects, (Kuchler, 2017; Lund, 2010).

The CDM project cycle consists of a series of steps commencing with project identification and ending with the issuance of CERs, (Certified Emissions Reductions). An overview of the steps in the CDM process are set out in figure 6.

Figure 2.1: National CDM Project Cycle

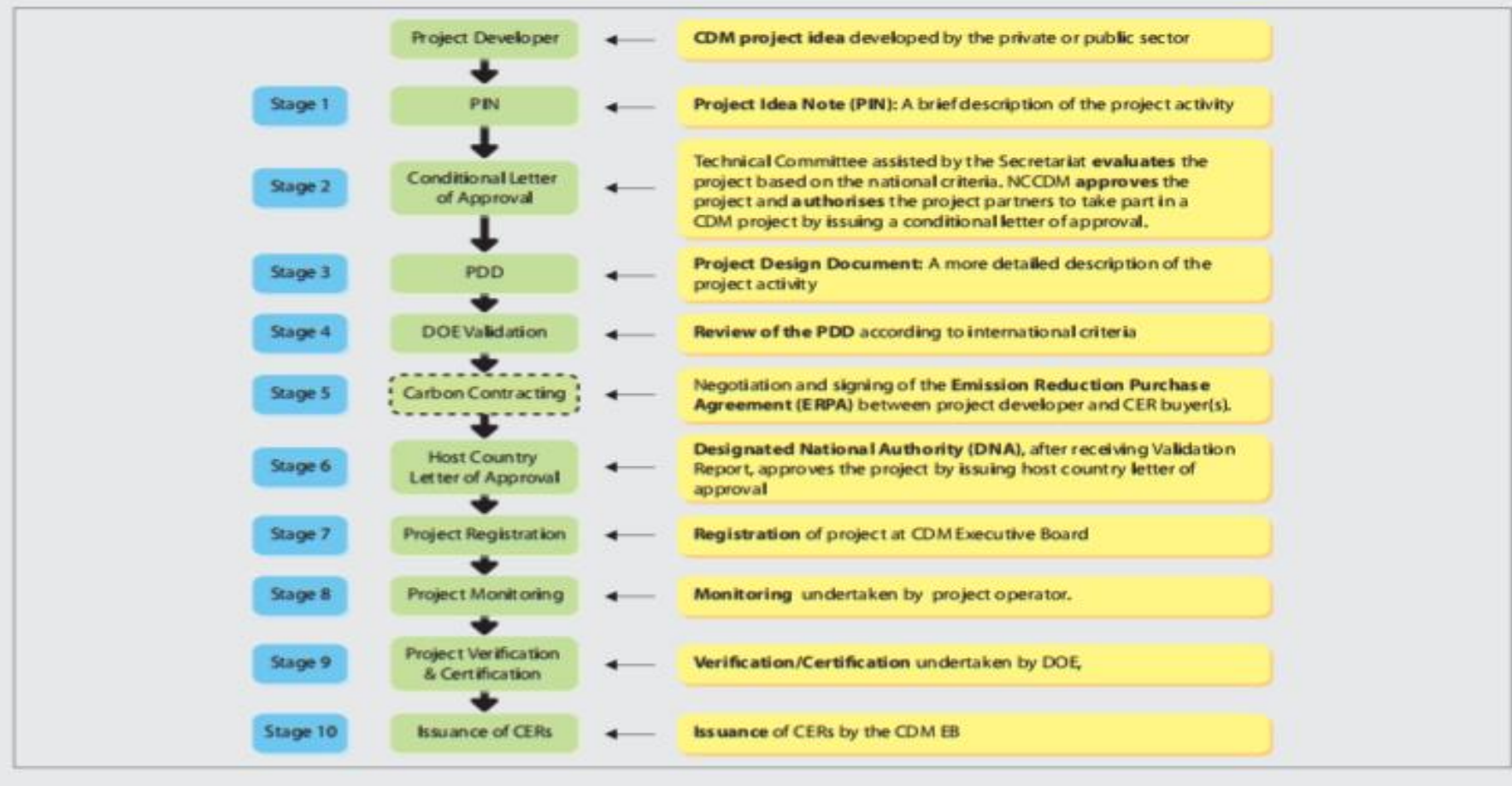


Figure 6: The CDM Project cycle (MNRE, 2009a)

2.4.5 The Project Design Document (PDD)

A Project Design Document (PDD) is required as the first step in the CDM project cycle. This document is the basis for half of the empirical work in the study.

Accordingly, this section will explain what the PDD is, how it is produced and examine existing empirical research using PDDs. The project developer prepares this document to provide information for the relevant stakeholders on the climate change mitigation and sustainable development benefits of the project, (Kamel, 2005). The PDD is:

“the key document that the host country, investors, stakeholders (local, national and international) and designated operational entities will use to evaluate the project’s potential and judge its merit.” (p. 36, UNDP, 2003).

The PDD is validated by an independent third party (Designated Operational Entity) and submitted for approval to the CDM EB. The content areas of the PDDs are prescribed by the UNFCCC. The minimum requirements for PDD disclosure are presented in appendix E. As part of the preparation, a local stakeholder consultation process is undertaken and details given in the PDD of how comments were invited, compiled and responded to (UNEP, 2004). At the validation stage the Designated Operational Entity makes the PDD publicly available (usually on the UNFCCC or designated operational entity website) for 30 days for comments as part of a global stakeholder consultation process (UNEP, 2004).

Research using PDDs on the CDM’s contributions to sustainable development in various host countries are mixed. Some find that the CDM enables sustainable development, (Karakosta, 2013; Huang and Barker, 2012 ; Austin *et al.*, 1999). However, others have found the opposite. Sutter and Parreño (2007) analysed 16 CDM projects for their contributions to both emissions reductions and sustainable development criteria and found that none of the projects contributed strongly to both objectives simultaneously. Labelled (e.g. Gold Standard) CDM projects do not substantially outperform unlabelled projects in terms of sustainable development contributions (Nussbaumer, 2009). Olsen’s (2007) literature review of the contribution of the CDM to SD exemplifies the trade-off between low cost emissions reductions and SD benefits. Others (Pillay, 2015; Boyd and Goodman, 2011; Kua,

2010; Nussbaumer, 2009; Boyd *et al.*, 2009; Olsen and Fenham, 2008; Sirohi, 2007) have also found limited or unequal SD benefits from the projects. However, none of this research explores how business organisations write and speak about SD in the context of the CDM.

Sustainable development is the normative ideal decreed as a public policy goal, but as a practice it is both unstable and alterable due to its multiple interpretations.

Therefore, more empirical evidence on SD performance is required (Bebbington, 2009). In addition, Paulsson, (2009) calls for more theorising on the CDM as current research tends to focus on the operational aspects of the CDM. Olsen, (2007) surmises that research must focus on the integration of the climate change dilemma with sustainable development. Therefore, the goal of this study is to examine what sustainable development means to business organisations involved in the CDM and understand, interpret and critique the use of an EM mechanism in the pursuit of sustainable development.

2.5 Business organisations and sustainable development

One of the major stakeholders in the SD agenda are business organisations. Business organisations, operate across borders, control vast resources and engage in a variety of business activities which affect the societies in which they operate. Whether business organisations have a responsibility to conduct their activities in both an environmentally and socially responsible manner and to what extent is a heavily debated area (Kolk, 2016; Ferrero, 2014; Banerjee, 2008; Beder, 2006; Bakan, 2004; Bebbington and Gray, 2001; Gray and Bebbington, 2000). Business organisations are required to comply with legislation in the country of operation such as environmental, labour, gender equality and consumer laws but no law requires business organisations to operate in a sustainable manner, alleviate poverty or ensure social equity, (Gray, Adams and Owen, 2014).

However, the argument underpinning most SEA literature is that business organisations have a privileged position in society and therefore have a social and environmental responsibility due to the expectations of society via the ‘social contract.’ The ‘social contract’ is a concept used by many philosophers (Bishop, 2008; Boucher and Kelly, 1994) and is usually associated with legitimacy theory.

Mathews (1993, p. 26) writes:

“Organisations draw on community resources and output both goods and services and waste products to the general environment. The organisation has no inherent rights to these benefits and in order to allow their existence society would expect the benefits to exceed the costs to society.”

The business organisations in this study have a responsibility to reduce fossil fuel emissions and implement SD as part of their participation in the CDM.

2.5.1 Responsibilities of business organisations

Traditionally a business organisation's performance was measured by how it maximised its owner's wealth. Friedman (1970) argued it was not the responsibility of business to concern itself with social or environmental problems as these should be left to the working of the economy via the capital markets (Klonoski, 1991). In addition, it was argued organisations were not equipped to deal with these issues as they were outside the scope of their normal activities (Carroll and Shabana, 2010). These arguments are consistent with the '*pristine capitalist*' view identified by Gray, Adams and Owen, (2014). Following this rationale, business organisations are accountable for economic performance only regardless of their environmental or social performance externalities.

2.5.2 Social responsibility of business organisations

Social and environmental issues began to gain traction in the 1960s due to the increased awareness of environmental and social issues (environmental damage, pollution, civil rights, women's rights, employee and customer rights, (Christofi, Christofi and Sisaye, 2012). Cowen, Ferreri and Parker (1987) argue that reduction in public confidence in business organisations and legislation was the main impetus for an increase in corporate social responsibility, whereas Patten (1992) argues that social disclosures by business organisations were a result of public pressure at that time. The management literature promoted corporate social responsibility (CSR) in the 1970s. According to Frederick (1994, p.151), the main idea behind CSR was that '*business corporations have an obligation to work for the betterment of society.*'

Carroll and Shabana, (2010) highlight the disparity at that time between corporate social responsibility, a posture adopted by business due to social pressures and actual responsiveness of business because they saw these issues as their responsibility. Instead business organisations became more focused on their performance and the outcomes of CSR initiatives that led to an increasing drive to prove a ‘business case’ for CSR (Carroll and Shabana, 2010). Empirical management research attempted to theorise CSR but the main aim of much of the research was to determine whether business organisations benefited financially from conducting CSR activities, (Wang, *et al.*, 2016; Herremans, Akathaporn and McInnes, 1993; Wood, 1991).

2.5.3 Growing responsibility?

The Brundtland Report introduced the idea of SD in 1987 and with it a role for business organisations, which is reflected in the literature (Montiel, 2008). However the concept of CSR which is as contestable as SD, (Garriga and Mele, 2004) is often conflated with corporate sustainability (Wang *et al.*, 2016; Montiel, 2008; Moon, 2007). There is an overlap in terms of the nature and aims of both agendas but there are marked differences in the way they are written about. Montiel (2008) provides a useful review of the similarities and overlaps within the management literature between CSR and corporate sustainability. Corporate sustainability is identified as an end state where economic activities are part of the larger ecological system. There is a connectedness between the three areas of economic, social and environment, with all having equal priority. Alternatively, with CSR, environmental and social issues are an add-on to a business’s current economic activities, focusing more on the environment as opposed to the social. Accordingly, CSR is firmly placed within the ‘business as usual’ paradigm (Montiel, 2008).

The underlying issue for CSR or corporate sustainability is one of corporate responsibility. As Gray, Adams and Owen (2014, p.47) write:

“it is difficult to consider a position of ‘responsibility’ which does not acknowledge the exigencies of ‘sustainability.’”

Concepts such as ‘responsible capitalism’ or ‘sustainable capitalism’ suggest that business organisations have a role to play in bringing about SD and are willing to take up that responsibility, (Gray, 2006).

Nevertheless, research draws attention to the possibility that all business organisations are currently unsustainable in how they operate (Milne and Gray, 2013; Gray, 2010; Moneva, Archel and Correa, 2006; Shrivastava, 1995). For developers in the CDM, their responsibilities include reducing carbon emissions and implementing SD in Malaysia. What constitutes SD is not spelt out by the UNFCCC and the meanings are left up to the DNA of the host country and the business organisations involved, (Bäckstrand and Lövbrand, 2007; Olsen, 2007).

2.6 Representing business in the sustainable development agenda

Globalisation and the changing economic and political governance trends have placed increasing pressure on business to conform to societal expectations on social and ecological issues (Gray, Adams and Owen, 2014; Martell, 2010; Deva, 2006).

Business organisations have contributed to the current problems, including ecological degradation, human rights abuses, corruption and climate change (Bebbington and Larrinaga 2014; Gray, 2010, Banerjee 2008). Therefore trusting business organisations to voluntarily adopt a responsible approach to SD when much of what they do is unsustainable may be imprudent (Milne and Gray, 2013; Moneva, Archel and Correa, 2006).

Whether SD should be accounted for at the organisation level at all is questionable. Gray (2010) argues that sustainability is a cross boundary state of being that does not lend itself to organisational boundaries nor can it be defined as one single state as there may be many ways to arrive at such a state (Milne and Gray, 2013; Marshall and Toffel, 2005). Business organisations are part of a larger eco-system and determining the sustainability of one organisation is impossible, as its activities have an impact across spatial and time boundaries. Climate change is an example of this as carbon emissions are geographically cross boundary and do not recognise business organisation structures.

Nonetheless, business organisations have access to vast natural and other resources and the ability to mobilise people, funds, suppliers and customers. Therefore, many within the business community, academia and government believe that business

organisations have an active role to play in the SD agenda, (Kolk, 2016; Baker and Schaltegger, 2015; Hahn *et al.*, 2014; Schaltegger, Freund and Hansen, 2012; Kolk and van Tulder, 2010; Porritt, 2007; Schaltegger and Burrit, 2006; Elkington, 1994). Businesses have played an active role in the SD agenda (including the climate change agenda) whether it is to promote, drive, influence or suppress the agenda (Gray, Adams and Owen, 2014). In addition, there are several national and international organisations providing advocacy, sustainability performance and reporting guidelines to business organisations. The following sections outline some of the more prolific organisations representing business organisations in the SD agenda.

2.6.1 World Business Council for Sustainable Development (WBCSD)

The Business Council for Sustainable Development (BCSD) was formed in 1990 to represent business interests in the lead up to the Rio Summit in 1992 and to contribute to a sustainable society (WBCSD, 2016). The objectives of the WBCSD include business leadership, policy development, promotion of the business case, contribution to business practice and provision of global outreach. Currently the WBCSD has 184 member companies from 35 countries. Participation in the council activities is required from the senior management and a committee made up of 14 CEOs oversees the council (Najam, 1999). The WBCSD plays an active role in the climate change agenda acting as a lobbyist to ensure self-regulation of emissions, implementation of market mechanisms and increased financial support for R&D into new technology, (Beder, 2014).

Due to the privileged position of the WBCSD in UN conferences, business interests can lobby and influence international policy discourse on SD and climate change (Tregidga, Milne and Kearins, 2014; Milne, Tregidga and Walton, 2009; Hopwood, Mellor and O'Brien, 2005; Gray and Bebbington, 2000; Najam, 1999; Mayhew 1997). The WBCSD's self-regulatory approach ensures that businesses (particularly multinationals) have no requirements to account for unsustainable activities (Tregidga, Milne and Kearins, 2014; Najam, 1999). Concerns raised by NGOs and others include the promotion of the WBCSD's conception of SD via its education and advocacy programmes (Najam, 1999). The conception emphasises eco-efficiency and the implementation of environmental management systems (Gray and Bebbington, 2000). Further concerns surround the WBCSD's self-regulatory approach to

sustainable business practices and the increasing influence on government policy (Ivanova, Gordon and Roy, 2007; Najam 1999). The WBCSD's Vision 2050 highlights that a shift towards sustainability will trigger trillions of dollars creating new opportunities for business to thrive and grow, (WBCSD, 2010) clearly reflecting a 'business centric' approach to SD by putting business opportunities and economic growth as priorities.

2.6.2 The International Chamber of Commerce (ICC)

Formed in 1919 to promote trade and industry, the ICC has become a very influential lobbyist for self-regulation of international transnational corporations and the promotion of globalisation (Utting, 2005). Membership includes companies and business organisations from 120 countries around the world. The ICC's influence within the United Nations comes from active participation in the SD summits and its collaboration with various UN agencies such as the UNEP and UNDP (Kelly, 2005). The ICC played a significant role in the Rio Earth summit arguing that business organisations were the best placed to spearhead SD initiatives as part of business practices (Gray and Milne, 2002). The ICC's Charter promotes the continuing growth of business despite the growing population and the earth's finite natural resources (ICC, 2015 p. 6). Many, (Gray, Adams and Owen, 2014; Banerjee, 2014; Levy and Kaplan, 2007; Kelly, 2005) argue that the ICC has managed to locate itself favourably within the local, regional and international governance regimes including both the SD and climate change agendas.

2.6.3 The United Nations Global Compact (UNGC)

The United Nations Global Compact (UNGC) provides 'corporate citizenship' guidelines for business organisations to encourage participation in the SDGs. The principles are to be incorporated into business management strategies, policies and procedures (UN, 2016; Kell, 2012). The UNGC has over 8700 participant companies in 165 countries. Its 10 principles cover human rights, corruption and the environment. Whilst the UNGC attempts to emphasise the moral purpose of business, the UN has an inadequate accountability structure to ensure principles are adopted (Sethi and Schepers, 2014; Williams, 2004). In addition, the UNGC has moved away from the broader aims of the Brundtland Report, particularly in its coverage of the

environment. Instead it promotes environmental protection, environmental friendly technologies and the precautionary principle (Barkemeyer *et al.*, 2014). This is of concern as the more aspirational or radical elements of the Brundtland definition are being slowly eroded to create a more palatable narrative for business while excluding key issues of human needs and ecological constraints.

2.6.4 Non-governmental organisations promoting corporate sustainability

Non - governmental organisations (NGOs) help shape corporate sustainability particularly in the international business arena (Boomsma and O'Dwyer, 2014). NGO influence is through participation in the policy making process and by compelling organisational change when behaviour does not conform to expectations (Burchell and Cook, 2013; Tilt, 2004). NGOs influence the sustainability reporting of business organisations (Momin, 2013) although it is arguable whether their influence changes the behaviour of business organisations (Deegan and Blomquist, 2006; O'Dwyer, Unerman and Bradley 2005). Furthermore, NGOs have been responsible for the development of social audit initiatives particularly in the UK, through bodies such as Social Audit Ltd and the Consumer Association (Gray, Brennan and Malpas, 2014) and the use of shadow reporting to counter the mainstream corporate sustainability disclosure (Dey, Russell and Thomson, 2011). NGOs are often instrumental in the development of industry codes of conduct, giving expert advice, and advocacy on behalf of civil society (O'Dwyer, Unerman and Bradley, 2005; Depledge, 2005; Kolk, 2005; Tilt, 2004).

In the CDM, NGOs are involved in capacity building, project development and giving feedback on project submissions to the EB to ensure environmental and social integrity of CDM projects (Green, 2008). Various NGOs, such as the World Wildlife Fund (WWF) and Climate Action Network (CAN), question the 'win-win' rhetoric of the CDM calling for project developers to meet externally developed SD standards (Lund, 2013). WWF developed the voluntary Gold Standard for CDM projects, a rigorous labelling process for projects with higher quality SD outputs (Drupp, 2011; Nussbaumer, 2009; Olsen and Fenhann, 2008). One of the first attempts to produce comprehensive SD assessment criteria for the CDM was by SouthSouthNorth (SSN, 2004), an NGO set up to alleviate poverty in Africa, through CDM projects. SSN's toolkit focuses on localised social justice such as quality of employment, livelihoods

of the poor and access to essential services. Since then there have been a variety of voluntary SD certification processes for the CDM developed by different NGOs including those funded by the UNDP and private industry (Parnphumeesup and Kerr, 2015).

NGOs, therefore have some influence over corporate behaviour through confrontation and collaboration (Arenas, Lozano and Albareda, 2009). Participation in voluntary certifications address issues that are of interest to a broader group of stakeholders, although attempting to capture sustainability via checklists is unlikely to provide a comprehensive picture of the sustainability of the organisation or CDM project (Gray, Adams and Owen, 2014). Further, the certifications are voluntary requiring both corporate self-regulation and a willingness to comply with the requirements of voluntary codes and criteria (Sethi and Schepers, 2014).

2.6.5 Organisations promoting sustainability reporting

Although sustainability reporting and sustainability performance is not the same thing (Milne and Gray, 2013), is it useful to examine the organisations influencing sustainability reporting. The main organisations promoting sustainability reporting by business organisations are CERES (Coalition for Environmentally Responsible Economies), United Nations (UN Global Compact) and AccountAbility (AA1000 standards). This section will examine the first one as it is the most influential in Malaysia. Malaysia's introduction of mandatory Environment, Social and Governance (ESG) guidelines in 2016 for listed companies refers to the Global Reporting Initiative (GRI) primarily (Bursa Malaysia, 2015).

CERES was established in 1989 by a group of investors and has companies, investors, policy makers, social and environmental advocacy groups and public interest groups within its ranks. CERES was responsible for initiating the GRI (with the Tellus Institute and UNEP) in 1997. The GRI are the most prolific sustainability reporting guidelines with thousands of organisations in 90 countries using them.

Whether sustainability reporting can influence organisational change for sustainability is questionable. Some research shows that sustainability reporting acts as a starter for planning organisational change for sustainability (Lozano, Nummert and Ceulemans, 2016; Bebbington and Fraser, 2014; Adams and Frost, 2008; Adams and McNicholas, 2007). However, there is evidence to suggest that the nature of current guidelines and

principles are inadequate for real change because business organisations can ‘cherry pick’ what parts of the guidelines they choose to report (Milne and Gray, 2013; Levy, Brown and De Jong, 2010; Moneva, Archel, and Correa, 2006). Furthermore, business organisations focus on how they represent themselves (Vigneau, Humphreys and Moon, 2014) rather than embed sustainability principles into their operational activities (Baumann-Pauly and Sherer, 2012).

In summary, this section has considered the organisations which represent business in the SD agenda and the role they play in determining business responses to SD issues. In addition, these representative organisations will influence the conceptions of SD that member organisations develop for their own business activities. Since the study investigates CDM developer conceptions of SD the next section examines the role of business organisations in the climate change agenda.

2.7 Business organisations and climate change

Climate change is an important aspect of the SD agenda and is the focus of one of the seventeen SDGs (UN, 2015b). Climate change is also one of the critical planetary boundaries as identified by the Stockholm Resilience Centre (Steffen *et al.*, 2015; Rockström, *et al.*, 2009). Business activity is one of the primary sources of CO₂ emissions causing climate change, due to increased globalisation, production and longer trade routes (Schaltegger and Csutora, 2012; Okereke, Wittneben and Bowen, 2011). Global carbon emissions have levelled out in 2015, however energy consumption is increasing and coal fired power plants produce over one third of global emissions (Olivier, Janssens-Maenhout and Peters, 2016).

2.7.1 Climate change discourse

Business activities are affected by both climate change mitigation and adaptation (Bebbington and Barter, 2011). Climate change has also been framed within the confines of a calculable space wherein temperatures and emissions are measured, decisions are made based on cost benefit analysis and solutions are provided by economic models and markets (Lohmann, 2009; MacKenzie, 2009; Levy and Kolk, 2002). Climate change discourse became more prominent with the formation of the United Nations Intergovernmental Panel on Climate Change (IPCC) in 1988.

Business interests were represented initially by the Global Climate Coalition (GCC,

set up in 1989), an organisation formed by the oil business organisations alarmed at the potential threat of the regulation of fossil fuel emissions (Kolk, Levy and Pinkse, 2008). The GCC, lobbied government and attacked the veracity of climate change science in an attempt to influence government policy on climate change (Levy and Eagan, 2003). However, with the signing of the Kyoto Protocol in 1997, business interests went from challenging the trustworthiness of climate change science, to highlighting the mitigation costs and the lack of carbon commitments from developing countries (Kolk, Levy and Pinske, 2008). Governmental policy in Europe focused on carbon reductions and large business organisations were forced to consider emissions cuts (Levy and Eagan, 2003).

Banerjee (2012) provides a useful insight into how business interests are represented and influence international climate change policy (via business industry groups) at climate change summits. The influence of business interests ensures that the climate change discourse is based on 'rational' issues of energy efficiency and technological advances, rather than any attempt to move towards eliminating carbon emissions (Wittneben *et al.*, 2012). This is supported by Okereke's (2007) empirical findings as to the motivating factors for FTSE 100 companies to engage in carbon emissions reductions. The main motivating factor is economic profit followed by credibility, fiduciary obligation, risk factors and ethical considerations.

2.7.2 Climate change agenda in Malaysia

Climate change concerns for Malaysia relate to adaption and mitigation as climate change will affect agricultural production (e.g. rice) and coastal erosion due to increased sea levels (Masud *et al.*, 2014) Energy is a main driver for the economy and a major cause of carbon emissions (Ahmad and Tahar, 2014).

Malaysia has ratified the UNFCCC as a non-Annex 1 party in 1994 and therefore implements the Kyoto Protocol through the CDM. The institutional framework for climate change is presented in appendix F. The country introduced a National Climate Change Policy in 2009 (MNRE, 2009b) which includes the management and conservation of natural resources, climate change resilience and adaption objectives. However, the country has not yet ratified the Paris Agreement (Begum, 2017). The Greenhouse gas (GHG) inventory submitted to the UNFCCC in 2000 identifies Malaysia as a net sink for carbon emissions in 2000 however it has become a net

emitter by 2005 (MNRE, 2011). The highest proportion of GHG emissions were in the form of carbon dioxide (75%) in 2000. The sectoral sources of emissions are the energy industry (76%), waste in landfills (12%) industry processes (6%) and agriculture (5%) per the latest available report to the UNFCCC (MNRE, 2015). Energy demand continues to grow as do the corresponding emissions and degradation of the environment and human health due to continuing industrial growth (Jamaludin, 2009). The Fourth and Fifth Fuel Diversification policies aim to reduce reliance on fossil fuels imported from Australia and Indonesia and move towards renewables (Lau *et al.*, 2009). However, Malaysia's consumption of coal is the fastest growing in non-OECD countries in the last decade as it continues to build coal-fired power plants (Burnard *et al.*, 2016; Othman, Zakaria and Fernando, 2009). Reliance on coal conflicts with the commitment to move to renewable energy although various initiatives have been introduced to improve energy efficiency, including the feed-in tariff (FIT) and low carbon cities framework (Gan, Komiyama and Li, 2011; Chua and Oh, 2010).

Malaysia has committed to a voluntary 45% reduction in emissions targets compared with 2005 by the year 2030 and 10% of the emissions is dependent on receiving climate finance from developed countries, (Begum, 2017). To achieve the target reductions, mitigation measures include renewable energy, energy efficiency, green technology, buildings and cars, reduction in forest conversion, recycling of waste, and biogas recovery from plantations, (MNRE, 2015).

2.7.3 The CDM in Malaysia

The country's Ministry of Natural Resources and the Environment (MNRE), is the Designated National Authority to approve CDM projects. The CDM applications processing is under a two tier organisation under the MNRE and consists of two committees, i.e. the National Steering Committee on Climate Change (NSCCC) and the Technical Committees (on Energy and Forestry). Each Committee has a CDM Secretariat, which are Pusat Tenaga Malaysia (PTM) and Forestry Research Institute Malaysia (FRIM). These secretariats assist in the evaluation of CDM projects and provide policy inputs to the Government, conduct awareness activities and provide guidelines to potential investors. The membership of the two technical committees comprise government ministries as well as various industry organisations (Malaysian

Palm Oil Board, Federation of Malaysian Manufacturers, Association of Banks, Malaysian Rubber Board, Timber Trade Federation and Business Council for Sustainable Development) and two NGOs, (Malaysian Climate Change Group and the Malaysian Nature Society).

At the time of writing there are 145 CDM projects in Malaysia (MNRE, 2015) these consist primarily of methane avoidance and biomass avoidance projects as shown in the chart below. The latest Biennial Update report to the UNFCCC (MNRE, 2015) highlights the CDM as one of the mitigating actions resulting in approximately 23.95 million tonnes of CO² reductions with approximately 9.8 million CERS issued. However, no projects have been registered with the UNFCCC by Malaysia since 2013 due to the decline and uncertainty of the carbon market in Europe (MNRE, 2015).

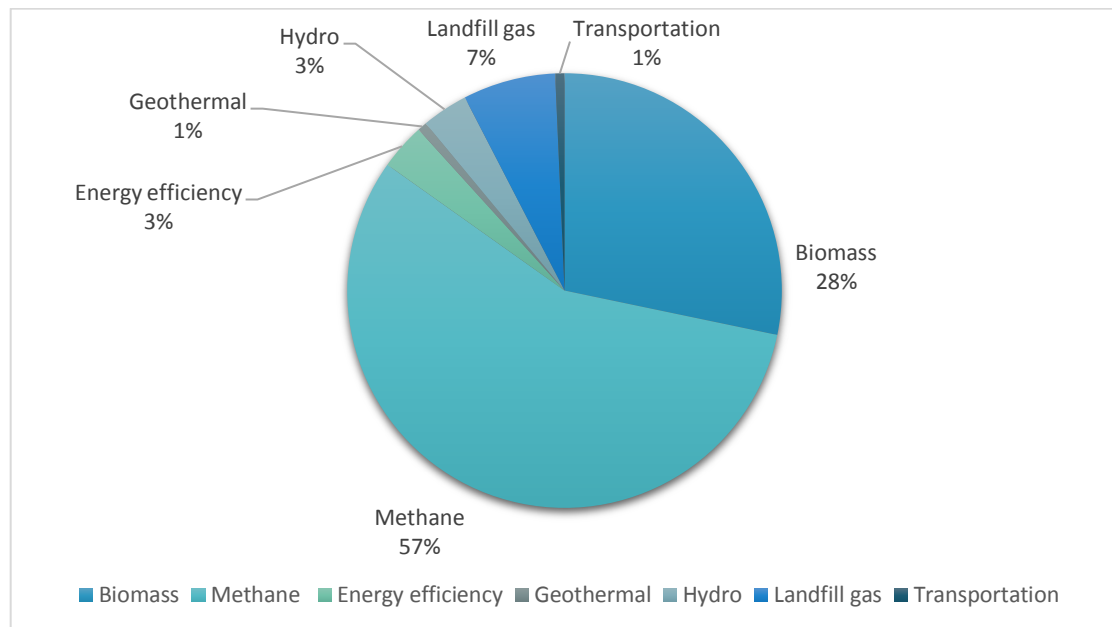


Figure 7: CDM Project types

The CDM market though continuing to operate in many countries faced collapse in 2012 as this was the end of the first commitment period under the Kyoto Protocol (2008-2012). Participants were unsure whether a second commitment period would be agreed upon. A second commitment period was eventually agreed to from 2013 to 2020. However, the uncertainty resulted in lack of a clear price signal to the CDM market resulting in an enormous drop in CER prices from a high of approximately €21 in 2008 to €0.37 in 2013 (Castro, 2014). In addition, prices were affected by the glut in supply on the European ETS due to the granting of free pollution permits by

European governments to their own home industries (Cook 2009; MacKenzie 2009). The 2008 European recession resulted in an additional impact on CER value (Pearse and Böhm 2014). The drop in CER prices resulted in reduced income for existing project developers which in some instances was insufficient to cover the regulatory costs of verification and certification required before the issuance of CERS (Pearse and Böhm 2014). Further, many of the CDM consultants and CER buyers withdrew from the market due to the substantial market slowdown resulting in a loss of necessary expertise and know-how for Malaysian project developers (MNRE 2015b). According to the MNRE (2015b), Malaysian business organisations are waiting for the government to initiate new domestic programmes to create CER demand though this has not happened at the time of writing.

Based on the latest statistics for South East Asia, Vietnam is host to around 30% of CDM projects and Malaysia, Indonesia and Thailand have approximately 20% each respectively (UNEP-DTU, 2017). Both public and private companies in partnership with business organisations from Canada, Japan, Germany, Denmark, Switzerland, Netherlands and the UK undertake the projects. The public companies involved are from the palm oil plantation, cement manufacturing, property development and power generation sectors. The main buyers of Malaysian CERs are from Europe and Japan. In approving CDM projects, the MNRE has set out criteria (refer appendix G) which includes the requirement to support Malaysia's SD policies and bring direct benefits towards achieving SD. In addition, the MNRE (2009b) set out proposed indicators to support the sustainable development criteria for CDM projects. The indicators relate to employment, competitiveness, environmental quality, biodiversity, land-use, local community and social, although the guidance does not specify what is meant by social.

2.8 Business approaches to sustainable development

A business organisation's approach to SD is centred on the social responsibilities it is willing to accept (Gray, Adams and Owen, 2014). 'Social responsibility' has many understandings in the business context. These understandings may include legal responsibility, going beyond legal responsibility, socially ethical behaviour or 'social consciousness,' (Kolk, 2016). These understandings of 'social responsibility,' and the pressures brought to bear on business organisations whether from society, institutions,

or stakeholders determines their approach to SD (Deegan and Unerman, 2011). An examination of the management and SEA literature reveal a variety of conceptions regarding the responsibility of business for SD. These conceptions have distinct foci yet are overlapping as they range on a continuum from no or limited responsibility to a broader responsibility for SD. The conceptions or approaches are identified as ‘business as usual,’ the ‘business case’ ‘triple bottom line,’ EM, and ‘sustainable entrepreneurship.’ These conceptions, except for social entrepreneurship, will be used to provide a means of understanding the approaches adopted by Malaysian business organisations in their reporting in the CDM. ‘Social entrepreneurship’ is excluded on the basis that the CDM business organisations are primarily profit-making entities. Government linked companies (GLCs) are required to contribute generally to both the economic and social goals of the country but are profit making and do not have specific environmental or social objectives unlike social entrepreneurships, (Defourny and Nyssens, 2010; Lenssen, Roper and Cheney, 2005).

2.8.1 Business as usual

The pure form of ‘business as usual’ approach follows the traditional business model of maximisation of shareholders wealth espoused by Friedman (1970). Environmental or social externalities are avoided unless they represent a ‘cost’ to the business as in the case of pollution fines and environmental remediation liabilities. Environmental issues are dealt with through the traditional financial accounting and environmental management systems. These systems exclude SD externalities, such as global warming, species extinction, poverty or natural resource depletion (Owen, Gray and Bebbington, 1997).

According to the GRI website (2017) thousands of business organisations incorporate SD initiatives or ‘sustainability’ into their operations and reporting. The approach is based on a managerialist neo-classical foundation with no apparent conflict between profitability/growth and the pressing demands of SD (Gray, 2006; Bebbington, 2001). Industries involved in energy, deforestation and manufacturing, are regarded as sustainable as long as they include sustainability in their strategic management whilst they engage in inherently unsustainable business activities (Laine, 2005). The corporate SD narrative often focuses on the ‘sustainability’ of the business, i.e. the

perpetuation of the business, continuing access to depleting natural resources, whilst masked in the language of SD (Gray, 2010).

Dyllick and Muff (2015) provide a typology linking micro level corporate activities to the macro level of SD, based on a review of current management literature and conclude that the sustainability management impacts of business organisations are not reflected in global studies on the state of the planet. There are many explanations as to why business organisations voluntarily report on social, environmental and sustainability matters. These include strategy reasons, the seeking of legitimacy, stakeholder pressure, industry pressure, and public relations (Deegan, 2014; Bebbington, Larrinaga and Moneva, 2008; Larrinaga, 2007; Campbell, Craven and Shrives, 2003). Alternatively, business organisations may be prompted by regulatory authorities' guidelines on Environmental Social and Governance (ESG) or regulatory requirements for carbon emissions (Hebb, *et al.*, 2016).

In Malaysia, listed companies have produced environmental and sustainability related disclosures voluntarily for some time, however the level of disclosures are low (Sumiani, Haslinda and Lehman, 2007). In addition, only a third of the top 50 Bursa Malaysia listed companies appear to have an embedded sustainability strategy (Bedlow and Yap, 2016). Whilst larger and public listed companies might engage in some weak form of sustainability, many small and medium sized business organisations effectively ignore social, environmental and sustainability issues. As SMEs make up a considerable percentage of many economies this is of some concern. In Malaysia, SMEs contribute approximately one third of the GDP and employ over 50% of the workforce (Madanchian *et al.*, 2015).

Small and medium sized business may not have the resources or skills necessary to implement sustainability initiatives and management often lack the necessary knowledge. Further, SMEs may have no incentive to engage with the SD agenda as they are subject to less institutional or stakeholder pressure to do so (Meath, Linnenluecke and Griffiths, 2016; Johnson and Schaltegger, 2016). SME managers are likely to grapple with balancing 'business as usual' constraints imposed by certain stakeholders (e.g. shareholders, creditors, bankers) with the requirements of SD (Herbohn, 2005). In addition, SME's focus more on environmental efficiency measures and pollution to stay competitive and reduce costs. Bos-Brouwers (2010) found in his study of SMEs in the Netherlands, that many addressed waste and pollution for competitive advantage but not transport, emissions or biodiversity. The

owners of SMEs, will determine whether environmental and social issues are given equal priority with the economic (Kerr, 2006). This is particularly relevant to this study as many of the CDM business organisations are SMEs.

The literature highlights that business organisations are engaging with the SD agenda at varying levels (Gray, Adams and Owen, 2014; Thomson, 2014; Gray, 2006) however, there are still many small or medium sized organisations following a pure form of ‘business as usual.’

2.8.2 *The business case*

Business management research literature puts forward the ‘business case’ for engaging with the SD agenda (Dyllick and Muff, 2015; Porter and Kramer, 2011; Carroll and Shabana, 2010). The ‘business case’ may be defined as

“a strategic and profit driven corporate response to environmental and social issues caused through the organization’s primary and secondary activities.”
(Salzmann, Ionescu-somers and Steger, 2005, p. 27).

There is a significant gap between the normative conception of ‘sustaincentrism’ introduced into the management literature (Gladwin, Kennelly and Krause, 1995) and empirical evidence of its adoption at firm level (Valente, 2012). Management literature tends to focus on the natural environment within business constructs and examine how environmental variables (efficiency, pollution, regulation) affect business outcomes (Bansal and Gao, 2006). Consequently, management research has failed to adequately inform management about SD issues (Montiel and Delgado-Ceballos, 2014) and Laine (2014) notes the absence of SEA accounting papers in the mainstream management research.

The ‘business case’ promotes the idea that business organisations are capable and willing to implement SD and that such development is safe in the hands of business. Within SEA literature (Cho, *et al.*, 2015; Beder, 2014; Andrew, Kaidonis and Andrew, 2010; Laine, 2010; Banerjee, 2008; Gray and Bebbington, 2000) it is argued that the current neo-classical assumptions underlying business activities and decision making do not always support sustainable practices. Mainstream management literature offers an opposing view.

Porter and Kramer (2011) write that “*companies must take the lead in bringing business and society back together,*” (p.4). This is done by creating shared value for all, including economic value for shareholders and in meeting society’s needs and challenges. Nothing is said about the potential tensions between the economic, environmental and social aspects of creating value. The assumption is that in maximising value for the business, there will be a ‘win-win’ all around. Conflicts between the elements (economic, social and environmental) of SD are illustrated by the case of Nespresso coffee. Porter and Kramer (2011) feature the procurement procedures for the Nespresso coffee machine using aluminium capsules. The company sources coffee beans from rural farmers in Latin America and Africa, supporting sustainable farming practices and paying higher prices for premium beans to alleviate poverty. However, the environmental consequences of the waste produced by the aluminium capsules is ignored in the research, although these are serious enough to warrant cities such as Hamburg, Germany to ban the capsules from all government buildings (BBC, 2016). There are constant trade-offs between the three aspects of sustainable development, but business narrative refers to ‘balancing’ the three aspects (Tregidga, Kearins and Milne, 2013) or developing a ‘win-win’ strategy. Instead, business organisations must identify the conflicts in corporate sustainability decision making to widen corporate contributions to SD (Hahn *et al.*, 2010).

The ‘business case’ is a ubiquitous name for the benefits of engaging with the SD agenda, whether it takes the form of Corporate Social Responsibility (CSR) or corporate sustainability. Apparent benefits include reduced costs, reduced risks, improved public relations, improved brand value, ability to attract better talent and increased competitiveness (Dyllick and Muff, 2015). Other benefits include increased economic performance (Orlitzky, Siegel and Waldman, 2011) and the reduced possibility of regulation (Carroll and Shabana, 2010). Additionally, increased financial benefits (Panwar *et al.*, 2015) and ‘economic success’ through environmental and social activities (Schaltegger, 2012) are possible. Many of the environmental and social activities are in the form of eco-efficiency measures or the implementation of environmental management systems (Brown and Fraser, 2006). The prioritisation of the economic over the social and environmental is presented as a ‘win- win’ scenario whereby business can benefit economically while engaging in environmental and social activities. Hahn *et al.*, (2014) argue that current logic within

management practice assumes a coherence between the three dimensions of sustainability. In reality there are tensions and trade-offs for business organisations which are masked by a hegemonic rhetoric which corporatises SD (Banerjee, 2003). The corporate discourse is more aligned with a weak form of sustainability wherein the current economic system is not questioned and the sustainability of business organisations is the main aim (Laine, 2010; Gray, 2010). Business organisations have managed to maintain the status quo by weakening the radical potential of SD and by positioning themselves as the rightful actors to be entrusted with SD (Tregidga, Milne and Kearins, 2014). Furthermore, tweaking current accounting and reporting systems for social, environmental and sustainability aspects will not meet the basic requirements for planetary sustainability (Contrafatto and Burns, 2013; Gray, 2006).

2.8.3 Triple bottom line (TBL)

The triple bottom line was first coined by Elkington in 1994 (Elkington, 2004) as a way of articulating the three pillars of SD in business accounting and reporting. Management research suggests that TBL goes beyond simple philanthropy and ties environmental and social performance measures to economic performance (Willard, 2012; Savitz, 2006). Savitz (2006) writes that TBL will help businesses to reduce risk and grow, by focusing on all three elements of the ‘bottom line.’ The TBL is a tool to implement a business centric approach to SD. However, according to this corporate narrative, business can make profits and take care of the environment and social issues as long as they hit the “*sustainability sweet spot*.” The ‘sustainability sweet spot’ is defined by Savitz, (2006, p. 26) as:

“Making your company viable for the long term by managing according to principles that will strengthen rather than undermine the company’s roots in the environment, the social fabric, and the economy.”

This narrative arguably promotes the continuance of the business over concern for SD. The apparent lack of any tension between the three elements of the TBL is questionable as there will be trade-offs between them. A positive outcome for the environment may be catastrophic for society either at the business or societal level (Hahn *et al.*, 2014).

There have been other criticisms of the TBL approach due to its lack of specificity on the measurement of the environmental and social bottom lines. This includes ambiguous claims as to the ability of businesses to measure their social and environmental ‘bottom lines’ objectively and use this information for future improvement (Rambaud and Richard, 2015; Milne and Gray, 2013; Mitchell, Curtis and Davidson, 2012). Norman and MacDonald (2004) argue that no real attempts have been made by the advocates of TBL to produce a unified measure of a ‘net social bottom line,’ as it is impossible due to the value judgments needed in considering the various trade-offs. In response, Pava (2007) argues that there is also no complete single measure for the financial bottom line so why should TBL be held to a higher standard?

Nonetheless, the critical nature of environmental and social issues requires reporting in these areas to be held to a high standard. TBL reporting is not the same thing as sustainability reporting as it excludes issues of justice, equity and inter and intergenerational fairness (Buhr, 2007). The TBL tool is misleading as it applies the ‘bottom line’ metaphor to corporate sustainability although businesses can choose what is included or excluded. In addition, the TBL metaphor implies a level of rigour and completeness, which is missing from many such reports (Brown, Dillard and Marshall, 2009).

In summary, mainstream management research considers TBL a useful tool for reporting on sustainability/SD (Savitz, 2006). However, a less business centric approach which is linked to the reality of current planetary boundary research, is needed (Milne and Gray, 2013) which includes some form of sustainability performance measurement (Bebbington, 2009).

2.8.4 Ecological modernisation (EM)

This conception is usually conflated with the business case or weak sustainability in the SEA literature (Milne, Kearins and Walton, 2006) and found primarily in management and business organisations literature (Stubbs and Cocklin, 2008; York and Rosa, 2003; Starik and Rands, 1995). Exceptions are Livesey and Kearins (2002) and Everett and Neu (2000) with some reference to EM from a governance perspective by Bebbington and Thomson (2007). However, it is important to examine this narrative more closely particularly in the context of the CDM, as it is often used

synonymously with sustainability or as a path to SD in the management literature (Lutte and Bartle, 2016; Upward and Jones, 2016; Schaltegger and Burrit, 2006; Huber, 2000; and Hajer, 1995). EM evolved within the environmental sociology and political disciplines in the 1980s (Ninan, 2011) and was coined by German social scientists Huber and Janicke (Dryzek, 2005). This was in response to the failed pollution control policies of the 1970's (Andersen and Massa, 2000). Similar to 'SD,' the term has many meanings which makes it malleable and reduces its value (Christoff, 1996). Hajer (1995, p. 32 -33) defines EM as:

“a modernist and technocratic approach to the environment that suggests that there is a techno-institutional fix for present problems which is based on “a fundamental belief in progress and the problem-solving capacity of modern techniques and skills of social engineering.”

EM as a technological approach

EM has been framed in many ways in the literature, including as a technological adjustment for environmentally favourable outcomes, a policy discourse and a belief system (Christoff, 1996). The technological adjustment to industry processes is driven by cost minimisation with incidental environmental benefits, i.e. a 'win-win' scenario (Christoff, 1996). Similarly Jänicke (2008) states that the driving forces for EM are firstly, technological modernisation and competitive innovation to meet global needs, secondly, smart environmental regulatory intervention by governments to encourage innovation and lastly increased pressure of economic insecurity and risk on polluting industries.

Starik and Rands' (1995) 'ecologically sustainable organisations' (ESOs) focus on ecological sustainability as a 'management concept' and is analogous to EM's technocratic approach to SD. 'Ecological sustainability' is defined as:

“the ability of one or more entities, either individually or collectively, to exist and flourish (either unchanged or in evolved forms) for lengthy time-frames, in such manner that the existence and flourishing of other collectivities of entities is permitted at related levels and in related systems.” (Starik and Rands 1995 p. 909).

The emphasis is on the continuing existence of the business organisations into the foreseeable future (Gray, 2010). The ESO envisioned by Starik and Rands (1995) develops sustainable strategies based on strengths, weaknesses, opportunities and threats at each of the five levels of individual, organisational, political-economic, social-cultural and ecological. Therefore, the job scope for individuals include sustainability considerations and the promotion of sustainability innovation as well as adaption to a sustainability oriented culture within the organisation (Starik and Rands 1995). In terms of ecological systems, the organisation uses natural resources at sustainable rates and ensures production output is recyclable/reusable, minimises waste, maximises conservation and promotes environmental protection. Further, the ESO engages in environmental partnerships with other businesses, government or NGOs to reduce waste and allocate resources for ecological performance. Partnerships with NGOs ensure no negative protests against the organisation and the introduction of conflict resolution practices. At both the political-economic and social-cultural levels, the organisation promotes market based policies, pro-sustainability laws, full cost accounting for externalities and self-regulation. In addition, the ESO advances sustainability values in education and work including providing environmental information to media and diverse stakeholders.

Starik and Rands (1995) recognise that a sustainable organisation relies on an intricate web of interconnections with other natural, human and organisational entities, which must facilitate sustainable activities together. However, Starik and Rands (1995) do not address the issue of consumption or consumer behaviour which underpins business rationale (Jackson, 2014). The ‘strategies’ to move towards an ‘ecologically sustainable organisation’ are focused on ‘managing’ natural resources, outputs, and employees, the use of market based instruments and policies, the use of technological innovation and the managing relationships with stakeholders and other parties which corresponds to the EM approach (Stubbs and Cocklin, 2008).

EM as a policy discourse

EM is also a government policy discourse related to the precautionary principle and rooted in preventative environmental management principles and a social market economy (Brand, 2010; Andersen and Massa, 2000; Christoff, 1996). The core elements of an EM policy discourse as seen in European industrialised nations, include the internalisation of nature as a public good, the supremacy of science and

technological innovation to overcome all planetary limits, environmental protection using the ‘polluter pays’ principle, the cooperation of various actors from industry and environmental groups and the use of legislation (Christoff, 1996; Hajer 1995). The European policy discourse uses the business language of economics and eco-efficiency, which undermines the original commitment to SD as formulated in the Brundtland definition (Baker, 2007). Although there is symbolic commitment to the Brundtland concept of SD, there is a move away from its more radical elements, which will not enable societies to become sustainable (York and Rosa, 2003).

EM as ideology

As a belief system EM:

“is an ideology based around, but extending beyond, the understanding that environmental protection is a precondition of long-term economic development.” (Christoff, 1996, p. 484).

According to EM proponents it is possible to decouple economic growth and environmental degradation using both technological innovation and integration of environmental policy into government politics and industry activities (Jänicke, 2008; Baker, 2007). Economies can continue to grow because scientific innovation and technological breakthroughs will ensure ecological limits are extended. In the case of climate change, technological innovations (e.g. methane capture, biomass energy, hydro energy) as seen in the CDM are a way of ensuring continuing ‘business as usual’ with less reliance on fossil fuels.

2.8.5 Comparison of EM and SD

In environmental sociological research, EM and SD (SD) are often conflated with the assumption that EM will bring about SD (Jänicke, 2008; Huber, 2000; Mol and Spaargaren, 2000). Others, (Scerri and Holden, 2014; Baker, 2007; Langhelle, 2000; Pepper, 1999) surmise that EM is capitalism’s form of SD emphasising profits and economic growth. Accordingly, EM is not synonymous with the Brundtland Report’s SD which is more aspirational in terms of outcomes for the economy, society and the

environment. Table 3 presents a comparison of EM and SD in terms of values, the actors involved and the processes of both.

There will obviously be some overlap and blurring of boundaries between EM and SD however, the key weakness of the EM discourse is its lack of emphasis on ecological constraints, instead it reduces the environment to inputs, outputs and waste emissions (Christoff, 1996). In addition, consumption issues are ignored and it is assumed that technological advances will overcome such limits through managerial strategies, innovation and efficiency (Baker, 2007; Pepper, 1998). There is also the potential for increased risks to the environment and society from technological advances but EM regards these risks as technical issues. (Mol, Spaargaren and Sonnenfeld, 2014; Gladwin, Kennelly and Krause, 1995; Beck, 1992).

EM as practiced displaces problems such as environmental destruction and climate change from industrialised nations to developing nations through programmes such as the CDM (Kolk, 2016; Teräväinen, 2009). EM unlike SD, is mostly silent on issues of social justice, poverty and intra and intergenerational equity as the focus is on national issues rather than global sustainability problems although there are exceptions (Mol, 2008; Oosterveer, 2007). The Brundtland Report emphasised a global equity and the need to reduce excessive consumption levels of the North (developed countries) to ensure the meeting of basic needs in the South (developing countries) all within ecological boundaries (Baker, 2007). EM does not address these issues.

| Key discourse elements | Ecological modernisation | Sustainable development |
|---------------------------|---|---|
| Normative values | Eco-efficiency Economic and environmental benefits can be generated simultaneously Environment and ecology is interdependent. Nature is a provider of resources and services Weak precautionary principle Technology can overcome ecological barriers allowing unlimited economic growth Nature subordinated to economic system Eco-justice and equity not priorities | Eco-effectiveness and eco-justice Economic and environmental benefits can be generated simultaneously Environment and ecology is interdependent. Nature is a provider of resources and services but within limits Strong precautionary principle Economic growth aware of ecological limits, resource use takes into consideration present and future needs Economic growth constrained by ecological limits Intergenerational, intra-generational, distributive justice, and ecological protection are fundamental Anticipatory environmental policy making |
| Actors | Anticipatory environmental policy making Government, economists, industry, scientific and technological experts | Government, local state, industry and community |
| Entities recognised | Complex systems, including free markets, transnational institutions and voluntary partnerships | Nested social and ecological systems within a capitalist economy |
| Democratic process | Representative democracy Weak participatory processes | Discursive democracy Strong participation through global/local civil society works |
| Institutional approach | Environmental management process Focus on specific environmental problems at meso and micro levels | Adaptive and integrated environmental management that addresses social, environmental and economic aspects of development Process and outcome critical for sustainable development |
| Implementation mechanisms | Transparent regulation that outlines responsibilities and rules Voluntary, cooperative approach between government and industry to find solutions National domestic level of policy making | Cooperative rather than competitive Policy and action enacted at international, national and local levels |
| Approach to risk | Environmental risks as apolitical technical problems Cost benefit analysis Expert driven Dominance of technological expertise | Environmental risks as a political and ideological issue requiring social, cultural, ethical values to be considered Expert risk assessment balanced with community risk perception Multiple perspectives as local knowledge acknowledged as important |

Table 3: Ecological modernisation versus Sustainable development (adapted from Wright and Kurian, 2010 and Dryzek, 2005)

Similar to SD there are weak and strong forms of EM. The ‘weak’ form of EM is based on a narrow nationalistic, economic and technological ‘fix’ for environmental problems. A

comparison of weak and strong EM and SD is presented in appendix H. EM in practice does not question the dominant form of the business organisation and ignores political and power relations (Pataki, 2009). Economic and environmental goals are assumed to be commensurate. For example, carbon capture and storage is one way to solve the problem of heavy emissions from the steel and chemicals industry (OECD/IEA, 2015) resulting in a 'win-win' for both the economy and the environment. However concerns remain with regard to the risks and safety surrounding long term carbon storage (Duncan and Wang, 2014).

'Sustaincentrism' on the other hand will not uncritically accept new technology before considering the risks and ensuring the technology is just and humane (Gladwin, Kennelly and Krause, 1995). The Brundtland Report (UN, 1987) also refers to the risks of emerging technologies and the need for tighter controls.

The 'strong' form of EM is more closely aligned to SD as it is focused on ecological systems and the use of broad institutional and democratic approaches to environmental problems (Christoff, 1996). 'Strong' form EM envisages structural changes to industry and institutional reforms via government intervention and environmental citizenship, including a focus on supply side economics by increasing eco taxes and radical technological innovations (Scerri and Holden, 2014; Jänicke, 2008; Orsato and Clegg, 2005). Hajer (1995) calls for a more reflexive EM which questions the institutional techno-corporatist regime and finds ways to correct the current trajectory through more public inter-discursive debate. Whether relevant institutions including business organisations would engage in such reflexive practices is contestible as can be seen from current corporate behaviour in the climate change and SD agendas (Thomson, 2015; Banerjee, 2012; Baker, 2007, Orsato and Clegg, 2005). The benefits of an EM approach to ecological issues from the perspective of business are eco-efficiency and pollution prevention which is economically beneficial, further there are profits in the selling of 'green' products (Sieppel, 2000) from modernised production processes. In the climate change arena, a stronger form of EM would include the introduction of carbon taxes, market based incentives or regulations on business to encourage industry innovation so as to reduce the impact on natural resources by substituting materials and changing production processes (Andersen and Massa, 2000). However, Bailey, Gouldson and Newell (2011) note that in the climate change arena specifically, governments have been reluctant to pursue carbon emissions reductions if there is an impact on economic and commercial interests. Governmental EM policies are unlikely to ameliorate SD issues such as intergenerational and intragenerational equity, the exceeding of ecological planetary boundaries and global poverty as the policies are based on economic, technological and scientific rationales (Baker, 2007).

2.8.6 The CDM as ecological modernisation

The CDM is a carbon offset program governed by a supranational organisation (UNFCCC) in Europe and involves the collaboration of a range of actors with vested interests, including business organisations, traders, intermediaries, project developers, experts, scientists and NGOs (Bailey, Gouldson and Newell, 2011). Scientific knowledge and expertise reside in the North and is 'shared' or 'exported' to the South, and projects are verified and validated by consultants (Pepper, 1998). The use of science and technology is illustrated by the numerous methodologies for baseline and monitoring purposes by the UNFCCC (2013). Technological innovation greens the economy and provides a solution to the climate change problem by restructuring production processes (Spaargaren and Mol, 2009). Environmental problems are micro managed primarily through pollution or waste control projects which assume nature can be managed and subordinated to the economic system. (Bäckstrand and Lövbrand, 2006; Langhelle, 2000). Reducing carbon emissions in the developing world is cost-effective for European business organisations by focusing on 'low hanging fruits' and requires less effort than cutting emissions in home countries. Consequently, only incremental changes to production processes are made (Castro, 2014; Newell and Paterson 2010). The commodification of GHGs in the CDM are an EM prerequisite to ensure efficiency in the allocation of the atmospheric commons (Qian and Schaltegger, 2017; Ninan, 2011; MacKenzie, 2009). Key metaphors and rhetorical devices in EM discourse can also be seen in the CDM including, 'cost-benefit analysis,' 'emissions rights,' 'eco-efficiency,' 'cost-effectiveness,' 'industrial progress,' and 'transformation.' (Ferguson, Sales de Aguiar, and Fearfull, 2016; Dryzek, 2013).

In summary, this section examined the various conceptualisations or approaches to SD by business organisations found within the management and SEA literature. None of these approaches will completely capture underlying organisational realities of the business organisations impact on SD, although some will be more expansive than others (Bebbington and Larrinaga, 2014). These conceptualisations will be useful in examining the understandings of SD exhibited by the CDM business organisations.

2.9 Measuring and reporting on sustainability

It is contestable whether it is possible to measure sustainability, or have meaningful sustainability reporting at organisational level. With the current breaching of planetary boundaries, specifically climate change, biodiversity loss and the nitrogen cycle (Rockström *et al.*, 2009) it would seem essential to measure SD at several levels, earth system level, bio-

regional, local and organisational levels. There is a large body of literature on the area of measuring and reporting on sustainability at these levels (Bebbington and Larrinaga, 2014; Raworth, 2012; TEEB, 2010; Rockström, *et al.*, 2009) but the focus of this study is at organisation level so measuring and reporting at this level will be examined next.

2.9.1 Measuring sustainability at corporate level

Several global and national SD goals, targets and indicators exist such as OECD Pressure State Response, World Bank Development Indicators, UNDP Human Development Indicators, World Resources Institute Indicators, and the most recent SDGs (World Bank 2016; United Nations, 2015a; Spangenberg, 2015; Steurer and Hametner, 2013; Frame and Cavanagh, 2009; Russell and Thomson, 2009; Ranganathan, 1998). However, there is a less clear linkage between these macro level indicators and micro level organisational activities (Frame and Bebbington, 2012). Traditional accounting measurements exclude externalities associated with ecological and human capital (Deegan and Unerman, 2011). However, experiments in sustainability accounting approaches using full cost accounting (FCA) to include externalities (Dey, Russell and Thomson, 2011; Frame and Cavanagh, 2009; Bebbington, 2007; Herbohn, 2005, Antheaume, 2007, 2004), sustainable cost calculation (SCC) (Bebbington and Gray, 2001) sustainability accounting matrices (Fraser, 2012; Bebbington, Brown and Frame, 2007) natural inventory accounting, (Lamberton, 2000) have been undertaken focusing on the internal activities of the organisation. Most of these experiments, although advancing the field, have not gained wide appeal in practice. Gray (2010) states that a sustainable organisation would be any that maintained the three capitals (economic, natural and social) over an accounting period and the cost of doing so would be the 'sustainable cost,' a difficult figure to derive. Nonetheless, a way of accounting for the impact of business organisations on ecological and social systems is required if SD is to be achieved, (Bebbington and Larrinaga, 2014).

2.9.2 Sustainability reporting at corporate level

Contemporary reporting on sustainability is an extension of financial reporting (Gray, 2006). In most countries reporting on sustainability issues are voluntary although in Malaysia ESG reporting is compulsory from December 2016 (Bedlow and Yap, 2016). Numerous voluntary sustainability and sustainability reporting guidelines exist, produced by various organisations such as the GRI, UNGC, International Integrated Reporting Framework (IIRC) and AccountAbility (See appendix I for a summary). The GRI is often used as a basis to measure

the quality of corporate sustainability in academic research (Diouf and Boiral, 2017; Montiel and Delgado-Ceballos, 2014; Adams 2004) although its principles are not completely synonymous with sustainable development (Milne and Gray, 2013). Sustainability reporting via the GRI may act as a starter for organisational change (Lozano, Nummert and Ceulemans, 2016). However, the guidelines are voluntary, with emphasis on disclosure rather than sustainability performance. The inability to embed sustainability principles into organisational activities suggests that GRI guidelines may in fact contribute to ‘unsustainability’ by supporting ‘business as usual,’ (Deegan, 2013; Milne and Gray, 2013; Levy, 2011; Brown, Dillard and Marshall, 2009; Buhr, 2007; Moneva, Archel and Correa, 2006). Similarly, the IIRC’s emphasis on economic value creation within a merged ESG report, targets investors rather than other stakeholders and appears to miss the notions of sustainability envisaged earlier by the IIRC and is predisposed to the ‘business case’ (Flower, 2014).

The motivations as to why business organisations voluntarily report on sustainability issues is examined extensively in the SEA literature (Cho *et al.*, 2015; Bebbington, Larrinaga and Moneva, 2008; Larrinaga, 2007; Patten, 2002; Deegan, Rankin and Tobin, 2002; Deegan, 2000; Neu, Warsame and Pedwell, 1998; Gray, Kouhy and Lavers, 1995). Theories examined include legitimacy theory, stakeholder theory, institutional theory, reputation risk management, organized hypocrisy and organisational facades. (The more popular theories are discussed in the following sections). Further, the focus on the role of language in sustainability discourse as presented in annual reports and other corporate documents, and how it constructs meaning is useful in understanding the conceptions of SD (Ascui and Lovell, 2012; Laine, 2010; Tregidga and Milne, 2006; Livesey and Kearins, 2002).

In summary, measurement and reporting criteria for sustainability measurement and reporting has developed in the last decade (Hopwood, Unerman and Fries, 2010). However, the array and complexity of measurement and reporting guidelines and the unclear path to sustainability (Guthrie, 2016) are all areas requiring further consideration of the linkages between research on ecological boundaries, social systems and business organisations. Further, as sustainable development is a natural and social concept, measuring and reporting may fall within either of these domains (Bebbington and Larrinaga, 2014).

2.9.3 Measuring sustainability in the CDM

CDM literature suggests a number of ways to measure the SD contribution of CDM projects including, guidelines, checklists, negotiated criteria with stakeholders and multi-criteria methods weighted according to importance, (Sutter, 2003). Several years after the

commencement of the CDM, the UNFCCC produced the Sustainable Development Co-Benefits tool (UNFCCC, 2012) which is both voluntary and unaudited (Arens *et al.*, 2015). It lists 12 criteria (air, land, water, natural resources, employment, health & safety, education, welfare, growth, energy, technology transfer and balance of payments) with 70 indicators. One of the earlier multi criteria tools developed is the Sustainable and Development Appraisal Matrix Ranking tool developed by SouthSouthNorth (SSN, 2004) a non profit organisation based in South Africa (Thorne and Raubenheimer, 2001). The tool makes use of sustainability indicators for three areas of local/regional and global environment, social sustainability and development and economic and technological development. The indicators are then ranked in each area on a scale of -2 (major negative impact) to +2 (major positive impact). Appendix J presents a summary of the indicators within the SSN tool.

Other tools include the Swiss Institute of Technology's Multi Attributive Assessment of CDM projects (MATA-CDM) and the WWF's Gold Standard label which ensures that projects meet three elements, a sustainability matrix (similar to SSN's), an environmental impact assessment and a stakeholder consultation (Nussbaumer, 2009). The MATA-CDM is a quantitative tool and measures sustainability criteria, giving the criteria different weightings based on their relative importance (Sutter and Parreno, 2007; Sutter, 2003). Applying the MATA-CDM tool to projects in both Brazil and South Africa, Heuberger *et al.*, (2006) found that the tool could not measure impact on a host country's SD only the direct environmental, economic and social impacts of the project. Although, indicators summarise and reduce the complexity of SD there are problems with more emphasis on environmental issues and the subjectivity involved in allocating scoring.

Notably within the CDM there is no attempt to financialise externalities or use FCA models (Bebbington, 2007; Herbohn, 2005; Lamberton, 2000) when assessing the sustainability contribution of projects. The 'additionality' of each project is proven by producing a cost benefit analysis (NPV or IRR) of the project with and without the revenue from the CERs to prove that extra financing is required from the sale of CERs to ensure financial viability. There are limitations with this approach such as over-reliance on monetisation and the political and value laden decisions fed into each analysis (Bebbington, Brown and Frame, 2007). Within the CDM process, cost benefit analysis focuses exclusively on the financial cash flows and outflows such as capital expenditure and income from CERs, without any attempt to consider measuring sustainable benefits or otherwise. Lohmann (2009) argues that certain types of reasoning are excluded by the framing of CBA giving as an example, a future with or without a project as is used in the CDM process. This type of framing results in missing social context. Furthermore, the benchmarks for say IRR are very different project to

project. A 10% IRR may be acceptable in one project but not in another because it is lower than the project developer's cost of capital, regardless of whether it will bring SD benefits to the local community (Lohmann, 2009). Consequently, CDM project analyses overlook intra and intergenerational eco justice issues such as whether the project should be developed regardless of whether economic benefits are negative or positive.

2.9.4 Theories in social and environmental accounting research

In SEA research, a diverse number of alternative theories (both normative and positive) are used to explain why and how companies report on social, environmental and sustainability matters as they do (Thompson, 2007). The more popular evaluatory frameworks within the SEA literature are legitimacy, stakeholder and institutional theories (Gray, Owen and Adams, 2009). These systems oriented theories argue that sustainability accounting and reporting are influenced by the relationship nexus within which corporations sit. They also provide a '*soup of concepts and perceptions that can blend into a potential infinity of ways of looking and seeing,*' (Gray, Owen and Adams, 2009, p. 1).

Theory helps to describe and evaluate business organisation practice against certain normative values (Gray, Owen and Adams, 2009). However, no one theory can account for why companies write and speak about sustainability or sustainable development the way they do. A theory is sometimes underspecified and loosely coupled so that it "*does not deal with all and every eventuality nor does it deal with each and every element in the human experience of social accounting and the planet*" (Gray, Owen and Adams, 2009, p. 9). Therefore, a pragmatic framework (Gray, Owen and Adams, 2009) is used to examine how the CDM business organisations write and speak about SD based on the literature from various academic, industry, supranational and non-governmental organisational sources. Adopting a 'normal science' approach would have required the use of one of the 'well-worn' theories which may have clouded the more nuanced findings within the data. "*Theory must be enabling, it must open out the world and possibilities of that world, it should not be used to close down- to become totalising,*" (Gray, Owen and Adams, 2009 p. 4). Therefore, to see the research findings through one theoretical lens may have excluded other evaluative positions. A summary of the more popular theories in SEA follows explaining why they have not been adopted singularly in the analysis of the research findings. However, each theory has something to offer in interpreting the findings.

2.9.5 Stakeholder theory

Stakeholder theory is a systems oriented theory of the organisation which has been used in SEA to explain why business organisations report voluntarily on SD issues (Gray, Owen and Adams, 2009). The organisation influences and is influenced by a wide range of stakeholders. The expectations of these stakeholders are usually different and sometimes conflict. There are two branches of stakeholder theory (Deegan and Unerman, 2011), the first being the normative branch which proposes that stakeholders should be treated equally regardless of their power in the organisational nexus and accordingly have the right to information.

Stakeholder 'rights to information' may be linked to the notion of accountability which is '*the duty to provide an account or reckoning of those actions for which one is held responsible*' (Gray, Owen and Adams, 1996, p. 38). This is due to the intrinsic rights of stakeholders to expect responsible organisational actions and accountability for those actions. Managerial stakeholder theory, argues that the organisation focuses on those stakeholders who have the power to influence the organisation's activities through the control of scarce resources such as finance or through sanctions (Deegan and Unerman, 2011). Organisations must 'manage' conflicting expectations particularly of the more powerful stakeholders by obtaining their support or deflecting their disapproval to ensure the survival of the organisation.

Stakeholder theory has been used within SEA, mainstream managerial and political/sociological research streams particularly to explain why companies engage in voluntary narrative reporting (Deegan and Unerman, 2011; Gray, Owen and Adams, 2009; Neu, Warsame and Pedwell, 1998).

There are a variety of stakeholders within the CDM and the more influential stakeholders (e.g. UNFCCC, DNA) may influence the nature and content of the 'middle ground' narratives of SD as set out in in figure 8. However, the focus of the research is on Malaysian project developers specifically (many of whom are SMEs) and how they write and speak about sustainable development rather than other stakeholders in the CDM process. Further, the reporting of SD is not voluntary as with the usual narrative reporting found in annual reports (Neu, Warsame and Pedwell, 1998). Therefore, to use the lens of either the normative or descriptive versions of stakeholder theory, would require a more in-depth examination of the multiple stakeholders (from a macro governance to a micro organisational level) within the CDM process and how they might influence the narrative of sustainable development. The application of stakeholder theory to the current research would only provide a partial view of stakeholder engagement in the CDM process at the organisation level (Deegan and Unerman,

2011) and would therefore require other theoretical perspectives to obtain a more complete picture.

2.9.6 Legitimacy theory

Legitimacy theory in SEA research is more aligned with managerial stakeholder theory and argues that organisations abide by a social contract based on implicit and explicit societal values and expectations which change over time (Gray, Owen and Adams, 2009; Gray, Kouhy and Lavers, 1995; Mathews, 1993). Organisations must earn the right to access resources and operate (Deegan and Unerman, 2011). Breaching the social contract results in threats to the organisation's legitimacy to operate. Breaches include environmental accidents, employee health and safety issues, customer health issues, earning of excessive profits while exploiting natural resources (Deegan and Unerman, 2011). Organisations may use various strategies to attend to events threatening legitimacy by informing the public (through reporting), changing or manipulating public perceptions and changing societal expectations (Lindblom, 1993, in Deegan, 2014, p. 257). Numerous studies in SEA research use legitimacy theory to explain why organisations report voluntarily on social, environmental and sustainability issues in their annual reports (Gray and Laughlin, 2012). However, the effectiveness of the various legitimising strategies mentioned above remains theoretically underdeveloped particularly in terms of whether legitimising disclosures have desired impacts on organisational activity (Deegan, 2014). Further, there are already numerous repetitive studies using legitimacy theory in SEA within the organisational context and to do one more may add little by way of "*additional incremental knowledge*," (Deegan, 2017, p. 69). A limited number of studies (e.g. Archel *et al.*, 2009) have applied legitimacy theory in a wider social context, such as how government narratives may be used to legitimise certain processes or systems within society. A legitimacy theory lens may prove insightful when applied in a study of the role of a supranational organisation (UNFCCC) and national governments in the CDM (Gray and Laughlin, 2012). However, this research is on how CDM business organisations write and speak about SD and does not include a comprehensive study of the wider social context of the CDM.

2.9.7 Institutional theory

Institutional theory has many similarities with legitimacy theory and stakeholder theory. Generally, institutional theory considers how organisational processes (e.g. practices, strategies, systems) become institutionalised because of various pressures. The pressures arise

in specific areas (e.g. technological practices, regulation, strategies) resulting in organisations taking on similar forms or practices to align with industry or societal values (Higgins and Larrinaga, 2014; Deegan and Unerman, 2011; Larrinaga, 2007). The institutional pressures are referred to as ‘coercive’, ‘mimetic’ and ‘normative’ isomorphisms (Di Maggio and Powell, 1983, in Higgins and Larrinaga, 2014, p. 277). Coercive isomorphism occurs when organisations change to conform due to pressure from powerful stakeholders such as key suppliers, consumers or regulations from the government. Mimetic isomorphism arises when organisations emulate or improve upon the practices and strategies of similar entities in their industry, whether for competitive advantage or to imitate successful practices of others (Gray, Owen and Adams, 2009). However, normative isomorphism relates to the formal and informal pressures to adopt institutional practices within organisations that results in similar processes. These pressures may arise because of similar educational background of management, participation in trade or professional associations, and the pervading moral authority of norms and values in society. Organisations then adapt to these norms and values not because of coercion but because it is the right thing to do (Larrinaga, 2007). In SEA research, the theory has been used to explain the institutional pressures that propel organisations to adopt certain social and environmental accounting systems to conform to societal expectations (Larrinaga, 2007).

2.9.8 SEA theories and the CDM

Business organisational practices in the CDM may be explained by institutional theory. For example, all CDM business organisations were concerned with complying with the Malaysian government’s environmental regulations. Consistent with coercive isomorphism, these organisations comply with the rules to gain legitimacy to continue to operate (Larrinaga, 2007). In addition, CDM business organisations will be influenced by the political and institutional context within which they operate (Deegan, 2017). Almost half of the CDM projects were within the palm oil and related industries. It could be argued from a legitimacy theory perspective that palm oil is a ‘dirty’ industry and participating in the CDM legitimises industry activities (Adams 2004, Deegan and Rankin 1999). Using institutional theory organisations participate in the CDM due to industry influence to improve the image of the industry through organisations such as the Malaysian Palm Oil Board (Higgins and Larrinaga, 2014). The influence of GRI guidelines suggests a normative isomorphism where the guidelines have become the established narrative for SD within the various industries (Larrinaga, 2007). It is also possible that the SD narrative of CDM business organisations

converge with each other due to a mimetic process whereby they imitate each other in the CDM process. However, as Larrinaga (2007) writes it is difficult to prove this type of isomorphism empirically.

Therefore, in common with much of the social accounting project, this research has a more pragmatic foundation. Pragmatism, both philosophically and generally (Tinker and Gray, 2003) underpins the social accounting project and emphasises a process of 'sense making' in arriving at the 'truth,' of social problems (Baker and Schaltegger, 2015). In this research the emphasis is on a 'wicked problem' of sustainable development within the climate change agenda. The research questions outlined in Chapter 1 are "*driving the enquiry*," (Gray and Milne, 2015 p. 5). No single theory can make sense of the research findings as they may be underspecified or too narrow and therefore potentially exclude potential ways of seeing (Gray, Adams and Owen, 2014). Therefore, different theoretical lenses are used in a pluralistic way to explore issues within the business organisation narratives in the PDDs and interviews (Buhr, 1998). In the research findings these include legitimacy theory (section 5.4.4), reputation risk management (section 5.4.5), institutional theory (sections 5.3.3 and 6.2.3) and stakeholder theory (section 6.7.3). Further the ambiguous and multi-faceted nature of SD may result in a somewhat speculative application of these theories. Therefore, consistent with the epistemological view outlined in section 3.2.2 a more pluralistic approach is adopted in relation to SEA theories (Gray and Milne, 2015).

2.10 Theoretical framework

The first part of the chapter reviewed the concept of SD as coined by the Brundtland Report (UN, 1987) and more contemporary work on SD including work surrounding planetary boundaries and the measurement of ecological services. The contested 'understandings' of SD were discussed as well as the state of play in Malaysia. The connections between SD and the CDM were also introduced. In addition, the numerous actors (business, intergovernmental, academic, NGOs) involved in the SD discourse contribute to the diverging views ranging from continuing the status quo, reformation or a more radical transformation (Davidson, 2014; Hopwood, Mellor and O'Brien, 2005). The study is situated within the 'middle ground' of the SD debate as illustrated in figure 4.

The second half of the chapter examined the SD conceptions of business organisations by examining the organisations influencing the narratives (business, intergovernmental and NGOs) and by teasing out the various themes found within the literature. These narratives help to form a heuristic which drives the empirical work of the study. The examination of the

literature on measuring and reporting on SD and specifically within the CDM further helps to develop the following theoretical framework for this study (figure 8). Recognising the complexity of categorising the business conceptions of SD, the framework shows the conceptions on a continuum from the status quo (Hopwood, Mellor and O'Brien, 2005) through to the higher ideal of 'sustaincentrism' of Gladwin, Kennelly and Krause (1995). Radical eco-centric paradigms found in the literature such as Colby's (1991) 'deep ecology' are not included in the framework as they fall outside the 'middle-of-the road' approach (Gray and Collison, 2002) and are unlikely to be present in the empirical data.

The theoretical framework (figure 8) is informed by the various worldviews on the relationship between business, society and ecology (Brown and Fraser, 2006). The worldviews as identified by Gray, Owen and Adams (1996) range from pristine capitalism to deep ecology. Consistent with the categorisations of Gray, Owen and Adams (1996) the framework uses those that business organisations might maintain such as pristine capitalism (business as usual), enlightened self-interest (the business case) the social contract (TBL) social ecology (EM or greening of business) and socialist (SD). These worldviews inform the business narratives on sustainable development (Buhr and Reiter, 2006) and are reflected in the various approaches to sustainable development in figure 8.

The theoretical framework has elements which are positive, normative and pragmatic, consistent with theoretical frameworks in SEA (Gray, Owen and Adams, 2009). The positive (descriptive) elements are derived from the various literature such as observations of the business case in practice. The normative elements relate to the prescriptions for SD such as eco justice and distributive equity. The pragmatic element is the assumption that such a theoretical framework can substantively capture the 'middle ground' of SD based on selected literature from different sources.

The purpose of the research is to study how CDM business organisations write and speak about SD whilst recognising that these organisations are part of the larger institutional and social infrastructure of the CDM. Therefore, the actors (business, supranational organisations, NGOs) within the CDM have the potential to influence the business narratives on SD.

One of the main objectives of the CDM is to bring SD to developing countries, however the mechanism has been described as a tool of EM rather than SD, (Ninan, 2011). Accordingly, EM is examined more closely (see also section 2.8.4) to see if it has discursive influence on narratives used by CDM business organisations.

Proponents of EM argue that it can bring about a transition to a sustainable society and overcome ecological boundaries through technological and scientific advancement (Ninan 2011; Pataki, 2009; Janicke 2008). Meanwhile critics of EM argue that EM and SD must not

be conflated and oppose the framing of SD within an EM discourse (Dryzek, 2013; Foster, 2012; Langhelle, 2000; Christoff, 1996). EM is simply the incremental greening of the existing economic development model through markets, technocratic solutions and results based environmental policies (Brand, 2010). Table 3 illustrates the key differences between EM and SD. EM does not require a reorganisation of the social order or the relationship between production and consumption. However, technology and science will not solve current ecological crisis if social values and expectations remain unchanged (Blühdorn, 2011). Further EM is an appealing narrative not only for business but policy makers too as it enables “*the gradual reframing of a wicked problem as a technologically, economically and politically tractable problem,*” (Bailey, Gouldson and Newell, 2011, p. 685). Ecology is ‘economised’ and externalities are internalised into organisational cost structures using market instruments (Jänicke, 2008). EM uses the language of business and rationality (Hajer 1995) focusing on ‘efficiency,’ ‘cost savings,’ ‘growth,’ ‘win-win,’ ‘decoupling,’ ‘polluter pays,’ technological advances,’ and ‘super-industrialisation’ for environmental problems (York and Rosa, 2003). Therefore, EM comfortably encapsulates the narratives of ‘business as usual,’ the ‘business case’ and TBL and then adds some in terms of technological and scientific solutions to the ecological crisis. However, the narrative camouflages the trade-offs or conflicts between ecological limits (Steffen *et al.*, 2015, Rockström *et al.*, 2009) and continuing economic growth and development. EM is usually silent on key elements of the SD agenda, including ecological limits, eco-justice, distributional equity for current and future generations, social and cultural needs, consumption practices, modes of production and discursive democracy for citizens (Foster, 2012; Christoff, 1996). The Brundtland Report’s SD (UN, 1987) however, is ambitious and transformative combining development, global economy, global ecology, global equity, population, peace, security and distributive justice (Dryzek, 2013). The supplanting of SD with EM within organisations and the institutional framework when addressing ecological and societal relationships should be exposed as a potential hegemonic narrative (Tregidga, Milne and Kearins, 2015). Therefore, the theoretical framework will aid in determining whether CDM business organisations are writing and speaking about SD envisioned in the Brundtland Report (UN, 1987) or are they using different narratives as encapsulated within EM?

| Business-as-usual | The business case | Triple bottom line | Ecological modernisation | Sustainable Entrepreneurship | Sustaincentrism |
|--|---|---|--|---|---|
| <i>No sustainability</i> | | <i>Weak sustainability</i> | | <i>Strong sustainability</i> | |
| | | | | | |
| <i>Features</i> | | | | | |
| Max shareholders' wealth Legislative compliance No ecological limits | Growth/continuity of business CSR/philanthropy Environmental management | Business leads to sustainability 'Win-win' TBL synonymous with sustainability | Technological and scientific optimism Eco-efficiency is key Use of markets to solve modernity's problems Strategic management of nature, outputs and people | Shared value 'Sufficiency' 'Strategic satisficing' | Eco justice Eco effectiveness Inter & Intergenerational equity Consumption limits 'Connectivity' 'Inclusiveness' 'Prudence' 'Security' |
| Kerr, (2006) Herbohn, (2005) Friedman, (1970) | Dyllick and Muff, (2015) GRI, (2013) Porter and Kramer, (2011) Salzman, (2005) | Elkington, (1994, 2004) | Scerri and Holden, (2014) Huber, (2008) Langhelle, (2000) Starik and Rands, (1995) | O'Dwyer and Unerman, (2016) Parrish, (2010) Mair, Robinson and Hockerts, (2006) Young and Tilley, (2006) Tilley and Young, (2009) | Davidson, (2014) SSN, (2002) Gladwin and Krause, (1996) Gladwin, Kennelly and Krause, (1995) Gladwin, Krause and Kennelly, (1995) Brundtland, (1987) |

Figure 8: Conceptions of sustainable development

2.11 Conclusion

This chapter has examined the literature on SD in broad terms and the various ‘mappings’ or paradigms based on the different ‘understandings’ of the concept ranging from the ‘no limits’ to ‘deep green’ approaches (Tregidga, Milne and Kearins, 2009; Hopwood *et al.*, 2005; Gladwin, Kennelly and Krause, 1995; Colby, 1991). The concept has changed over time from the early days of ‘eco-development’ (Colby 1991), to the Brundtland Report’s (UN, 1987) SD to the last decade’s developments. Since then numerous conceptions have vied for position with multiple actors with different political and ideological approaches (e.g. business organisations and supranational governments) setting the dominant discourses (Hopwood *et al.*, 2005).

Increasing pressure on business organisations from governments, NGOs and civil society has caused business organisations to engage in the SD agenda via avenues such as sustainability reporting (Rinaldi, Unerman and Tilt, 2014). Business organisations approach SD in many ways including from purely ‘business as usual’ (Kerr, 2006; Herbohn, 2005) and ‘business case’ approaches (Dyllick and Muff, 2015; Porter and Kramer, 2011) whereby sustainability is considered a ‘win-win’ proposition for business as a way of furthering business strategy and activities. Business organisations may pursue an EM agenda by attempting to mimic ecological systems using technology but are silent on SD issues of poverty, social justice, inter and intra-generational equity (Huber, 2008; Starik and Rands, 1995).

SD is also a political concept shaped by intergovernmental organisations, such as the UN and UNEP via policy and practice (Baker 2006). The Brundtland (UN, 1987) definition is 30 years old and many UN policy documents have been produced since. Barkemeyer *et al.*, (2014) highlights how guidelines from intergovernmental organisations such as the UN and OECD show a substantial shift away from the Brundtland conceptualisation of SD. The areas that have been de-emphasised are meeting the needs of the poor, inter/intragenerational equity and limits to growth. However, the SDGs (UN 2015a) show a broader concern for areas that affect humanity (e.g. poverty, water, oceans, health, energy) although there are potential problems with integration of the SDGs at policy level (for example between say climate change, energy consumption and ocean acidification) and at implementation level. Further, Baker (2007, 2006) argues that EM has shaped intergovernmental policy and deviated from the more radical demands of the Brundtland Report (UN, 1987, see also Brand, 2010) showing only a symbolic commitment to SD (Baker, 2007). The use of markets such as the CDM, technological innovation, scientific solutions and decoupling of economic growth from

environmental degradation forms the basis of policy making (Bailey, Gouldson and Newell, 2011) and the 'greening of business.' In addition, business organisations have influence over intergovernmental policy (Banerjee, 2012; Gray and Bebbington, 2000; Welford, 1997). Influence on SD and climate change agendas via lobbying organisations such as the WBCSD, the ICC and CERES enables the advantageous aspects of the concept to be appropriated for business interests (Banerjee 2014; Lohmann 2008).

Claims by business organisations to being 'sustainable' or bringing SD via their activities are contestable in the same way as the term SD is (Tregidga, Kearins and Milne, 2013; Laine, 2009). The CDM business organisations have double objectives of reducing carbon emission with innovative technology and bringing SD to Malaysia. It is therefore important to examine what SD means to business organisations and if in fact the discourse they use is rooted in narratives which have little to do with SD (Gray, 2010) and more to do with ecological modernisation. The literature shows the need for an opposing discourse to the current hegemonic one surrounding business organisations (Tregidga, Milne and Kearins, 2014; Milne, Tregidga and Walton, 2009; Spence, 2007) as it is likely business organisations are not going to lead society to a state of sustainability as envisaged by Brundtland (Milne and Gray, 2013). Considering SD at the organisation level is not without issues as identified by Gray (2010). SD is an overall planetary concept which does not lend itself to organisational boundaries and there may be multiple ways to arrive at a state of 'sustainability' considering the myriad of actors and activities involved. Nevertheless, a focus on organisational level allows an examination of the claims to sustainability that business organisations make and whether these claims are in the self-interest of business or society (Gray, 2013; Kolk and van Tulder, 2010b; Beder, 2006).

Chapter 3: Research Philosophy and Methods

3.1 Introduction

This research is driven by a concern for the apparent lack of progress in the sustainable development agenda, specifically in Malaysia (Hezri, 2016) and a desire to investigate if SD can be achieved through supranational initiatives such as the CDM. Underpinning the study is a normative conception of sustainable development as originally envisaged in the Brundtland Report (UN, 1987) and explicated in the ‘sustaincentrism’ of Gladwin, Kennelly and Krause (1995). ‘Sustaincentrism’ requires inclusiveness, connectivity, equity, prudence and security within social, ecological and economic systems (Valente, 2012). The earlier chapters have set the foundation for the research, identifying the research aims and objectives, exploring the relevant SD literature and presenting the context for the study within the CDM business organisations in Malaysia. The overarching aim of this study is to identify the SD narratives used by CDM business organisations when writing and speaking about sustainable development. The various ‘understandings’ of sustainable development illustrate how a lack of a clear agreement on what sustainable development actually is causes problems for its implementation. Business narratives of SD identified from the literature are used as a basis to explore the CDM documentation and the spoken accounts of interviewees.

The purpose of this chapter is to explain the research design of the study, including the philosophical underpinnings of the research and the research methods used for data gathering and analysis, to answer the research questions in chapter 1.

The chapter proceeds as follows; section 3.2 sets out the overall research philosophy including the ontology and epistemology underpinning the research, this leads to using an interpretive methodology as covered in section 3.3. The elements of constructionism arising in narratives surrounding SD and climate change are discussed in section 3.4 as they are pertinent to the interpretive nature of the study. The main assumptions in the research design are covered in section 3.5. The remainder of the chapter, sections 3.7 to 3.10 explains the nature of the data gathered and the methods used to analyse both the PDDs and the interview data. Both qualitative content analysis (QCA) and interpretive textual analysis (ITA) are used as part of the data gathering and analysis. These sections include the development of the qualitative content analysis research instrument (QCARI) and the specific processes involved in analysing the data using QCA and ITA. Section 3.10 presents how the interviews were conducted, documented and analysed. As the research is interpretive in nature, section 3.11 reflects on the research process before the chapter is concluded.

3.2 Research paradigm

It is essential to locate the study within a paradigm as it influences the research design and the methods used to collect data and analyse data. The choice of research method will depend on a variety of factors such as the assumptions regarding the nature of knowledge, how that knowledge can be obtained and the nature of the phenomena being investigated (Morgan and Smircich, 1980). Denzin and Lincoln (2008, p. 28) draw attention to the ‘situatedness’ of the qualitative researcher:

“The gendered, multi-culturally situated researcher approaches the world with a set of ideas, a framework (theory, ontology), that specifies a set of questions (epistemology) that he or she examines in specific ways (methodology, analysis)”

The research paradigm includes the ontological and epistemological views adopted, when undertaking research (O’Gorman and Macintosh, 2015) and these are outlined for this study in the following sections. However, to support the choice of research methodology it is useful to first examine the approaches normally adopted in the social and environmental accounting (SEA) research.

Thomson (2007) provides a useful overview of the current state of the philosophical foundations of sustainability accounting. Thomson’s (2007) mapping of the evaluatory frameworks used in sustainability accounting research is clustered according to similarities in ontology and epistemology. These evaluatory frameworks can be grouped into the four sociological paradigms (functionalist, radical structuralism, interpretive and radical humanism) identified by Burrell and Morgan (1979). According to Thomson (2007) most of the research is found in the functionalist paradigm. This includes research based on market theories, the business case and information usefulness. Moving towards radical structuralism are systems oriented theories such as legitimacy theory and stakeholder theory based research. However, some research takes place in the interpretive and radical humanist frameworks such as gender related or post-modernist studies. Therefore, sustainability accounting research does not have a singular epistemological standpoint. This pluralism in method choice is particularly beneficial when considering issues of sustainable development (Gray and Milne, 2015). The ontological and epistemological basis for this study are now discussed in the following sections.

3.2.1 Ontological view

The researcher's own views on the objectivity or otherwise of reality will determine the methodological approach to the research quite separate from the various methods of data collection used. Hessler (1992, p. 23) writes;

“What the researcher assumes about the nature of social reality, either tacitly or explicitly, exerts a strong influence on the types of research problems chosen for study, the theories used to explain the problems, and the research design decisions made.”

Ontological assumptions vary on a continuum ranging from the objectivist views of reality as a concrete structure to the subjectivist views of reality as a projection of human imagination (Morgan and Smircich, 1980). The ontological view adopted will influence the epistemic approach to acquiring knowledge of a subject matter. The objectivist view of reality assumes reality exists independently of the researcher and can be ‘known’ through replicable methods, such as surveys and experiments (O’Gorman and MacIntosh, 2015). However, the subjectivist view considers the significance of how individuals create their reality or even in the phenomenological sense, how individuals project their consciousness in perceptions and emotions.

Using this range of ontological views as developed by Morgan and Smircich (1980, p. 494) the researcher is more comfortable with the ‘middle ground’ between the objective and subjective ontological assumptions. This is in keeping with much of the current research in social and environmental accounting. The link between theory and practice is a complex one arising from practicalities and pragmatism both in the philosophical and general usage sense (Baker and Schaltegger, 2015; Gray and Milne, 2015). Dillard (2007, 2004) opines that there is a “pragmatic grounding” to the SEA project and Gray, Adams and Owen (2014) advocate a neo-pluralistic approach which ‘*does not close down any voices*’ (p. 76). Pragmatism as referred to above is used more in the general usage sense, although Baker and Schaltegger, (2015 p. 265) argue that pragmatism as a philosophy has much to offer SEA and state:

“Pragmatism maintains a challenging, albeit liberating, view of truth, wherein the “truth” value of a statement resides not in how accurately it represents the external world but rather in how useful it is for enacting change. Pragmatism is also concerned with the process by which individuals come to understand truth when

engaging with the world – this is the concept of sense making,” (Baker and Schaltegger, p. 265).

Alvesson and Kärreman (2000a, 2000b) discuss the importance of language use in the social sciences, which has led to the study of discourse at micro and macro levels. They write:

“the nature of language as context dependent, metaphorical, active, built upon repressed meanings and capable of constituting “other” phenomena,” (Alvesson and Kärreman, 2000b p. 154).

The ‘linguistic turn’ for accounting research, was introduced in the 1980s and 1990s (Mouck 2004) and is evident in some of the sustainability accounting research (Tregidga, Milne and Kearins, 2014; Milne, Kearins and Walton, 2006; Laine, 2005; Livesey, 2002; Everett and Neu, 2000) whereby accounting reports are treated as texts produced by authors telling a story (Macintosh, 2002).

The study recognises that truth is linguistically mediated (Baker and Schaltegger, 2015). Therefore, the aim is not to seek ‘truth’ in the positivist sense but to illuminate business organisation narratives within the CDM and identify how the CDM developers perceive their responsibility for SD and construct discourses within the PDDs. Furthermore, the researcher recognises that there is a reality independent of humanity such as the natural environment but that reality is also shaped by perceptions, i.e. it is also socially constructed.

3.2.2 Epistemological view

“Epistemology concerns the way in which we obtain valid knowledge.” (O’Gorman and MacIntosh, 2015, p. 59)

Epistemology must be connected to the ontological assumptions about reality. Epistemological stances range from positivism whereby the real world can be ‘known’ objectively following the scientific method of empirical testing and verification, to the more interpretive traditions which aim to understand rather than explain or measure (Lee and Lings, 2008). Accounting research is traditionally influenced by positive theory and has a philosophically objectivist, positivistic, deterministic and nomothestic approach (Dillard, 2007). Within social and environmental accounting there are numerous epistemological approaches ranging from positivism, interpretivist and critical approaches. These approaches have something to say about how researchers’ view society, economies, cultures and the

individuals within them. These approaches have been framed as ‘the business case,’ ‘managerial,’ ‘the stakeholder-accountability or ‘middle of the road’ model and the critical theory approach (Deegan, 2017; Brown and Fraser, 2006).

This study lies within the more interpretivist and critical domains. It is not the intention of the research to explain and predict phenomena in the CDM process and how this relates to sustainable development. This is a hallmark of positivism whereby reality is completely external to and independent from the actors within and observers of the reality. Rather the research attempts to interpret the CDM practices regarding sustainable development and critique them on the basis that reality is relative and in some instances socially constructed. The research does not make use of one specific theory to help structure the data examined and make sense of the complexity and somewhat messy empirical data. Therefore, the research is not neatly fitted into a paradigm after the fashion of Burrell and Morgan (1979) but more in keeping with straddling paradigms/theories (Lukka, 2010; Vaivio and Sirén, 2010). Hoque, Covaleski and Gooneratne (2013 see also Gray and Milne, 2015; Hopper and Powell, 1985) call for a pluralism in research approaches and analysis through multiple lens because singular theories often constrain research and fail to reveal the multidimensional issues and complexities surrounding organizational activity, particularly in the case of social and environmental issues.

The latter perspectives are well accepted within the social and environmental accounting genre as as there is no single approach to appropriate all social reality (Laughlin, 1995; Chua, 1986; Tinker, Merion and Neimark, 1982). The study not only considers business organization SD narratives at the micro level, but also the wider institutional and social context within which those narratives are constructed. Therefore, both interpretive and critical theories have something to offer in this context.

3.2.3 Interpretive research

Interpretive research has a more sceptical ontological worldview with less reliance on clearly defined theories and prior hypothesis as in positivist perspectives (Laughlin, 1995). This type of research involves description, translation and analysis in a more metaphorical way to enable inference of meanings from events in the social world. Language and sense-making are a vital part of the process as well as the reflexivity of the researcher, i.e. their ability to look at themselves and their impact on the research process (Covaleski and Dirsmith, 1990). Crotty (1998) traces the origin of the interpretive approach from Weber’s argument that the scientific study of the social sciences requires ‘verstehen’ which is corroborated by empirical evidence.

The world around us is subjective in nature. People experience the world and therefore create perceptions of reality (Crotty, 1998). However, these perceptions are in many instances shared with other others due to interaction in the world and the experiences become ‘typified’ into a common or shared understanding. This is achieved through language via ‘constructionism.’ Constructionism has been defined as:

“The view that all knowledge and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their word and developed and transmitted within an essentially social context,” (Crotty, 1998, p. 42).

Meaning is constructed, not created as it is linked to the object that is being engaged with. In this way, constructionism can be both objective and subjective as there may be different interpretations of the same object (or reality). Using a shared understanding or common language however may lead to distortions in the meaning. In this way accounting and sustainability reporting is a ‘typified’ process or common language used by organisations and this will be explored later in the empirical content of this study

In accounting research, Hopper and Powell (1985, p. 446) write:

“an interpretive approach on the other hand emphasizes the essentially subjective nature of the social world and attempts to understand it primarily from the frame of reference of those being studied.”

Individual values will have an impact on such research, therefore the need arises for the researcher to reflexively account for her position and how this might have impacted on the research.

To obtain a better understanding than one produced from (say) statistical surveys, the interpretive approach attempts to research how these realities/perceptions are constructed and in doing so seeks to obtain the views and explanations of the actors involved. This enables a greater dimensionality and therefore a richer research contribution. Parker (2008, p. 912) writes that interpretive research adds this richness as it attempts to contend with:

“a complex world of culture, language, stories, symbols, perception, cognition, social conventions, politics, and ideology and power.”

Interpretative research in accounting considers issues such as the role of accounting in framing corporate culture, metaphorical rituals, producing norms, values or ideologies and masking conflicts in organisations (Baker and Bettner, 1997). Lehman (2010), similarly considers interpretive accounting research as a platform for understanding and connecting with the social and environmental world. This understanding and connecting through interpretive methods is also seen in some of the SEA literature, (Tregidga, Milne and Kearins, 2014; Tregidga, Kearins and Milne, 2013; Merkl-Davies and Koller, 2012; Tregidga, Milne and Lehman, 2012; Makela and Laine, 2011; Gray, 2010; Laine, 2009, 2010; Buhr and Reiter, 2006; Livesey and Kearins, 2002; Livesey, 2001; Everett and Neu, 2000)

3.2.4 Critical theory research

Like interpretive research, critical theory research is considered as one of the ‘alternative’ theoretical approaches to positivism. It is a multidisciplinary approach to society and rooted in the works of Marx and others who attempt to explicate his work. Critical theory proponents call for the results of their research to be emancipatory and make a difference in the world. To critical theorists, understanding and interpretation is not enough as the ‘*world is not only symbolically mediated but is also shaped by material conditions of domination,*’ (Chua, 1986, p. 621) and it is therefore necessary to critique this domination and underlying ideology. Unlike interpretive research, critical theory research therefore has political overtones and a call for change. Although critical theory has many strands, it highlights powerful or dominant relationships within society and exposes oppression and injustice (Crotty, 1998). Roslender (2006) gives a comprehensive overview of the roots of critical theory and the contributions of Marx, Lukacs, Hegel, Foucault, Weber, Habermas and Gramsci. The key features of critical theory may be summarized as follows; (Roslender, 2006; Crotty, 1998):

1. Critical theory is a wide theoretical perspective, which is both multidisciplinary and interdisciplinary.
2. It focuses on power relations and privileged positions within society and therefore is necessitates social change or emancipation.
3. It does not claim objectivity. Language is central to its subjectivity and one of its tenets is that the object cannot be separated from value or ideology.
4. It does not require nor preclude empirical evidence, though much of the research in the field is heavily empirical.

In social and environmental accounting, critical theory draws on radical feminism, deep ecology and Marxism (Owen, 2008). Critical theorists critique mainstream social and

environmental accounting research centres for a lack of self-reflection, the liberal managerialist approaches and the potential for capture by the forces of capital (Gray, Brennan and Malpas, 2014; Spence, Husillos and Correa-Ruiz, 2010; Bebbington, Gray and Owen, 1999). The ‘middle of the road’ approach to SEA research is critiqued as enabling capitalist interests to maintain power or dictate discourse and therefore unlikely to facilitate radical change in society (Brown and Fraser, 2006). However, SEA research must fall somewhere between managerialist and critical approaches to engage with those responsible for many of the sustainability issues (Owen, 2014; Parker, 2005; Gray, 2002,).

This study follows the same ‘middle of the road’ approach, although it is recognized that critical theory has much to offer in analysing the findings (Spence, Husillos & Correa-Ruiz, 2010; Parker, 2005; Gray, 2002; Tinker, Neiman and Lehman, 1991). Dillard (2007) argues that social and environmental accounting research can be served by some of the components of critical theory, specifically exposing false consciousness to enable recognition of better alternatives to the current societal problems. The social and political underpinning of our structures, institutions and practices cannot be ignored if research is to act as a change catalyst and create emancipatory change in current business organisation practices (Deegan, 2017).

3.2.5 Limitations of interpretive and critical research

The main criticism of both interpretive and critical research relates to rigour. The two key criticisms of interpretive research are often related to reliability and validity as the focus is more on the meaning of the data and there is no singular way to explicate the meaning (Smith, 2015). Reliability is concerned with the consistency of measurement in the positivistic sense. However, reliability in interpretive/critical research may be more difficult to achieve due to the interpretation of meaning, particularly of latent text. Ahrens and Chapman (2006) provide a useful discussion of the applicability of reliability and validity in interpretive management accounting research. Interpretive research must acknowledge both the agency of those studied and the researcher’s theoretical leaning, therefore replication is inappropriate and the same results cannot be expected from two different researchers.

Generally, validity relates to the ‘generalisability’ of the research, in other words can the findings of the research be applied or extended in other research contexts. This presupposes an objective social reality which is pointless in interpretive and critical research. Guba and Lincoln (1994, p. 114) propose alternative criteria for the quality of interpretive and critical research which are apposite for this study. These include trustworthiness which consists of

“credibility (internal validity), transferability (external validity), dependability (external reliability) and confirmability (objectivity).

The key criticism of critical research is its value laden nature, as it critiques the effect of power and politics on social life as a form of emancipatory action. However, critically informed research can lead to more dialogic and transformative approaches to sustainable development (Brown and Dillard, 2013; Bebbington *et al.*, 2007). The quality of interpretive and critical research is assured by systematic collecting and analysing of data, by ensuring field notes are written up, transcripts are prepared, and comparison of data by different researchers and the research process of arriving at conclusions is transparent (Silverman 2006; Steinke, 2004).

3.3 Methodology

Methodology may be defined as:

“the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes.” Crotty (1998, p. 3).

Burrell and Morgan (1979) opine that all social science research is underpinned by four key assumptions, i.e. ontology, epistemology, human nature and methodology. The first two have already been examined above. Assumptions concerning the relationship of humans and their environment will have an impact on research as social life is the subject of the research. The first three assumptions will have an impact on the methodology adopted in understanding the social world and whether an ideographic or nomothetic approach to obtaining knowledge is followed. The nomothetic approach involves a *“rigorous and scientific testing of hypotheses,”* whereas an ideographic approach is the *“analysis of subjective accounts obtained by participating or getting inside the situation,”* (Riahi-Belkaoui, 2004 p. 315). Therefore, the former is more aligned with positivism and quantitative research and the latter with interpretivism and qualitative research. However, interpretive research can make use of quantitative information (Lee and Lings, 2008) such as counting the incidents of certain terms, reducing information and producing ‘snap shots’ of data (Lee and Lings, 2008). The quantitative – qualitative divide therefore is usually made at the methods level rather than at the ontological or epistemological level (Crotty, 1998).

Quantitative methodology is based on an objective ontology and a positivistic epistemology and as Gray and Bebbington (2000) indicate, adopts a managerialist worldview with its emphasis on eco – efficiency and organizational economic performance. Although a large body of qualitative work underpins the SEA research agenda (Spence Husillos and Correa-Ruiz, 2010), quantitative research has found its place too in a variety of quantitative content analysis, quantitative field studies, databases and surveys (Roberts and Wallace, 2015; Kolk and van Tulder, 2010; Gibson and O’Donovan, 2007; Parker, 2005; Neu, Warsame and Pedwell, 1998, Deegan and Rankin, 1996). This study is placed within a more subjective ontology with an interpretivist epistemology so the research methodology will be primarily qualitative except to the extent numbers are used for reducing information to obtain an understanding of key themes in the data. The selection of a qualitative methodology aligns with the nature of the research questions which aim to tease out meaning within the empirical data. The use of the qualitative methodology in SEA is now explored.

3.3.1 Qualitative Research

Qualitative research is not easily defined as it crosses many disciplines, epistemologies and historical moments (Denzin and Lincoln, 2008). Smith (2015) suggests that qualitative research is more focused on meaning rather than numbers unlike quantitative research. The qualitative research process involves looking for meaning using flexible research methods. The data is usually in terms of words, sentences or narratives from documents, interviews and focus groups. Research in SEA is primarily qualitative and there are many research projects which examine the meanings of (among other things) sustainable development. This study examines the ‘understandings’ or narratives of sustainable development used by CDM business organisations so can be placed within this SEA literature. SEA research uses a variety of different approaches to examine narratives in different contexts. Bebbington and Gray (2000) used semiotic analysis to tease out what organisations are saying about SD. Everett and Neu (2000) considered the discursive formation of ecological modernisation within ecological and social domains. Livesey (2001, 2002) uses constructionist ontology to explore the links between discourse and social practice of sustainable development by large oil companies. Milne, Kearins and Walton (2006) study the discourse, particularly metaphors, used by companies when writing about SD. Laine (2009, 2010) uses interpretive textual analysis to make sense of environmental disclosures and obtain an in-depth understanding of how language has an active role in such disclosures. Tregidga, Milne and Kearins (2014)

using Laclau and Mouffe's frame for discourse theory, analyse how public listed companies present SD in their annual reports.

3.4 Social constructionism in SEA

This study is interpretive in nature, and has constructionist leanings as it accepts that environment and society, whilst having a physical existence independent of meaning formation, is also 'socially constructed.' Some research identifies accounting as a social construction (Llewellyn and Milne, 2007; Quattrone, 2000; Parker, Guthrie and Gray, 1998; Neu, 1992). Morgan, (1988) surmises that accountants are subjective reality constructors as they construct a numerical representation of reality in their 'accounting for.' Therefore, knowledge in accounts given by business organisations is partial and limited as it is uni-dimensional and often ignores aspects that cannot be quantified (for example environmental externalities).

Accounting can be interpreted in a variety of ways, i.e. as history, economics, useful information, disciplined control, ideology, power, and domination and exploitation (Potter, 2005; Hines, 1988, 1989). Social constructionism research in SEA is viewed from either an ideological perspective in that constructions are the legitimating of certain interests (Buhr, 1998; Richardson, 1987), or from a discourse perspective illustrating how identities are formed (Tregidga and Milne, 2006).

The role of language is an essential feature as it highlights how social knowledge is organized, what are the 'norms' within that discourse and how the discourse can exclude as well as include. SEA research in this vein includes examining sustainability discourse in annual reports of Shell and the Body shop using a Foucauldian lens (Livesey and Kearins, 2002); the unreflective adoption of ecological modernisation ideas in the sustainable development agenda (Everett and Neu, 2000); how images and language on SD discourse can be used to construct meaning, (Tregidga and Milne, 2006); the language and verbal tone of environmental disclosures in US annual reports (Cho, Roberts and Patten, 2010); interpretive textual analysis (ITA) of corporate talk on sustainability in Finnish companies (Laine, 2010); the construction of corporate reputation through annual reports, (Craig and Brennan, 2012); the framing of the carbon accounting discourse by various communities to claim competence (Ascui and Lovell, 2012); and the construction of financial environmental information (Laine *et al.*, 2017).

This study examines the use of language in the SD narratives of CDM business organisations in Malaysia using two qualitative methods i.e. a qualitative content analysis (QCA) and an

interpretive textual analysis (ITA) to determine how existing sustainability discourses shape the narratives.

3.4.1 The social construction of climate change within the CDM

Climate change is a threat to the three pillars of sustainable development due to its potential impacts on weather patterns, health, water resources and food production (Hopwood, Unerman and Fries 2010). The climate change discourses identified within the literature are of risk management and opportunity (Solomon *et al.*, 2011) ecological modernisation, governmentality and environmentalism, and environmental management (Bäckstrand and Lövbrand, 2016; Boyd, 2009). Business organisations have attempted to keep the discourse focused on a narrow, rational and technical market based approach to climate change (Lohmann, 2009; Demerit, 2001).

There is abundant literature on the social construction of climate change at a global or macro level (Pettenger, 2007; Bäckstrand and Lövbrand, 2007; Cass, 2006; Hoffman, 2005; Demerit 2001), and at CDM level (Boyd *et al.*, 2009; Bäckstrand and Lövbrand, 2006). In the CDM process at governmental level, language appears objective and scientific but is value laden as shown by the terms such as ‘common but differentiated responsibilities’, ‘materiality’ ‘project boundary’, and ‘financial feasibility.’ The dominant discourse in the CDM is one of ecological modernisation, although the Kyoto protocol specifies the aim of the CDM is to bring sustainable development (Ninan, 2011). The empirical part of this research explores how the CDM might reinforce the ecological modernisation discourse by emphasizing incremental technological advances in production processes, use of technical tools such as investment analysis to assess projects, the market commodification of carbon, reliance on targets, and smart regulation as well as the privileging of business, government, consultants and verifiers but not the indigenous or local community.

Real environmental and social issues are not addressed by the CDM in Malaysia such as deforestation and waste management. For example, 60% of Malaysian CDM projects are methane avoidance projects but only 5% of those relate to landfills, the remainder are for palm oil mills. Malaysia has a problem with solid waste with only 5% recycled (Agamuthu and Fauziah, 2010). There are 165 landfills and only 8 of these are sanitary (Zainu and Songip, 2017), the rest are open dumps with attendant problems of leachate and methane emissions. Further, the supranational imposition of processes on developing countries such as Malaysia through mechanisms such as the CDM limits or obstructs their ability to devise their

own discourse or approach to climate change and sustainable development issues (Boyd *et al.*, 2009).

This study will not examine narratives surrounding climate change specifically, since the focus is on sustainable development, although it is apposite to note work by Solomon *et al.*, (2011) on private climate change reporting. Solomon *et al.*, identify climate change discourse as being an instrumental and risk based driven discourse within corporate sustainability reports.

3.5 Assumptions in this research design

This research is driven by concern for the lack of progress in the SD agenda in Malaysia and a desire to investigate if SD can be implemented through supranational initiatives such as the CDM. SD means different things to different people (Redclift and Springett, 2015) and the various narratives used by business organisations were identified from the accounting and management literature on SD measurement and reporting. An interpretive approach is used as the study is concerned with the meaning of SD within CDM business organisations.

Individual project design documents (PDDs) are examined to see how business organisations write about sustainable development in their aim to reduce carbon emissions. The language used in the PDDs and in the interviews, are examined using both QCA and ITA, to consider whether linguistic elements such as signifiers and labels can illuminate the discourse and facilitate the identification of the narratives being used. Claims of objective and neutral scientific and technological solutions to progress both the climate change and sustainable development agendas are based on the ‘taken for granted’ solutions to climate change and sustainable development. As Hajer (1995, p. 49) writes:

“discourses imply prohibitions since they make it impossible to raise certain questions or argue certain cases; they imply exclusionary systems because they only authorize certain people to participate in a discourse; they come with discursive forms of internal discipline through which a discursive order is maintained; and finally, there are also certain rules regarding the conditions under which a discourse can be drawn upon.”

Further, Gergen (2009) opines all language-based accounts mask implicit values or an ideology of what the political and social order should be like. Therefore, the interpretive

approach asks questions of meaning and understanding of the documents contents as well as how the content is produced, and used in the company.

The “role of textual researchers is not to criticize or to assess particular texts in terms of apparently ‘objective’ standards. It is rather to analyse how they work to achieve particular effects, to identify the elements used and the functions these play,” (Gergen, 2009, p. 15).

The critical approach asks “*what has been left out, what descriptions they are suppressing? Who is being silenced, exploited and erased?*” (Gergen 2009 p.15). Gray (2002) also recognizes the contribution of critical theory to the SEA project as the work opposes the managerialist hegemony of business. This study is also concerned with transformation, a feature of the critical approach, although engages with critical theory to a lesser extent. As the research is qualitative in nature, the researcher has engaged in a process of making sense of the empirical data and this sense-making may be regarded as a process of construction (Alvesson, Hardy and Harley, 2008; Elliott, 2005). Therefore, the research must be informed by a reflexive approach which acknowledges the accounting researcher as a creator of reality in the research design. Covalleski and Dirsmith (1990, p. 550) write:

“what is needed is self-consciousness and reflexivity on the part of researchers directed at probing their own presumptions that underlay the research act,”

They outline ways of showing reflexivity including recognizing one’s own assumptions and everyday reality. Understanding how the research process affects the reality of those being researched and recognising that there are several accepted theories in qualitative research. It is recognised that data collection, data analysis and writing will be impacted upon in some way by the researcher’s demographic background, values and beliefs about the research subject. The researcher’s motivations for the research have been explicitly stated at the beginning of chapter. The researchers ontological, epistemological and methodological position have been laid out in previous sections which leads to the qualitative research methods adopted and now discussed in the remainder of the chapter.

3.6 Research Methods

The methodology adopted will determine the research methods used to collect data for the study. As a qualitative methodology is being used there are certain research methods which are appropriate. These include, but are not limited to interviews, focus groups, documentation/text analysis, observation and audio/video recording, (Silverman, 2006). Within the sustainability accounting literature, Thomson (2007, see also Parker, 2011) the dominant research methods were quantitative content analysis of social and environmental disclosures (Beck, Campbell and Shrives, 2010; Deegan and Rankin, 1996; Guthrie and Parker, 1990), statistical testing (Patten and Zhao, 2014; Joseph and Taplin, 2011) theoretical critique (Bebbington and Larrinaga, 2014; Brown, 2009; Cooper and Owen, 2007) and document review (Tregidga, Milne and Kearins, 2014; Laine, 2010; O’Sullivan and O’Dwyer 2009). The remainder of the chapter will explain the research methods used, including the documentation selected, sampling approach, development of the research instrument and the analysis of the documents and interviews.

The next sections discuss the research process which is summarised in figure 9.

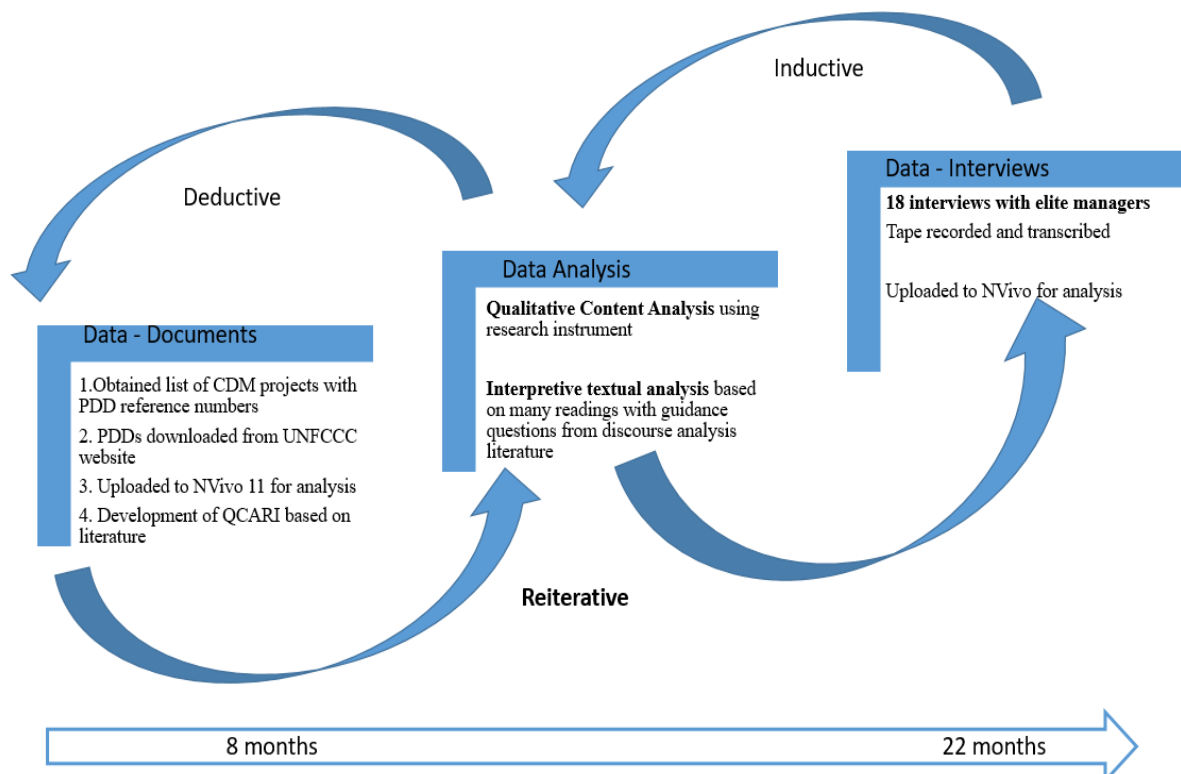


Figure 9: The Research Process

3.7 Documents to be analysed

Most research into sustainability centres on annual reports as a means of understanding sustainability performance and reporting. Examples include, the ideological conceptions of SD within environmental reports (Bebbington and Gray, 2001), the trope of orientalism used in CEO letters (Prasad and Mir, 2002), the ethical and caring discourse in the sustainability reports of an oil company (Livesey and Kearins, 2002), rhetorical changes in the environmental disclosures in the annual reports of a chemical company (Laine, 2009) and the organizational identity construction in the annual reports of New Zealand companies (Tregidga, Milne and Kearins 2014). Annual reports form the most frequently used document for SEA research purposes (Thomson, 2014; Unerman, 2000).

This study uses project design documents (PDDs) for several reasons. Firstly, the PDDs are ‘important texts’ produced solely for the purposes of CDM projects (Phillips and Hardy, 2002, p. 73) and publicly available. The texts are written accounts of how the CDM business organisation is going to reduce emissions and bring sustainable development with its project. Secondly, they are a form of communication document produced by public, private and government linked business organisations which can give richer insight how these organisations write about sustainable development, particularly for private entities as gaining access to private company documentation is normally difficult. The PDDs, therefore are an additional rich source of latent meanings and are a snap shot of management’s thinking regarding sustainable development and the CDM. Lastly, the PDDs meet the four qualitative criteria for research documents, i.e. authenticity, credibility, representativeness and meaning (Bryman, 2012) as they are official company documents. The PDDs are validated by an independent third party, prior to registration with the UNFCCC.

The PDD is a communication document providing information to stakeholders to make decisions about financial viability, technical feasibility, emissions reduction capability, environmental integrity and sustainable development potential. Business organisations involved in the CDM process are accountable to the various stakeholders (UNFCCC, DNA, consultants, NGOs, financiers, local community). Accountability is often described as the ‘giving of an account’, which includes not only the final ‘account’ document but also the process involved in the production of the ‘account’ (Adams, 2004). The giving of an account requires the provision of information on an accountability matter (e.g. economic, environmental, and social) to those who have a right to the information (Gray, 2001). There is an existing body of literature on accountability in the SEA research (Agyemang *et al.*, 2017; Killian, 2015; Parker, 2014; Roberts, 2009; Messner, 2009; Cooper and Owen, 2007; Parker,

2005; Gray, Owen and Maunders, 1988) although detailed discussion on accountability is beyond the scope of this study. Gray, Owen and Adams (2009) detail the features of the giving of a formal account in relation to social accounting. Table 4 uses these features, to explain how the PDD is the giving of an account on matters which project developers are responsible for in the CDM process.

| Features of giving an account (Gray, Owen and Adams 2009) | The CDM PDD |
|---|---|
| The entity for which we account | The company undertaking the carbon mitigating project (CDM) |
| The type of organization for which we account, private, public, NGO etc. | Private companies, PLCs and GLCs |
| The subject matter of the account, sustainability, employees, social responsibility, etc. | Project design, emissions reductions, the economic, environmental and social aspects of the project |
| Stakeholders who need to be considered | The company, UNFCCC, consultants, local community, NGO's, government bodies, financiers |
| The audience for whom the account including whether it is public or a private document | The UN CDM Board for evaluation. The PDD is publicly available on the UNFCCC websites. |
| The content of the account (what might be excluded) | Covers investment appraisal of the project, carbon reduction measurements, stakeholder engagement feedback and benefits for sustainable development. Covers the project and is therefore within a boundary which does not take into consideration the impacts on the larger eco system for example. |
| The organisation's motivation for producing the report (including intended impact). | Production of the PDD is a requirement of the CDM process. Per the UNEP it may also be used as a marketing tool. Further, it attempts to communicate the benefits of the project. |
| The reliability of the account | Measurements are based on accounting and other measurement tools and techniques. Relies on 'objectivity' in measurement. Narrative accounts of stakeholder meetings are given. The PDDs are reviewed and validated by independent organisations. |
| The extent to which the account is governed by law, codes or guidelines | Governed by the PDD preparation rules of the CDM process. |
| The preparer of the report – the accountable organization or an independent body | Prepared by the company (project developer) engaged in the project along with consultants specializing in the CDM |

Table 4 : The PDDs as the 'giving of an account.'

3.7.1 Population

The first half of the study examines how business organisations write about SD in their PDDs so the total number of PDDs are considered as the population. At the time of the fieldwork there were a total of 145 PDDs registered with the UNFCCC. A summary is presented in table 5.

| Project type | Number | Percentage % |
|-------------------|--------|--------------|
| Methane avoidance | 82 | 57 |
| Biomass | 41 | 28 |
| Landfill gas | 10 | 7 |
| Energy efficiency | 5 | 3 |
| Hydro | 5 | 3 |
| Geothermal | 1 | 1 |
| Transportation | 1 | 1 |
| | 145 | 100 |

Table 5: PDDs by project type

The largest number of projects related to methane avoidance involving compost, palm oil effluent or waste water. All projects in this category related to the palm oil industry except for one in rubber production. Similarly, biomass projects were carried out primarily by the palm oil industry, except for seven projects within the cement, rubber, and timber industries. Malaysia is the second largest exporter of palm oil contributing to over 5% of the country's exports in 2015 (MATRADE, 2015). The projects have been carried out by a variety of companies both public, private and government-linked companies (GLCs). The projects were developed by Malaysian owned companies primarily, although foreign owned companies developed 15 projects. Most of the projects were developed by private companies (115 private (80%), 19 (13%) by public companies, and 11 (7%) by government linked companies. Over 40% of the private companies were subsidiaries of public companies both foreign and local. Some companies or group of companies completed more than one project. An overview of the industries involved in the Malaysian CDM project development is presented in appendix K.

3.7.2 Sampling

Although the terms such as 'population' and 'sampling' have overtones of quantitative research, it was still necessary to have a sampling strategy to answer the research questions, and ensure that the data collection and research process was systematic (Silverman, 2006). A

pragmatic approach to sampling was considered appropriate (Emmel, 2013) leading to purposeful sampling. Purposeful sampling is based on judgement and negotiation and is focused on achieving reasonable coverage of that being studied (Patton, 2015) The sampling strategy should be flexible and changeable if there is value in changing the sample size. Initially in the sample design, 30 PDDs were considered the minimum sample. Individual PDDs had page lengths of anywhere between 16 to 97 pages. The average page length was 48. As a preliminary start to the empirical work, a broad-brush approach was adopted identifying the key areas in the PDDs, and the number of pages devoted to each category to the nearest quarter of a page. The assumption being that the more pages were dedicated to a specific area, the more significant it was deemed by the project developer (Neu Warsame and Pedwell, 1998; Gray, Kouhy and Lavers, 1995). Although there are some criticisms of this approach (such as loss of information), page counting has been adopted in previous SEA research (Milne and Adler, 1999; Deegan and Rankin, 1996). Unerman (2000) suggests that although page counting may result in more measurement error it gives a more representative view of what is being studied. In this study, the limitations of page counting are not of a primary concern as page counting was used for exploratory means or to obtain a ‘feel’ for the data at hand. A small sample of 30 PDDs was used for this preliminary work. The sample was selected based on project type with the largest number coming from the methane avoidance and biomass projects, and every project type was represented. The key areas identified in the PDDs are shown in Table 6 with the corresponding total page numbers for each area, for this sample. It is acknowledged that another researcher may have identified different areas in the PDDs or chosen a different preliminary sample size. Table 6 gives an overview of the proportion of pages devoted to sustainable development, i.e. ‘disclosure abundance’ (Joseph and Taplin, 2011). This quantitative approach was used to ascertain the emphasis used by the project developers and to garner a ‘snapshot’ of the reporting in the PDDs as well as help support the trustworthiness of the qualitative research as quantified data can negate the charge of ‘anecdotalism’ in qualitative research (Lee and Lings, 2008). However, after this preliminary/exploratory analysis it was decided to cover all PDDs available to increase the amount of data collected.

| PDD Area | Total pages | Percentage % |
|---|--------------------|---------------------|
| Introduction/content | 32.50 | 3.00 |
| Project description | 10.00 | 10.00 |
| Sustainable development | 35.50 | 3.00 |
| Technical and process | 23.00 | 23.00 |
| Certified Emissions Reductions/carbon emissions | 70.00 | 6.00 |
| Methodology | 378.00 | 35.00 |
| Investment appraisal | 59.50 | 5.00 |
| Project boundary | 29.25 | 3.00 |
| Stakeholder engagement | 72.50 | 7.00 |
| Use of experts ³ | 0.50 | 0.00 |
| Company environmental policy ³ | 0.25 | 0.00 |
| National policies ³ | 5.00 | 0.00 |
| Current business practice | 8.25 | 1.00 |
| Risks ³ | 0.00 | 0.00 |
| Rationale for the project | 40.75 | 4.00 |
| TOTAL | 1088.50 | 100 |

Table 6: Page count for sample of 30 PDDs

Identifying words such as ‘sustainable’, ‘sustainable development’, ‘sustainability’ and related terms such as ‘environment’, ‘environmental’ ‘environmentally’ ‘social’ were searched for to locate the required areas in the PDD. It was decided to record the occurrence of these key words appearing in all the PDDs. Figure 10 presents the outcome of the search. Notably, there was a marked emphasis on words related to the ‘environment’ rather than ‘sustainability’ or SD.

³ The percentages are zero due to rounding.

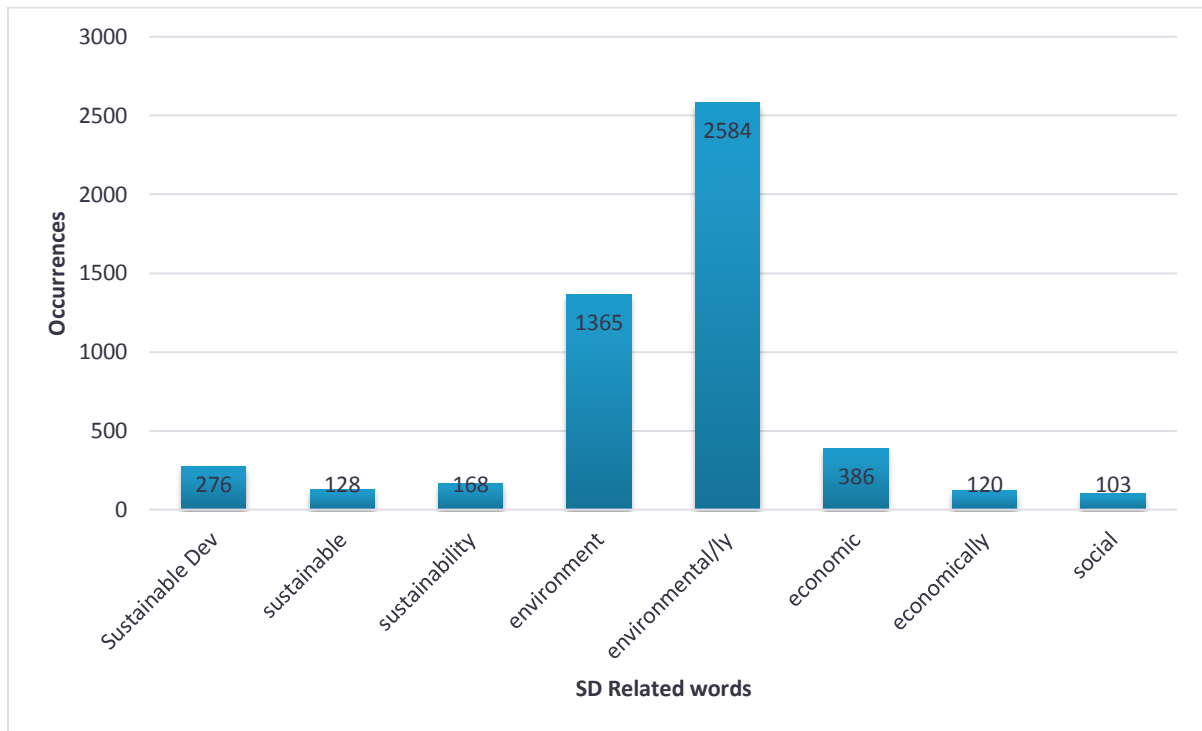


Figure 10: Sustainable Development related word count in PDDs

3.7.3 Units of analysis and coding

The PDDs were reviewed in totality to familiarise the researcher with their content. However, the content areas within the PDD pertaining to sustainable development were taken as the units of analysis (Schreier, 2014; Krippendorff, 2013). These areas were identified from a word search and in many PDDs were clearly identifiable from headings such as ‘contribution to sustainable development’, or ‘compliance with Malaysian national criteria on sustainable development’, ‘contribution of the project to the sustainable development of Malaysia (host country)’. The units of coding, i.e. “*those parts of the units of analysis that can be interpreted in a meaningful way with respect to the categories of the coding frame,*” (Schreier, 2014, p. 131) were primarily sentences and short paragraphs based on the theme within the unit. As the emphasis was on meaning rather than the quantitative approach of counting occurrences it was deemed less essential to have a uniform unit of coding such as only words or sentences. Gray, Kouhy and Lavers (1995, p. 83) explain that words, sentences or pages can be used for coding, however this will depend on “*the unit of meaning and the extent to which each unit can legitimately be employed to draw the appropriate inferences.*” Paragraphs are also more suited that words as meaning can be inferred (Guthrie and Abeysekera, 2006). Therefore, the segmentation of the units of analysis into units of coding depended upon the categories within

the qualitative content analysis research instrument (QCARI). The development of the QCARI for the qualitative content analysis is now discussed.

3.8 Qualitative Content Analysis (QCA)

It was decided to use both QCA and ITA to analyse the PDDs. Content analysis may be defined as '*a careful, detailed, systematic examination and interpretation of a particular body of material in an effort to identify patterns, themes, biases and meanings*' (Berg, 2009, p. 338). A plethora of research within SEA makes use of content analysis as a research method (Flower, 2014; Campbell and Rahman, 2010; Tilling and Tilt, 2010; Freedman and Jaggi, 2005; Deegan and Rankin, 1996) However, there is a lack of consensus among researchers about definition, scope, methodological assumptions and differentiation from other methods of text analysis (Merkl-Davies, Brennan and Vourvachis, 2014). Therefore, it is essential to be explicit about the approach adopted in this study.

There are two types of content analysis, i.e. quantitative and qualitative. The former involves counting of the number of incidents of the unit of analysis (categories, codes, themes) with less emphasis on the quality and/or meaning whereas the latter is concerned with both (Berg, 2009). Quantitative content analysis is primarily positivist in that text and language is assumed to reflect an independently existing reality. Alternately, qualitative content analysis sees text and language as constructing reality (Merkl-Davies, Brennan and Vourvachis, 2014). Quantitative and qualitative content analysis have different underlying ontologies, the quantitative form of content analysis is often useful at the beginning of qualitative research to obtain an overall impression of the textual data (Bryman, 2012; Lee and Lings, 2008). The boundaries between quantitative and QCA are not necessarily clearly defined as one moves along a continuum from a singular understanding of meaning within the text to potentially multiple understandings (Merkl-Davies, Brennan and Vourvachis, 2014). Content analysis is useful for this qualitative research as it helps to simplify and scale down quantities of data and create some order over what can be 'messy' data (Silverman, 2006) and to identify patterns and latent meaning in the texts. QCA is an appropriate method to tease out the multiple understandings of reported reality and aids in the identification of the sustainability narratives used by the CDM business organisations.

The process of qualitative content analysis involves developing a coding frame from theory or literature to help answer the research questions (Schreier, 2014). The literature was used to identify the potential business organisation narratives of SD and the coding frame or QCARI

captures these alternative narratives ranging from the ‘business as usual’ approach to the ‘sustaincentrism’ approach. The development of the QCARI is now discussed.

3.8.1 The Qualitative Content Analysis Research Instrument (QCARI)

The QCARI acts as a heuristic to make inferences about what is being written and spoken about by project developers on SD. The QCARI draws on the varying descriptors of sustainable development/sustainability from the literature and more specifically the literature set out in appendix L as this provides a range of conceptions focusing on different aspects of SD. The literature chosen is inclusive of business (GRI), academia (Gladwin and Krause, 1996; Gladwin, Kennelly and Krause, 1995; Starik and Rands, 1995) supranational organisations (UN, 2016; UN, 1987) and an NGO (SSN, 2004). The selection of the literature and the content of the QCARI (qualitative content analysis QCARI) is the researcher’s own interpretation and articulation of the characteristics of a sustainable organisation or project, and is therefore subjective and only one possible approach to designing the QCARI. There are no ‘ideal’ sustainable development models within the literature although those identified contribute individually and enable a more complete ‘model’ when brought together (Hopwood, 2005).

3.8.2 The development of the QCARI

The objective of the QCARI is to provide a guiding document in assessing the content of the PDDs and to reduce the raw data to a manageable size and enable analysis per industry, project type and company type. In developing the QCARI, the three pillars (economic, social and environmental) of sustainable development are used to frame the main categories considered in the QCARI are shown in figure 11. These main categories identify what is being written about in the texts (Glaser and Laudel, 2013) and were identified deductively from the literature review more specifically the literature identified in appendix L. In developing the main categories and sub categories, the GRI was taken as a foundation to build from. Additional categories were then added from the remaining literature.

A good descriptor or thematic code must have five key elements according to Boyatzis (1998). These are, (a) a label which is conceptually meaningful and close to the data, (b) a definition of the descriptor and what it entails, (c) a description of when the category occurs by giving examples, (d) a description of anything that should be excluded; and examples, both positive and negative to reduce confusion. (see also Miles, Huberman and Saldaña, 2014). To ensure the inclusion of these five elements in the final QCARI, the sub categories or

descriptors were then added to each of the main categories, including a definition and examples to enable consistency of coding and decision rules. The literature sources, of each descriptor is noted in the QCARI and an explanation given to each one with an example. These descriptors are shown in appendix M and the final QCARI in appendix N.

Economic

- Economic performance
- Market presence
- Indirect economic impacts
- Procurement
- Decision making

Environment

- Natural limits
- Precautionary principle
- Biodiversity
- Product life cycle analysis/mgt
- Environmental technologies
- Materials
- Energy
- Water
- Emissions
- Effluent and waste
- Environmental values
- Risk

Social

- Labour practices
- Community /stakeholder relations
- Social justice/ethics
- Product social responsibility

Figure 11: Main categories within QCARI

3.8.3 Testing the QCARI

Categories provided by the literature (appendix L) resulted in some overlaps. For example, the GRI covers materials in terms of materials ‘quantity used and recycled’ including the use of non-renewable materials. Materials are also covered by Starik and Rands (1995, p. 917), in that ESOs must have procurement, manufacturing and distribution processes designed to maximise material conservation and minimise product outputs that are harmful to the environment. Such overlaps were removed and the category ‘materials’ in this case would have one category. The categories and subcategories were examined in detail to eliminate any possible overlaps. Decision rules were developed for each of the sub categories to guide the researcher. This adds to the reliability of the work as some parts of the text may fall into more than one category. Krippendorff (2013) surmises that decision schemes can reduce large numbers of alternatives and prevent unreliability due to overlap in the meanings of categories. A pilot test was conducted using the QCARI on five PDDs to see if the QCARI required any amendments and to ensure consistent replication of the process of identifying SD categories in each PDD. The pilot test highlighted a few instances where the text could be classified within more than one category. It was decided to amend the decision rules by adding additional descriptors to ensure that text could only be included in one category. Although sometimes this was an arbitrary decision, whichever category was most emphasised by the text was chosen as the most appropriate category (Hackston and Milne, 1996). Further, more word descriptors were added into the decision rules for ease of reference when coding the text, these were identified inductively from the text during the pilot test.

3.8.4 The coding process

NVivo was used for coding and analysis of both PDDs and interview transcripts. The main and subcategories of the QCARI were created in node hierarchies using both ‘parent’ and ‘child’ nodes. This enabled the coding of the relevant text into the various nodes (which acted as containers for the data) and for subsequent interpretation of the coded data. NVivo is a tool to support the analysis only, it cannot do the thinking and analysis for the researcher (O’Dwyer, 2008). Both sentences and paragraphs were used for processing the text. Whilst sentences alone can provide both reliable and meaningful data (Milne and Adler, 1999) in some instances the paragraphs were more useful for establishing meaning and making more complete inferences about which category the text belonged to (Guthrie and Abeysekera, 2006).

Within the coding nodes, it was easy to see both the number of PDDs coded at specific nodes as well as the actual text. The latter was needed primarily due to the qualitative nature of the research.

Classification sheets (with NVivo reports module) were created to identify the attributes (industry, organisational type, project type, ownership, and size) of the project developers. This enabled analysis by industry, organisational type and project type to see if these had any impact on what was being written and said about sustainable development. Figure 12 presents the organisational types, identifying whether the project developers are government linked (GLCs), publicly listed (public), subsidiaries of publicly listed companies (private subsidiaries) or private companies (private). The industry type and project types are shown in appendix K and table 5 respectively. Out of the total of 145 projects developed, 130 (90%) were by locally owned companies. The remainder were mainly developed by private subsidiaries of foreign parent companies.

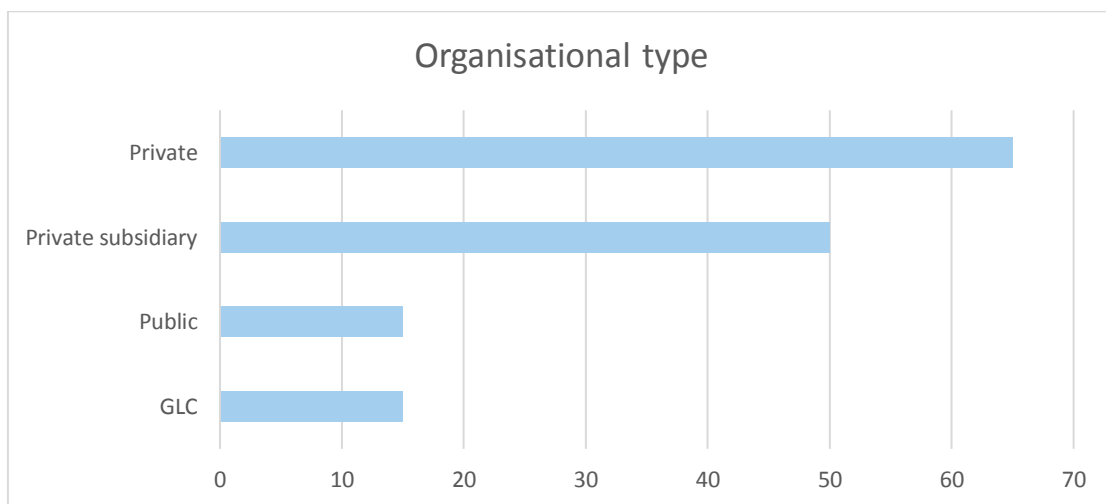


Figure 12 : Project developers by organisational type

3.8.5 Data analysis

Upon completion of the coding of the PDDs, a summary of the coding at the three main nodes of economic, environmental and social was made to reduce the data to *'permit a viewing of a full data set in the same location'* as suggested by Miles, Huberman and Saldaña, (2014, p. 108). Summarising the content analysis was necessary to reduce the data, this involved removing all passages that were repetitive, following Mayring (1983 in Flick 2014, p. 432). This provided a basis for further interrogation of the data by producing matrices. Data display via matrices is a systematic way to show data in a condensed form for the purposes of understanding (Miles, Huberman and Saldaña, 2014) and the data can be further manipulated

to produce visual aids. Coding enquiries were made to produce matrix reports per different attributes to see if there were any differences in the way sustainable development was written about and what aspects of SD were emphasised. The following reports were generated using NVivo;

Overall summary of coding incidences at nodes for each of economic, environment and social main nodes; summary of coded text for each node and matrix query reports by;

- a) Organisation type
- b) Industry
- c) Ownership (foreign or local)
- d) Project size
- e) Project type
- f) Literature source (UNGC, GRI, etc.)

This work was performed in late 2015 and revisited again in mid-2016. Revisiting the work ensured no changes were required to the coding categories (Richards, 2009) and to check for the reliability in consistency of judgement after a period of time (Boyatzis, 1998).

Krippendorff (2013) identifies this as ‘stability’ i.e. ensuring that the coding procedure yields the same results after re-testing.

3.8.6 Reliability and validity of the content analysis

Reliability and validity within qualitative research is a contentious issue as these are concepts aligned with more positivist or quantitative research, since the individual agency of the researcher is brought to bear on the interpretative work. Reliability within the qualitative content analysis is to ensure the ‘*study is consistent, reasonably stable over time and across methods*’ (Miles, Huberman and Saldaña, 2014 p. 312). Lincoln, Lynham and Guba (2011) identify reliability and validity as ‘trustworthiness and authenticity.’

The following features of this study demonstrate the reliability and validity of the research (Miles, Huberman and Saldaña, 2014). The research philosophy used in the study and researcher’s role has been explicitly stated at the beginning of this chapter. The development of the QCARI has connectedness to the prior research in sustainable development and business and within social and environmental accounting (Miles, Huberman and Saldaña, 2014; Boyatzis, 1998). Data was collected and analysed using different sources and methods of analysis. This enabled triangulation across data sources (both QCA and ITA of PDDs and

interviews), different business organisations and industries as well as methodological triangulation as qualitative content analysis and interpretative textual analysis were used. Given there is only one researcher, checking reliability across different coders is not possible. It was possible to check for consistent interpretation over time by revisiting original work carried out in 2015, nine months later. Consistency of judgement over time resulting in the same observations ensures ‘stability’ of the results (Boyatzis, 1998). A ‘reflexive accounting’ was undertaken periodically. The researcher is cognizant of the larger cultural and organisational contexts within which the research was carried out as well as the role played in data making (Flick, 2014; Richards, 2009).

3.8.7 Limitations of qualitative content analysis

Ensuring that the analysis instrument is an exhaustive representation of the sustainable development categories is a potential limitation. This was mitigated by sufficient research training, the use of a pilot sample and clearly specified decision rules to determine ‘what’ and ‘how’ to code (Vourvachis and Woodward, 2015; Guthrie *et al.*, 2004; Milne and Alder, 1999). QCA results in an element of subjectivity as the researcher determines what narrative is representative of ‘sustainability’ or ‘sustainable development’ (Guthrie and Abeysekera, 2006). Gray, Kouhy and Lavers (1995, p. 85) state:

“Ultimately the definitions must have a degree of our perceptions and predispositions in them- albeit shaped by our personal perceptions of how others reacted to our definitions.”

The interpretive nature of the research means the researcher is going behind the text to infer meaning, and is making the data rather than discovering the data, (Steenkamp and Northcott, 2007).

A further limitation specifically applicable to QCA is that the texts under analysis are fitted into a predefined set of categories which are useful for organizing the data but reduces the attention on other areas not within the categories (Silverman, 2006). To increase the trustworthiness of the research it is therefore required that the researcher demonstrates that the research has been systematically performed, any decisions made are transparently recorded and a reflexivity process is adopted to highlight the challenges encountered. These requirements have been dealt with in the preceding section.

3.9 Interpretive textual analysis (ITA) as research method

ITA is a form of discourse analysis comparable to meaning-oriented content analysis but with more criticality. ITA assumes language as constructivist. In this way, reality is constructed through language used and must be interpreted. Interpretation requires the researcher to consider how business organisations make use of language to create narratives of sustainable development. To place ITA within the epistemological continuum, Merkl-Davies, Brennan and Vourvachis (2014) provide a useful typology. The typology contrasts content analysis with discourse analysis in terms of (1) view of language, (2) the relationship between text and context and (3) the researcher stance. The typology finds interpretive narrative research (i.e. ITA) falling between qualitative content analysis and discourse analysis as it has elements of both (figure 13).

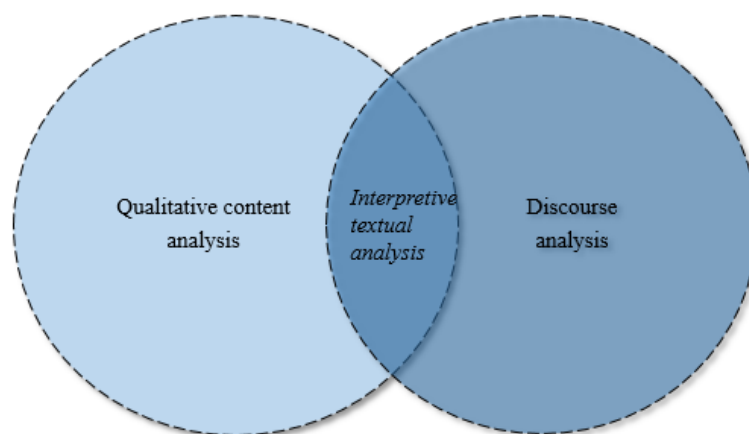


Figure 13: Positioning of interpretive textual analysis

ITA is aligned to discourse analysis since the method is used to identify the constructive effects of language. Following the ‘linguistic turn’ in the social sciences, language is no longer taken to be a mirror of reality but is essentially one of hidden meanings. Further, language used in social contexts creates a particular version of reality as it is “*active, processual and outcome oriented,*” (Alvesson and Karreman, 2000a, p. 142, see also Hines, 1988).

Discourse analysis is an ‘umbrella’ term for multiple definitions and approaches to analysing language (Merkl-Davies, Brennan and Vourvachis, 2014). Philips and Hardy (2002) categorise discourse analysis into two theoretical continuums, i.e. text versus context and critical studies versus social constructionist studies (see figure 14). Some research will

consider the texts within their local context, others will research the texts as part of a much broader social context, however this may not always be practical and the approach will be determined by researcher aims and motivations. Critical discourse analysis looks at the relationships between discourse, power and ideology (Fairclough, 2010; van Dijk, 2008; Wodak 2007;) as opposed to the social constructionist perspective which is less concerned with power dynamics.

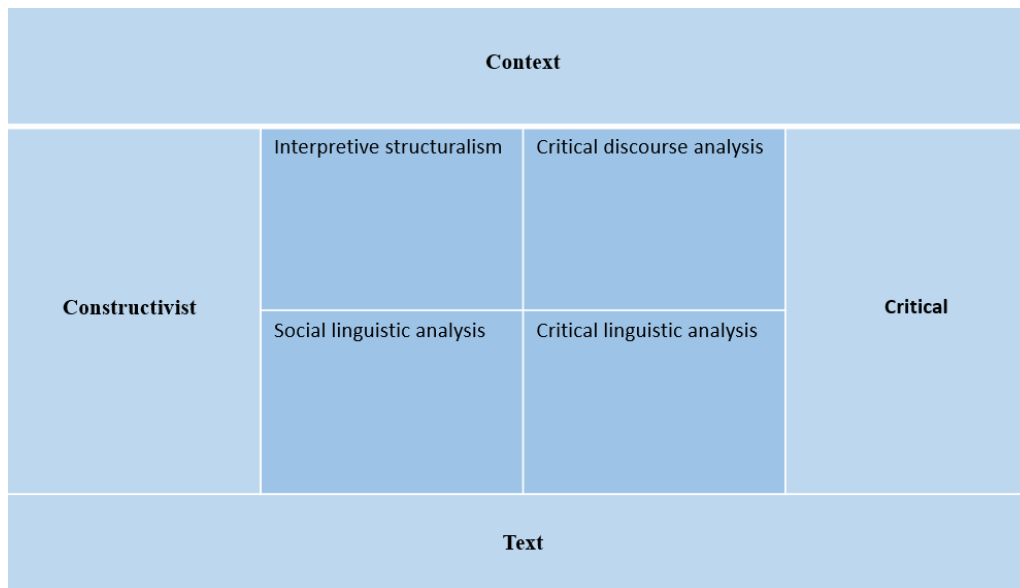


Figure 14: Discourse analytical approaches (Phillips and Hardy, 2002, p.20)

Within social and environmental /sustainability research a small but varied amount of research has been conducted using different forms of discourse analysis of corporate media (annual reports, chairman statements, sustainability reports). These include research based on Fairclough’s (1992) critical discourse analysis informed by a Foucauldian perspective (Laine, 2005; Livesey and Kearins, 2002; Livesey, 2002). Some researchers adopt Phillips and Hardy’s (2002) interpretive structuralist approach examining the social context and its supporting discourse, (Merkl-Davies and Koller, 2012; Beelitz and Merkl-Davies, 2012; Tregidga and Milne, 2006). Others used Thompson’s (1990) tripartite approach for studying symbolic constructions and modes of ideology (Tregidga, Milne and Lehman, 2012; Makela and Laine, 2011). Laine (2009) makes use of ITA to study the use of rhetoric with respect to the changing social and institutional context of the company analysed and to ‘*identify patterns, exceptions, similarities and possible omissions over time and between organisations,*’ (Laine, 2010, p.252).

ITA is the research method used within this study and involves a ‘close reading’ of the texts involving many rounds of reading. Close reading is ‘*the mindful disciplined reading of an object with a view to deeper understanding of its meaning,*’ (Brummett, 2010 p.3). Close reading has been used in the analysis of corporate reports (Laine, 2010; Tregidga and Milne, 2006; Craig, Garrott and Amernic, 2001; Amernic, 1998; Thomas, 1997), CEO public utterances (Amernic and Craig, 2001, 2013) and internal employee newsletters (Craig and Amernic, 2004) to highlight the narratives and discursive strategies used by business organisations, including rhetoric, metaphor and argumentation.

The ITA approach involves a circular sense making process requiring many rounds of reading of the texts. Each round involves interpretations regarding different discursive aspects such as metaphor, rhetoric within the text as well as attention to the wider social context within which the text was produced. Therefore, reflexivity is an important aspect of the research approach. Covalleski and Dirsmith (1990) opine that the researcher must probe their own assumptions about their research process and be aware of the values and perspectives brought to the process of understanding different social contexts.

3.9.1 Interpretative textual analysis in the study

The approach used in this study draws on the work of Philips and Hardy (2002), and Fairclough (1992) and has been used by other SEA researchers to analyse mainly annual reports (Merkl-Davies and Koller, 2012; Makela and Laine, 2011; Tregidga and Milne, 2006; Laine, 2005). The approach used is only a form of discourse analysis as it does not deal with the texts in terms of in-depth analysis such as the syntactic or semiotic analysis that is found in mainstream discourse analysis (Van Dijk 2011; Wodak and Meyer, 2009; Fairclough, 1992) but applies a much broader approach in examining how SD is written about in the context of the CDM. The rationale for using interpretive textual analysis was to augment the qualitative content analysis, the latter being a deductive process. The ITA was an inductive process going from the texts themselves to go behind the words to see the broader underlying meanings and a broader social reality of sustainable development within the CDM process. Rather than adopt a highly critical stance the research is more interested in developing an understanding of constructive processes and how something like SD is “*created, reified and taken for granted and comes to constitute reality,*” (Phillips and Hardy, 2002, p. 21).

3.9.2 Population and sample

The same documents were used for the interpretive textual analysis that had been used for the qualitative content analysis (QCA). This was the PDDs for the 145 projects. The first round of ITA was carried out when coding was completed for QCA as the same data was being used. The coding process and taking of memos at the same time allowed for an initial understanding of the texts.

3.9.3 The interpretive textual analysis process

There is no specified approach to analysing textual data, however Easterby-Smith, Thorpe and Jackson's (2015) seven step approach to framing and interpreting qualitative data was informative and loosely followed. The stages are, familiarisation with data, reflection on data, open coding, conceptualisation, focused re-coding, linking between key categories and concepts and finally re-evaluation of overall analysis. To proceed with the ITA, it was necessary to have as a starting point, an understanding of the topic or theme at hand, in this case sustainable development, (Wodak and Meyer, 2009). The understanding came from the literature review on business organisational conceptual views of sustainable development such as 'business as usual', SD as CSR and ecological modernisation. The literature review also provided the social and political context for the study. Further, the textual analysis was driven by the research questions in chapter one and the actual steps involved are set out in section 3.9.4.

The main challenge was in deciding the process to follow in analysing the texts as in any form of interpretive textual analysis there is no clear agreement as to what exactly should be done (Merkl-Davies, Brennan and Vourvachis, 2014; Philips and Hardy, 2002). Although this lack of standardisation provides room for creativity (Phillips and Hardy, 2002) it can lead to criticism regarding the lack of rigour. Philips and Hardy (2002, p. 74) state:

“as a result, researchers need to develop an approach that makes sense in light of their particular study and establish a set of arguments to justify the particular approach they adopt.”

Potter and Wetherall (1994) assert that reading other discourse studies help to develop the process and provide insights for researchers to use when developing their own approaches. Accordingly, the researcher completed a concise but focused review of SEA research which has used different discourse analysis approaches for texts. This literature was discussed earlier

in this section and an overview is presented in appendix O. The overview sets out the research objects, the discourse analytic approach and the steps used. The research papers consider annual or sustainability reports from western countries, except for one that looks at a chairman's statement. However, they vary in terms of the analysis process used and how this contributes to an understanding of how sustainable development is interpreted and constructed. It was decided to use an analytical method in keeping with the interpretive textual analysis of Laine (2009, 2010) and the close reading of Amernic and Craig (2013). The main reason for this is that the aim of the research is not to analyse broader social discourse surrounding climate change and sustainable development but to focus primarily on the texts. However, it is recognised that discourse analysis techniques play a role in the shaping of the approach.

3.9.4 Documentary analysis

The ITA analysis involved four main steps which are now discussed. The first involved developing an understanding of sustainable development and the CDM within a global and Malaysian context. This understanding was gained from the literature review and from the interviews which also helped to understand the conditions under which the PDDs were produced, distributed and consumed (Laine 2006, 2009; Ferguson, 2007; Livesey and Kearins, 2002; Fairclough, 1992). Secondly, the relevant SD extracts have been coded while performing the qualitative content analysis, so these were available for rereading. To ensure that these extracts were read within context, the PDD extracts were reread in the original PDF format uploaded on NVivo and notes made on an excel spreadsheet. Themes were identified inductively coming from the text and noted on the spreadsheet. Thirdly, another round of more critical reading or sceptical reading (Gill, 2000) was made to identify more specific features of the text. Guiding questions were used in this round of reading, many of these were drawn from the literature in appendix O. What concept of SD is being used? Are there dominant themes identifiable within what is written or said? Are there positive and negative references (evaluative) to SD? Are there any obvious omissions, absences or silences related to SD? What are the similarities and differences? Is there any use of figurative language such as trope or metaphor? Are there any other grammatical devices in use? Any 'taken for granted' or self-evident 'truth' or use of authoritative knowledge? Lastly, this process was iterative going to and from the questions and the PDDs. Initial work was started on the analysis in November 2015 and they were revisited again in September 2016. The process of

condensation, data display and the drawing of conclusions was an evolving iterative process rather than a sequential one (Miles, Huberman and Saldaña, 2014).

3.9.5 Limitations of interpretive textual analysis

The key limitations are linked to the subjectivity of the method and hence the reliability of the findings. In common with other discourse analytical methods, ITA has no ‘standardised’ approach to analysis unlike quantitative research approaches or even the more systematic content analysis. Therefore, the researcher should create and justify an approach appropriate to the texts and context to explicate the underlying meanings, which can lead to criticism of lack of methodological rigour (Phillips and Hardy, 2002). However, ITA has been used in the SEA literature as discussed earlier in this section so there is a basis for using this method (Armenic and Craig, 2013; Laine, 2009, 2010; Tregidga and Milne, 2006). Further, the various framings of SD have been explored in the literature and this chapter clearly sets out the systematic and iterative process followed in making sense of and analysing the data (Flick, 2014).

The process of interpretation is a form of construction and therefore, the study will be one interpretation or a partial representation of texts that may have multiple meanings. Another researcher may interpret the texts differently as there is no singular ‘truth.’ However, this does not mean that different interpretations would be equally valid or likely. Using Eco (1990), Heracleous (2004, p. 176) writes:

“textual interpretation can be informed, limited or constrained by such features as the semantic meaning of the words used, the internal coherence of the text, its cultural context, as well as the interpreter’s own frame of reference.”

If insufficient attention is given to the production and reception of the texts as well as the context within which they are produced or read by the recipients there is a risk of ‘fallacy of internalism,’ (Ferguson, 2007). Although, Gallhofer, Haslam and Roper, 2007 argue that covering the whole discursive chain from production to reception is often impossible. Due to resource and time constraints an in-depth study of the reception of the PDDs was not carried out only as far as asking the producers (project developers) their opinions on the usefulness of PDDs to readers.

Another limitation is the motivation of the researcher as their personal position may bias the findings. Therefore, it is important to clearly explicate the researcher's position at the beginning, of the research. There is a need to:

“briefly articulate our own values and beliefs in regard to our subject matter since this too forms the lens through which we frame, interpret and contest...”

the texts under study (Milne, Tregidga and Walton, 2009, p. 1224). The ontological and epistemological assumptions of the study have been set out in this chapter as well as the research methods followed. The motivations for the study are also clearly explicated and the researcher's values and beliefs are aligned with a 'sustaincentrism' conception of sustainable development and the need to reduce the impact of human activity on ecological systems. The researcher has not sought to bias the reading or analysis of the texts and interviews but is aware of how personal position is shaped by a variety of factors including background and the education one has been exposed to.

Finally, questions of rigour versus significance may arise in this type of interpretive research as deliberating over the details of the texts may be at the expense of considering the broader social context. Alvesson and Karreman (2000a) refer to this as the 'trap of linguistic reductionism,' (p. 1145). In the study, the review of the sustainable development and climate change literature assisted in identifying their broader discourses and the political and institutional factors at play.

3.10 Semi structured interviews

The study makes use of semi-structured interviews. A semi-structured interview may be defined as

“an interview with the purposes of obtaining descriptions of the life world of the interviewee with respect to interpreting the meaning of the described phenomena,”
(Kvale, 2007, p. 8).

Although the interviewer has a set of loosely predetermined questions the interviewer may go beyond the predetermined questions and probe further, based on the responses of the interviewee (Berg, 2009). Interviews are an example of spoken accounts and can open areas for further investigation and questioning, which is more difficult with written discourse. The interview makes it possible to tease out hidden issues or ask for clarification especially when

there is ambiguity (Marginson, 2004). In addition, semi structured interviews provide access to the views and motivations of the actors involved in any discourse and provide an understanding of more complex aspects (Moll, Major and Hoque, 2006; Horton, Macve and Struyven, 2004). Within SEA, interviews have been used in many studies to obtain an understanding of how various actors (directors, managers, employees, etc.) engage with and communicate sustainability, sustainable development or environmental and social issues within their organisations (Ascui and Lovell, 2012; Bebbington, Higgins and Frame, 2009; Larrinaga- González and Pérez-Chamorro, 2008; Spence, 2007; Laine *et al.*, 2007; O'Dwyer, Unerman and Bradley, 2005; Ball, Campbell and Lehman, 2005).

In the study, semi-structured interviews are used to obtain the views of the project developers. In this instance interviews helped to '*elucidate the understandings of those who produce and transmit messages,*' (Llewlynn and Milne, 2007, p. 811) and interviewees were more likely to express their viewpoints and give fuller responses than in a more structured interview setting (Flick, 2014).

3.10.1 *The interviewees*

A total of 18 semi- structured interviews (refer to table 7) including two pilot interviews, were carried out with project developer companies before a point of saturation was reached (Kvale, 2007). Interviewees were mainly 'elite' personnel including chief executive officers (CEOs), directors and general managers of the target business organisations. Elite personnel are defined as those in senior management having a high status within the organisation, extensive industry experience and networks as well as considerable decision-making influence inside and outside the organisation (Flick, 2014; Harvey, 2011). It was considered that these interviewees would give depth and meaning to answering the research questions due to their positions in the organisations and role in the CDM projects.

PDDs obtained from the project search on the UNFCCC website included contact information of the project developers. This information was extracted and included on a spreadsheet. Information such as the industry, related companies and whether the developer was listed, private or a government linked company (GLC) was added as it was intended to see if these characteristics would have any impact on the interviewee perspectives. It was noted that some business organisations and groups of companies had developed more than one project, (FELDA Global Ventures Berhad, Sime Darby Berhad, Wilmar International), and the aim was to interview only one person per company or group if more than one contact person was given in the relevant PDDs.

Initially 20 potential interviewees were contacted via email. An information sheet (refer appendix P) was attached to each email giving a short resume of the researcher, the nature and purpose of the research and the areas to be addressed in the interviews. This gave the interviewees an opportunity to consider the interview areas before the interview. Only five agreed to an interview, six refused interviews for a variety of reasons including they felt the researcher should talk to the CDM consultants, they were doing joint projects with the government and claimed confidentiality issues, the remainder did not respond regardless of follow up emails.

The first two interviews were conducted as pilot interviews to ensure that the questions were understandable, open and flowed through and that there were no extraneous questions. It was discovered that a question relating to the Gold Standard within the CDM was not relevant as no CDM projects in Malaysia has gained the certification, so it was removed from the questions in the interview guide.

Due to the limited response from emailing potential interviews it was then decided to approach interviewees directly via telephone. The help of an assistant was sought to work through the list and make phone calls explaining the nature of the research and the background of the researcher. The information sheet was sent to those who agreed to an interview. Gaining access for the remaining 15 interviews was challenging and took place over a 22-month period. The researcher was clearly an 'outsider' to the network of CDM organisations and had to make use of a 'social' network to gain access to these individuals (Kriz *et al.*, 2002). In addition, elites have limited time available to engage in academic research which they may feel is of little value to them (Qu and Dumay, 2011).

| | Company | Industry type | CDM Project type | Position |
|----|---------------------------------|----------------------------------|---------------------------------|--|
| 1 | Malaysian PLC | Palm oil plantations and milling | Methane avoidance-composting | Managing Director |
| 2 | Malaysian PLC | Palm oil plantations and milling | Methane avoidance-waste water | Head of Sustainability |
| 3 | Malaysian PLC | Palm oil plantations and milling | Methane avoidance-waste water | General manager |
| 4 | Government linked company (GLC) | Palm oil plantations and milling | Methane avoidance-composting | Vice president (Sustainability and quality management) |
| 5 | Subsidiary of Malaysian PLC | Landfill management | Landfill gas – landfill power | General manager |
| 6 | Subsidiary of Malaysian PLC | Palm oil and Hoteliers | Biomass energy | Chief Executive Officer |
| 7 | Subsidiary of foreign PLC | Electronics manufacturing | Energy efficiency | General Manager |
| 8 | Private company | Palm oil plantations | Methane avoidance – waste water | Director |
| 9 | Private company | Rubber Thread Manufacturing | Methane avoidance-waste water | Managing Director |
| 10 | Private company | Palm oil milling | Methane avoidance-waste water | Project Director |
| 11 | Private company | Renewable energy | Landfill gas – landfill power | General Manager |
| 12 | Private company | Renewable energy | Biomass energy | Managing Director |
| 13 | Private company | Power generation | Biomass energy | Managing Director |
| 14 | Private company | Green technology | Methane avoidance - composting | Managing Director |
| 15 | Private company | Waste water management | Methane avoidance - composting | Managing Director |
| 16 | Private company | Renewable energy | Landfill gas - flaring | Head |
| 17 | Private company | Paper Manufacturer | Biomass energy | Director |
| 18 | Private company | Green technology | Methane avoidance – waste water | Director |

Table 7: Interviewees

3.10.2 *The interview guide*

The interview guide (appendix Q) was developed to ensure research questions for the semi structured interviews were answered and the same areas of inquiry were pursued with each interviewee although not necessarily in the same order or same depth for each interviewee. This depended on the direction of the interview. Each primary question was supported by probe questions (Flick, 2014). The research questions were designed to focus on the links between business organisations and responsibilities for sustainable development and climate change as well as the experiences and motivations for entering the CDM, and more specific questions about the preparation and usefulness of the PDDs. A copy of the interview guide is included in appendix Q. The interview guide was altered after the pilot interviews to remove questions regarding the Gold standard labelling process as it was not relevant to Malaysia. The guide ensured that the interview process was '*more systematic and comprehensive*' by setting boundaries for the areas to be explored (Patton, 2015 p. 439). Each interviewee received the interview guide at least a few days to a week before the interview.

3.10.3 *Conducting and documenting the interviews*

Most of the interviews were conducted in the offices or meeting rooms at the corporate addresses. However, one interview was conducted in a hotel, and two in a restaurant due to the interviewees travelling from north Malaysia and Borneo. It was decided to have face to face interviews with all interviewees as a way of building trust. Although all interviewees were well qualified and could speak English fluently, face to face interviews were also considered useful to observe the interviewees to gauge non-verbal messages, sensitive issues (if any) and the nuances of the interview interaction (Patton, 2015). An internet search on the interviewees was conducted to determine their professional backgrounds prior to the interviews. Before the interview commenced the interviewees were reminded that all information obtained would remain confidential. A request was made to record each interview. All interviewees agreed except for one for which notes were taken. Interviewees were also told that they could have a transcript of the interview upon request. The interviews lasted anywhere between 40 minutes to 110 minutes. The style of interview followed the 'responsive interview' (Rubin and Rubin, 2012) to draw from and 'develop a fuller picture' from the interviewees. Therefore, the aim was to encourage interviewees to do most of the talking. The interview guide was flexible enough to allow for spontaneous questions or further probing. Many of the interviewees said the researcher could contact them if any further information was needed. Notes were taken during and after the individual interviews

to record initial impressions or make note of specific issues raised in the interviews which were of interest for the analysis. Interviews were transcribed using Microsoft word for further analysis.

3.10.4 Analysis of interviews

As discussed under the ITA of documents, there is no prescribed interpretive method to transform qualitative data into findings (Patton, 2015) although similar steps were taken for the interviews, loosely following the seven-step approach by Easterby-Smith, Thorpe and Jackson (2015) as an iterative process. The objectives were still to condense the data, display the data through the findings and conclude (Miles and Huberman, 2014). The analysis of interviews began before the actual transcription as notes were being made at the time of the interviews and after the interviews. The transcribed interviews were checked for accuracy by listening to the recordings and checking against the prepared transcripts. To become immersed in the interview data and reflect upon their meaning, another round of reading was completed. Notes were made on a spreadsheet documenting the overall impressions and patterns arising from the transcripts before detailed analysis was undertaken (Kvale, 2007). The transcripts were uploaded to NVivo 11 for analysis purposes. Using the software made it easier to keep the data organised and retrieve interview quotes related to specific codes. In addition, it aided comparison across interviews to see the similarities and dissimilarities. Initially interview transcripts were coded going from the transcripts to the existing codes in the QCARI. However, because the interview questions were focused more on interviewee's perspectives on responsibilities for sustainable development, motivations regarding the CDM and usefulness of PDDs, the QCARI was inadequate. Open coding was completed from the interview transcripts and open codes were created in NVivo 11 for each section of the transcript according to meaning. The coding was therefore both concept driven (based on the QCARI) and data driven (Kvale, 2007). Using the matrices report function on NVivo 11, a matrix was generated showing all the open codes coming from each interview. The number of incidences of each code in the matrices highlighted the areas of most emphasis. A total number of 66 codes was produced. To condense the coding to produce meaningful themes, connections between the codes were made considering their 'similarity' 'difference' 'frequency' and 'correspondence/causation' to develop 'core' codes or themes, using a colour coding system (Saldana, 2009). This resulted in 13 overall themes for which the underlying interview data was revisited and re-examined to identify the key patterns and 'story-line.' These are presented in figure 19. Bearing in mind the problem of selectivity (O'Dwyer, 2008),

not all the themes were used in the writing up (due to amount of data), only those that were most pronounced in the data, using the number of incidences as a guide. However, alternative, differing viewpoints were noted if they were not consistent with the overall patterns in the transcripts. Illustrative quotes were easily accessible from the nodes in NVivo to explain the overall main final themes in the interviews.

3.10.5 Limitations of interviews

A prerequisite for any research method is the trustworthiness and authenticity (Lincoln, Lynham and Guba, 2011) of the data collected. Silverman (2006) provides a helpful summary of the positions along the positivist-constructionist divide regarding how interview data is treated. Positivists treat interviews akin to scientific statements independent of the researcher and research setting and assume the interview provides an exact reflection of reality based on standardised questions. Meanwhile, constructionists argue that interviews as being ‘constructed’ by the interviewee and interviewer. Therefore ‘facts’ or ‘truth’ cannot be discovered, as they are context specific and wholly dependent on the interview setting. However, following Miller and Glassner (2011, p.33), this study assumes that narrative based semi-structured interviews can provide access to realities. They write:

“while the interview is itself a symbolic interaction this does not discount the possibility that knowledge of the social world beyond the interaction can be obtained.”

Semi-structured interviews were used for several reasons. These include the need for some structure to obtain the views of important actors in the CDM project development and provided the flexibility accorded by semi structured interviews in probing for further answers. However, the limited time allocated by ‘elite’ interviewees and the possibility interviewees are not entirely forthcoming on matters which are considered ‘delicate’ could be considered a limitation (Flick, 2014). Further, due to the more interpretive nature of the research, interview responses allow readers to consider alternative interpretations (De Loo and Lowe, 2012). Alvesson (2003, p. 17) writes that interviews should be seen in their social context and not only as a way of collecting data. He writes that interviews are:

“a valid source of knowledge production, although it is indicated that social process and local conditions need to be appreciated and actively managed by the interviewer in order to accomplish valid results.”

Another critique of qualitative interviews is the inability to generalise the interview data primarily due to the small number of interviews. However, global generalisability is not a key aim of this research. Instead the question to be asked is whether the knowledge produced from such interviews can be applied in a similar situation using analytical generalisation which depends on high quality and ‘rich’ descriptions and the readers own reading of the findings (Kvale, 2007).

Due to the issues discussed above reflexivity is important in the interview process and the analysis of the interview data. Alvesson (2003) suggests a pragmatic reflexivity where the researcher considers alternative interpretations, avoids having a singular a priori interpretation and challenges their own views and understandings. Further, Kvale (2007) stresses the importance of producing high quality descriptions of the interviews process and outputs and ensuring ‘validation’. This can be done by questioning the interviewee for clarification and providing the interviewee with the interview transcript upon request as in this study.

3.11 Reflexivity

The interpretive nature of the research required an understanding of the different ‘framings’ of sustainable development to analyse the empirical data of PDDs and interviews. It was therefore necessary to reflect on these framings and the analysis within the research process from time to time acknowledging the element of subjectivity. This reflection

“is necessary because without such reflection the outcomes of the research process are regarded as "characteristics of objects," as "existing realities," despite their constructed nature that originates in the various choices and decisions researchers undertake during the process of researching,” (Mruck and Breuer, 2003).

The chapter highlighted how the concept of ‘sustainable development’ has been explicated in earlier chapters. The researcher’s own ontological and epistemological views and the rationale for the research methodology and how the data has been collected and analysed was covered in this chapter. The overall research approach was designed in a methodical way, however the impact of the researcher on various stages of the process must be acknowledged. The culture, social, professional and personal characteristics of the researcher can have an impact on what is experienced, interpreted and presented (Milne, Tregidga and Walton, 2009; Mruck and Breuer, 2003). Therefore, it is necessary to reiterate the researcher’s own position regarding the research matter so that the reader is aware of the lens through which the researcher is

reading, analysing and presenting the empirical data. The research is motivated by concern for the state of sustainable development in Malaysia and a desire to engage with business organisations to understand their conceptions of SD and how this might impact on implementation via the CDM. Both markets and business are promoted as the means by which sustainable development (including climate change) can be achieved. Drawing on the more interpretive research within SEA, the researcher views the current business models as insufficient to ensure the implementation of sustainable development.

3.12 Conclusion

This chapter has set out the research design for this project including the ontological and epistemological position of researcher and the research methods used. The research involves an examination of the written accounts (PDDs) and spoken accounts of CDM project developers to illuminate the SD narratives of these organisations. It is important to expose SD narratives because certain discourses used may result in ‘taken for granted’ solutions as certain ‘exclusionary systems’ are at play (Hajer, 1995). The ontological position of the researcher is largely constructionist and therefore it follows that both written accounts and spoken accounts are examined from an interpretive stance. The texts (PDDs) examined are giving an account of how projects are to be implemented to reduce climate change and benefit sustainable development. It is believed that interpretive readings of the texts and interviews can provide more meaningful and insightful ways of seeing and understanding the SD narratives at play. However, the research is also, to a lesser extent informed by the critical approach in order to discover what has not been said or if certain voices are suppressed.

It is acknowledged that the researcher is not simply a detached observer in the research process and therefore the research requires careful and continuous probing of the assumptions being made in the research process (Covaleski and Dirsmith, 1990). The researcher’s motivations are also made explicit in the chapter as well as the need for reflexivity particularly in the analysis process.

The methodology is primarily qualitative except to the extent a preliminary quantitative method (counting) was used in the content analysis in order to make sense of the data. The choice of research methods was influenced by the nature of the research area of sustainable development as the aim is to understand rather than explain. These methods can uncover valuable rich data, and are open to multiple interpretations. The use of three methods should help to enhance the ‘trustworthiness’ of the research (Guba and Lincoln, 1994) as it is a form of triangulation.

Finally, it is acknowledged that the lens through which the interpretation is carried out may be different for another researcher. Researchers are the:

“product of their own reading, upbringing and interactions, and will bring different frames and lens and consequently may make other interpretations,” (Milne, Tregidga and Walton, 2009, p. 1224).

Chapter 4: Findings I

4.1 Introduction

This chapter sets out the findings of the first part of the empirical work, i.e. the qualitative content analysis (QCA) of the project design documents (PDDs). The QCARI was developed based on the literature review and more specifically the literature as set out in appendix L. This literature reflects the various SD narratives identified in the management and SEA literature, ranging from ‘business as usual’ to ‘sustaincentrism.’ Therefore, the aim of the chapter is to illustrate how CDM business organisation conceptions of SD compare to these narratives and to what extent they reflect an SD discourse as defined in the Brundtland Report. The chapter begins in section 4.2 with an overview of the QCA findings, including commentary on the visual aspects of the PDDs and consideration of the major themes appearing, as well as the differences between industries and company types. Sections 4.3, 4.4 and 4.5 present the more detailed findings for each of the major elements of SD, i.e. economic, environmental and social. The chapter then concludes with an overall summary and preliminary conclusions.

4.2 Overview of the findings from QCARI

Preliminary work in respect of the PDDs, the development of the QCARI and how the research process is performed is described in the previous chapter. The QCARI acts as a heuristic to make inferences about the SD narrative in the PDDs in two ways. That is, by providing a guide to finding patterns and themes within the PDD content (Patton, 2015), and secondly, facilitating the condensation of the raw data into a manageable size for the purposes of analysis. To present the findings, the process suggested by Miles, Huberman and Saldaña, (2014) has been used. The process involves three steps, a) data condensation, b) data display and c) conclusion drawing. Coding using the QCARI is part of the data condensation process which enabled the retrieving of:

“the most meaningful material, to assemble into chunks of data that go together and to further condense the bulk into readily analysable units,” (Miles, Huberman and Saldaña, p. 73).

To present the findings of the full data set, visual displays are used as well as narrative to facilitate a comprehensive viewing of the data.

4.2.1 The PDD

The PDDs are considered as ‘the giving of an account’ to various stakeholders interested in the CDM process, (Gray, Owen and Adams, 2010; Buhr, 2001). The PDD communicates to the stakeholders the actions to be undertaken by CDM business organisations. Visually, the documents appeared technical in nature with narrative text, spreadsheets, location maps and tables outlining emissions calculations. Photographs of on-site technology and stakeholder meetings are included (Davison, 2014; Hopwood, 1996). The presentation and structure of the text suggests a technical medium of communication delivering facts in a systematic, objective and neutral manner, distanced from the social and political context of the climate change agenda (Hopwood and Miller, 1994). The PDDs content are managerialist in tone and involve the technically rational explanation of climate change solutions. This systematic process involves the identification of technology to reduce carbon emissions; the application of expertise via UNFCCC predetermined methodologies; the calculation of emissions reductions; cost benefit analyses and an appeal to the sustainable development benefits of each project. Little is mentioned of the negative aspects of the projects apart from minor issues such as dust or noise pollution issues. The PDDs are silent on the sustainable development impacts of the industries themselves, such as palm oil milling or cement manufacturing, both industries having a large impact on Malaysian biodiversity (Tan *et al.*, 2009).

4.2.2 Major sustainable development categories

Figure 15 provides a visual representation of the most frequently coded categories and their sources, across all the PDDs. Not all coding units are represented as they are not significant enough to appear. The more heavily coded a category, the larger the box. The environmental category represented more than two thirds of the coding, whereas social and economic represents approximately less than one third. The individual categories will be discussed in more detail in section 4.3.

There is a heavier emphasis on compliance with environmental legislation (under environmental values) as well as environmental management areas of emissions, energy, waste water and technology. The most frequently coded area under the social category is labour practices, more specifically, health and safety (H&S), training and development and employment opportunities. In addition, managing the impacts of the projects on the local community has considerable emphasis in the social category. The impacts included noise and dust pollution as well as odour and speeding vehicles. Contributions to the local community

in the form of new infrastructure such as schools, community parks, sports facilities and donations to local orphanages or elderly care homes were also covered. The approach to sustainable development is very much an environmental management approach. Over 23% (34) of the PDDs did not mention the terms ‘sustainability,’ ‘sustainable,’ nor ‘sustainable development’ although the requirement of the CDM process is to outline the sustainable development benefits. Many wrote about environmental impacts only.

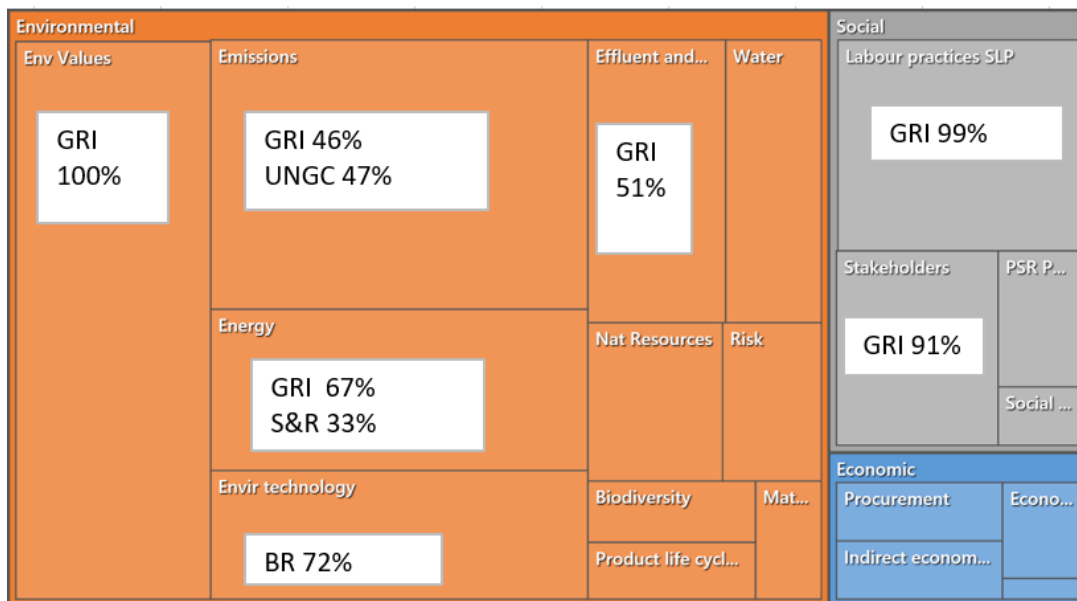


Figure 15: Most frequently coded categories and their source

In addition, figure 15 shows that CDM business organisations follow the ‘business case’ narrative of the GRI as it is the main coding source for many of the areas covered under SD in the PDDs.

The other two sources featuring prominently in the ‘energy’ category is Starik and Rands’ (1995) redesigning energy flows into closed loop systems and the Brundtland Report’s accumulation of knowledge and development of technological innovation to enhance the carrying capacity of the resource base. Both items are focused on an ecological modernisation approach to sustainable development which prioritises the use of innovative technology to increase resource productivity (Huber, 2008).

4.2.3 SD categories not appearing in PDDs

There were many coding units within the QCARI which were not addressed by the CDM business organisations. The QCARI contained 85 sustainable development items and 37 of these were not addressed in the PDD documents at all. The full summary is given in appendix R. A summary of the unmentioned categories is shown in table 8 and their respective literature source. It is noteworthy that over two thirds of the unmentioned units came from the main categories of social justice, ethics, community and stakeholders and labour rights.

| Category | Coding units not mentioned | Summary of items | Source(s) |
|--|----------------------------|--|-------------------------------------|
| Economic | | | |
| Economic decision making | 1 | Use of full cost accounting | Starik and Rands (1995) S&R |
| Market presence | 1 | Hiring of local management | GRI |
| Environment | | | |
| Environmental values | 1 | Political action to promote adoption of environmental laws | S&R |
| Environmental technology | 2 | Risks of technology | Gladwin, <i>et al</i> (1995) GKK |
| Natural resources | 2 | Limit and non-substitutability of natural capital | GKK/BR |
| Product life cycle | 2 | Sustainability in the supply chain | GRI/UNGC |
| Risk | 1 | Alignment core business activities with UN goals | UNGC |
| Water | 2 | Access to water and water foot printing | SSN/UNGC |
| Social | | | |
| Labour practices | 7 | Labour justice issues (forced labour, rights) embedding of sustainability principles into labour practices | GRI/UNGC S&R |
| Social justice and ethics | 12 | Population and consumption control; Eco justice issues, human rights, anti-corruption; | BR/GKK/GRI/ S&R/UNGC |
| Community and stakeholder (SH) relations | 6 | Communication and dialogue with and education of SHs/ Meeting needs of present without compromising needs of future generations | S&R/UNGC/BR/GKK |
| Total | 37 | | |

Table 8: QCARI items not mentioned by CDM business organisations

In addition, over half of the unmentioned categories were from academic sources, i.e. GKK and S&R. The former had focused on ‘sustaincentrism’ and the latter ‘ecologically sustainable organisations.’ Six of the 12 business organisations with the highest level of coding density were from the palm oil industry, the remaining business organisations were from rubber, fertiliser, boiler manufacturing, power generation and agri-business. Further, none of the CDM business organisations had more than half of the potential coding items from the QCARI in their PDDs.

4.2.4 Coding items according to company type

A total of 98 business organisations were involved in the CDM process as shown in table 9. A matrix query was run to identify potential differences in the sustainable development items recorded by the different company types. The company types were not equally represented in the overall population of PDDs. The weighting is taken into consideration when reviewing the output from the matrix query by comparing the percentage coverage of each coding item with the representation percentage in the population.

| Company type | No of business organisations by type | % PDDs produced by company type |
|---------------------------------|---|--|
| Public | 13 | 10 |
| Subsidiary of listed company | 41 | 34 |
| Private | 39 | 46 |
| Government linked company (GLC) | 5 | 10 |
| Total | 98 | 100 |

Table 9: CDM company type

For the purposes of the analysis, public listed business organisations and subsidiaries of public listed companies were treated as one category. Appendix S presents the 27 coding items (out of a possible 96) that were common to all types of company although some may have been mentioned by only one company within a type. The focus of all company types is on environmental coding items and more specifically with environmental management themes such as conservation and protection of the environment, waste, water, materials, energy and emissions management (Barrow, 2006). Based on this coverage, environmental management is a synonym for sustainable development for these business organisations (Montiel and Delgado-Ceballos, 2014). Attention is given to how emissions reduction projects can add

value in terms of the country's infrastructure investments and facilitate self-reliance instead of depending on imports. The focus here is on development with no mention of ecological limits to expanding development. Employment, provision of jobs and the usual CSR donations to the local communities for schools or community centres are the most prominent under the social category. Major issues associated with the protection of the indigenous, human rights, poverty, anti-corruption and the ecological footprints of industries such as palm oil plantations are unaddressed (Milne and Gray, 2013). The coding source for all three SD categories (economic, environmental and social) is predominantly the GRI, although code sources for the economic and environmental categories were from a wider range of sources. Depending on guidance from GRI results in the 'business case' for SD and as Milne and Gray, (2013, p. 20) opine that GRI provides "*empty signifiers never grounding the notions in any social or ecological reality*" and are unlikely to deliver sustainable development. To gain insight into the potential differences between company types, only the top 10 coding items for each company type were identified and compared. It was noted that the top four coding items for the different company types were consistent although they were not in the same order. These four items were *compliance with environmental regulations, cleaner and safer production, reduction of emissions and indirect emissions* and *energy consumption leaves environmental footprint*. The items were from the GRI except for cleaner and safer production (UNGC). These are regarded as essential aspects of sustainable development for all company types. Meeting the basic requirements of Malaysian environmental legislation and the focus on end of pipe solutions to production, is in line with the 'business case' or a managerialist view of sustainable development (Gray, Adams and Owen, 2014; Levy, Brown and De Jong, 2010). The remaining coding items in the top ten varied across the different company types with some coding items not shared by all company types as discussed in the next section.

4.2.5 Coding items unique to each company type

Coding items in the top ten, unique to each company type are set out in table 10. Public listed companies and their subsidiaries included the increase in self-reliance by reducing both fossil fuel and chemical fertiliser imports. Most of these business organisations were in the palm oil industry and identified the use of biomass as called for in the country's Fifth Fuel Diversification Policy on renewable energy, as an important SD contribution. (Maulud and Saidi, 2012). The diversification policy allows for tax breaks for the first 5-10 years if business organisations are involved in timber and palm oil biomass projects.

Maintaining and improving human capital through training relates to technical training of employees to use equipment on the carbon emissions reduction projects. However, in many instances this training is presented as a benefit to the employees and even as a contribution to social sustainability.

| Company type | Coding item in top ten unique to this company type | Source |
|---|--|--------|
| <i>Public companies and public company subsidiaries</i> | | |
| Economic - Procurement | Reduction in imports to increase self-reliance | GRI |
| Environmental - Values | National Fuel Diversification Policy | GRI |
| Environment – Effluent & waste | Reduce, reuse and recycle | UNGC |
| Social - Labour practices | Maintain and improve human capital, particularly through training that expands the knowledge base of employees | GRI |
| <i>Government linked companies</i> | | |
| Economic- indirect economic impacts | Significant infrastructure investment and services | GRI |
| Environment - Risks | Assess risks is crucial to implementing corporate sustainability successfully, decrease exposure to various risks and avoid costly damages | UNGC |
| Environment - water | Evaluation of water quality based on concentration of pollutants or effluents in water | SSN |
| <i>Private companies</i> | | |
| Environment – technology | Reorientation of technology through innovation | BR |
| Environment – water | Improvements in water management | BR |

Table 10 : Top 10 coding items unique to each company type

For example, a company owned by a foreign diversified conglomerate claims:

“The technical skills of the local workforce will be improved, increasing the capacity and knowledge base of the community and thereby contributing to the social sustainability of the country,” (Sapi Plantations Sdn Bhd, 7587, p.5).

However, the contribution to social sustainability would probably be negligible as only ten

local employees were involved in the project as documented in the stakeholder questions and answers.

It is noteworthy that the GLCs top coded items are consistent with those of private industry. GLCs are expected to contribute to the country's various economic and social goals under the New Economic Policy (Lau and Tong, 2008). However, it is not clear how GLCs are to balance both economic and social goals. The Malaysian government's Silverbook requires that:

“GLCs should proactively contribute to society in ways that create value for their shareholders as well as other key stakeholders,” (PCG, 2005 p).

It is not clear how GLCs are to balance the needs of all stakeholders as there is an apparent conflict between creating value for shareholders and creating value for society. In the PDDs, the GLCs are focused on economic development via significant infrastructure investment. In addition, the GLCs are adopting a traditional narrow approach to risk referring to environmental and safety risks such as leakages of methane or biogas whereas the UNGC requires a more global approach to risks associated with climate change and food and water security. Water quality is of concern to palm oil related GLCs due to the impact of palm oil mill effluent on waterways and water is one of the six areas of focus for the Ministry of Natural Resources and the Environment (MNRE, 2016).

Private companies were primarily concerned with the SD contributions of improving existing technology and transference of new technology from overseas. SD would come about due to technology that is 'an innovative breakthrough,' 'cleaner,' 'an improvement' on existing technology, and 'a first of its kind.' This technological optimism extends to extensive proliferation (Huber, 2008) as seen in this quote from a timber company saying the project:

“will act as a clean technology demonstration project encouraging development of biomass and biogas facilities throughout Malaysia which could be replicated across the region,” (Tian Siang Fiber Industries Sdn Bhd, 3379, p.4).

How this replication would take place is not exactly clear, without some incentive to do so. Improvements in water management (related to palm oil effluent and fertiliser run-off) was also of concern to private companies. Water pollution is a serious issue in Malaysia with a steady decline in water quality despite inspection, licencing and enforcement by the Department of Environment (DOE) (Afroz *et al.*, 2014). Therefore, DOE minimum requirements were a priority for private companies as they may not have the economic

resources to upgrade their plants (Muyibi, Ambali and Eissa, 2008). This is in keeping with the overall finding that compliance with environmental legislation appears to be a priority for all types of CDM business organisations.

4.2.6 Coding items according to industry

There is a total of 24 Malaysian industries involved in the CDM projects in Malaysia, the top five industries undertook over 75% of the CDM projects. (Refer to appendix K for industry types). These five industries include palm oil and related activities, agribusiness, diversified conglomerates, rubber and related activities and waste management. The remaining 19 industries include different types of manufacturing, power generation, construction and biotechnology.

All industries refer to compliance with environmental law, and for many of the industries this coding item has the most incidences. The primary focus is whether an Environmental Impact Assessment (EIA) is necessary under the Environmental Quality Act 1987 for the CDM project activity. Some industries referred to compliance with other various pieces of environmental legislation such as the Clean Air Act 1978, the National Water Quality

| Coding item | Source | No of industries |
|--|---------------|-------------------------|
| <i>Environment</i> | | |
| <i>Environmental values</i> Compliance with environmental laws | GRI | 24 (100%) |
| <i>Energy</i> | | |
| Energy consumption leaves environmental footprint | GRI | 18 (75%) |
| <i>Emissions</i> | | |
| Reduction of direct and indirect emissions from operations inside and outside the organisation including upstream and downstream emissions | GRI | 15 (63%) |
| <i>Cleaner and safer production</i> | | |
| <i>Environmental technology</i> Reorientation of technology through innovation | UNGC | 13 (54%) |
| | BR | 12 (50%) |
| <i>Social</i> | | |
| <i>Labour practices</i> Demonstrate how the organisation contributes to the economic wellbeing of employees in significant locations | GRI | 13 (54%) |

Table 11: Top coding items by industries

Standards and the Environmental Quality (Sewage and Industrial Effluents) Regulations 1979. Table 11 illustrates the nature of coding items that received mention by half or more of the 24 Malaysian industries involved in the CDM mechanism. Over half the industries referred to the country's National Sustainability Policy as outlined in the Ninth Malaysian plan under environmental values. The policy focuses on reducing emissions, improving air and water quality, management of solid waste and conservation of natural habitats. The industries have a narrow environmental management focus on issues related to production processes. They are silent on the greater impact on the environment of the industries themselves, particularly the palm oil, rubber, agribusiness and manufacturing industries. Further, the biggest influence on how industries write about sustainable development is the GRI. The narrow focus could be due to the high number of private small medium industries (almost half) involved in the CDM as they do not have the necessary accounting and environmental systems in place to know their environmental impact and are more concerned with cost savings in the production process (Özbirecikli, 2007).

The various industries prioritise labour practices within the social category, above other categories of community and stakeholder relations, social justice and product responsibility. The company- employee relationship and the financial benefits for employees were the most frequently mentioned as SD benefits, although economic benefits to employees is not necessarily a good indicator of the well-being of employees (Gray, Adams and Owen, 2014). Wider labour issues such as freedom of association, child labour, discrimination, equality, availability of grievance mechanisms receives no attention in the PDDs, although some of these issues are prevalent in Malaysia (International Labour Organisation, 2016). Although many of the industries involved in the CDM employ foreign workers only two project developers mentioned this but not in the context of SD (2594 and 2132). The references are to the immigration regulations, health checks and movement of labour. Notably there is a disparity between labour rights for immigrant and Malaysian labour which has implications for SD (Devadason and Meng, 2014) but the PDDs are silent on this aspect.

4.2.7 Coding unique to individual industry/company type

Although all industries appeared to prioritise codes from the GRI there are only two industries that have codes unique to them from other sources. These are presented in table 12.

| Coding item | Source | Industry |
|---|---------------|--------------------------|
| Environmental <i>Natural resources</i> Maximise sustainable yields from natural resources | BR | Diversified conglomerate |
| Social <i>Social justice/ethics</i> Access to essential services (water, health, education, energy facilities) as in indicator of social sustainability measured by the number of additional people gaining access in comparison with before | SSN | |
| Environment <i>Product life cycle</i> Research and development and administrative processes will facilitate the development or redesign of goods and services that will have sustainable use and disposal/recycling characteristics | S&R | Biotechnology |
| <i>Water</i> Evaluation of water quality based on the concentration of main pollutants or effluents in the water | SSN | |

Table 12 : Coding items unique to single industries

It was decided to examine the available websites of the individual business organisations to determine if there was any more information as to why these specific coding items were unique. It was noted that the diversified conglomerate, a timber and oil plantations group (Subur Tiasa Group, 2017) focused on community development and sustainable forestry management practices. The conglomerate’s palm oil plantations have been operating for over 10 years but there was little mention of the sustainable development impact of timber or palm oil except for defensive statements supporting the industry:

“Contrary to myths claiming that oil palm plantation activity is a major contributor to global warming and deforestation, findings by Reinhardt from Institute for Energy and Environmental Research has shown that palm oil produced least carbon dioxide compared to other vegetable oils, while Stern Report clarified that oil palm plantation activity accounts for only 20-30% of forest land cleared in Malaysia and Indonesia.”
 (Subur Tiasa Group, 2017).

In addition, per the company's website, the conglomerate develops indigenous communities by building roads, bridges and jetties, long houses, community centres, sports, medical and water supply facilities and centres of worship and provides education and employment. The focus on community development and sustainable forestry practices in the PDD deflects from the nature of the business organisation's activities of timber logging and palm oil planting. It is also noteworthy that this conglomerate has received negative comments from NGO's (Yong, 2010) about their treatment of Malaysian' indigenous and their native customary rights land (see also Straumann, 2014).

The biotechnology industry attempts to improve crop productivity, rehabilitation of land and bio remediation of waste using micro-organisms. The CDM developer identifies, isolates and propagates beneficial micro-organisms to produce bio fertiliser for agricultural purposes as well as bio waste remediation. Therefore, it is not surprising that research and development is of importance to this industry.

In summary, there appears to be no major difference in how different industries write about sustainable development. SD is characterised by an environmental management approach with emphasis on compliance with environmental legislation and 'end of pipe' production related issues such as emissions, clean and safe production and energy usage.

4.3 Major categories of the QCARI - Economic

The remainder of the chapter reviews the detailed findings for each of the major sub categories in the QCARI. Overall the emphasis on environmental issues is much higher than on the economic and social. Although there are significantly less economic related areas raised by CDM developers there are a few notable areas as discussed in sections 4.3.1 to 4.3.3. The key economic areas are economic performance, market presence, and indirect economic impacts, procurement and decision making. There is no mention of using full cost accounting mechanisms (S&R) nor the hiring of senior management locally (GRI). The latter may not be of direct relevance to the context of the CDM. The areas mentioned are discussed as follows.

4.3.1 Indirect economic impacts

Most of the references to the economic aspects of sustainable development are characterised by the indirect economic benefits to the development of the local economy. These include significant infrastructure investment and increased business opportunities for local suppliers

and stakeholders (consultants, bankers, contractors). Some business organisations claim an ‘economic spill over’ from the projects to the local community without specifying exactly what that entails. Other business organisations claim an increase in exports for the country and a benefit to the economy. However, these claims appeared to be merely ‘symbolic’ as no substantive information is given as to how exports would increase and by how much that increase would be (Ashforth and Gibbs, 1990).

4.3.2 Procurement

Almost a third of the business organisations focus on the reduction of costs and foreign exchange risk exposure by procuring local products/services (e.g. biomass instead of coal, organic fertiliser instead of imported chemical fertiliser). However, the business organisations fail to link environmental or social sustainability issues to their supply chains except for one business organisation which states:

“The proposed project addressed the sustainability of the palm oil industry by improving the environmental impact of the supply chain. This project brings advantages to the palm oil industry, and to Malaysia, as more consumers are demanding for sustainable food production.” (Inno Integrasi Sdn Bhd, 1359, 2427).

Although the company mentions the environmental impact of the industry’s supply chain, sustaining the palm oil industry and improving its public image for marketing purposes, appears to be a priority, more so that the SD benefits.

4.3.3 Economic performance

Most CDM business organisations recognise the need to reduce energy use, increase the adaption of biogas technology and use bioorganic fertilisers to ‘contribute to sustainable development,’ and “enhance sustainable development.” However, the economy is prioritised, rather than ecological systems. Three business organisations refer to economic sustainability as earning “carbon credits income to enhance sustainable development.” How ‘carbon credits income’ would specifically enhance SD is not clear. The commensuration of CDM carbon credits and the underlying ecological issues surrounding SD is immanent in these statements (Ascuí and Lovell, 2011; Lohmann, 2010).

Reducing or saving costs featured prominently in the PDDs. For example, many of the palm oil business organisations recognise the need to have a closed loop system whereby palm oil biomass waste is reused on the plantations (Starik and Rands, 1995). However, the costs of

employing additional manpower made this an unattractive option. Economic returns and performance through new and improved efficiencies such as fuel and energy savings in their operations are also important.

4.3.4 Decision Making

The Brundtland report (UN, 1987, p. 65) advances interdependence of economic and ecological decision making to ensure that the wider impacts of decision making are considered. Only a few CDM business organisations referred to the need to consider both ecology and environment. One company wanted

“to be the number one glove manufacturer and to be recognised as a caring company to the community and the environment,” (Hartalega Sdn Bhd, 1186, p. 91).

However, SD is equated with the business organisation’s CSR activities which includes the building of recreation centres, sports activities and giving donations, rather than any full accounting for the ecological impacts of its rubber manufacturing facilities. The company’s CDM project involved combusting palm oil biomass to generate energy and building 3 waste water plants to ensure waste water from the factories satisfy the DOE’s requirements. Engaging in corporate social responsibility initiatives and complying with environmental legislation is unlikely to deliver the sustainable development as envisioned in the Brundtland Report (Milne and Gray, 2013).

Another business organisation recognises the two-fold aspects of decision making around energy security and environmental concerns and states:

“Under the circumstances of recent remarkable rise in crude oil price and insufficient supply of natural gases, energy security is always a major concern for a country like Malaysia whose economy is growing very fast. And now, the energy security also has to be concerned along with the environmental issues,” (DENSO (Malaysia) Sdn Bhd, 1372, p.4).

However, the car parts manufacturing company does not elaborate on what environmental issues it should be ‘concerned’ about, except to write that the CDM project will conserve fossil fuels (through energy efficiency measures) and reduce pressure on electricity consumption and decrease GHG emissions.

4.4 Major categories of the QCARI - Environmental

The environmental categories received the most coverage by the CDM business organisations. The hierarchy chart in figure 16 gives a visual of the coverage based on the number of times the specific environmental items are mentioned.

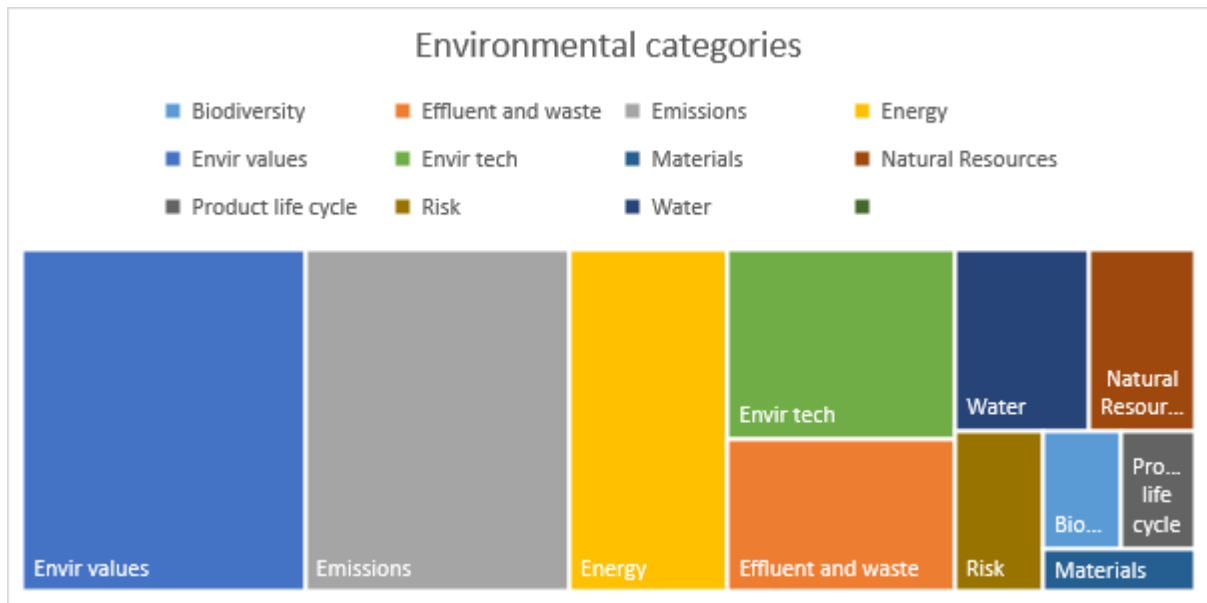


Figure 16: Environmental categories

Environmental values range from the basic compliance with laws (GRI) to a more proactive promotion of laws and policies to protect ecological systems, (Starik and Rands, 1995). The business organisations however, fall into the basic compliance with legislation, more specifically in pollution control. The emphasis on legislation and improvement in production processes is in line with ecological modernisation narratives (Huber, 2008; Dryzek, 2005; Starik and Rands 1995; Hajer, 1995) or the technocentrism of Gladwin, Kennelly and Krause, (1995). Ecological modernisation aims to decouple economic growth from the resulting ecological consequences using innovative technology (Huber, 2008). CDM projects, such as waste disposal, effluent treatment, reduction of emissions, and reduction of odour all involve the use of innovative technology to improve production processes. The ‘pollution prevention pays’ principle, a key feature of ecological modernisation (Dryzek, 2005) assumes that there is money to be made from these improvements. Nonetheless, the focus on emissions abatement projects which are the cheapest to implement is a feature of the Malaysian CDM (Narain and van ’t Veld, 2007) rather than any real restructuring of the existing production processes. This is consistent with Dahlmann, Brammer and Millington (2008) findings in UK business organisations, where environmental management practices are oriented to short term

cost saving usually around waste and energy use, rather than any proactive environmental management strategy. The following sections consider each environmental area separately.

4.4.1 Environmental values

The environmental values category consists of the minimum compliance with existing environmental legislation in the country as promoted by the GRI, to the more proactive promotion and implementation of ecologically sustainable principles, policies and practices advocated by Starik and Rands (1995).

Over 90% of the business organisations mention this category but concentrate on the basic environmental legislation compliance by indicating the various laws on environmental quality that had been complied with. Most of the projects did not require an EIA.

Approximately 44% of the business organisations specifically refer to the country's sustainable development policies as outlined in the government's Third Outline Perspective Plan (EPU 2001) and the country's Ninth Malaysian Development plan (EPU 2006). The former plan indicates:

“the Government will explore opportunities for multiple benefits, identify and implement measures that are prudent and cost effective, to move Malaysia towards a more sustainable and resilient future,” (EPU 2001, p. 28).

A significant sub set (34%) mention the government's Fifth Fuel Policy plan introduced in 2000 (Maulud and Saidi, 2012). These are CDM business organisations involved in renewable energy related projects. This policy targets 5% of the country's total energy usage coming from renewable energy such as landfill gas and biomass.

Whilst the business organisations appear to be mostly influenced by the external pressure of government policies and legislation, several palm oil business organisations referred to the overall principles, policies and practices of their industry. These principles derived from the Roundtable on Sustainable Palm Oil (RSPO) in respect of waste management, energy efficiency and fossil fuel reduction. However, the business organisations appeared to be more interested in sustaining the palm oil industry through RSPO certification rather than the long-term viability and vitality of eco systems.

None of the business organisations mentioned Starik and Rands' (1995) promotion of law and regulations to raise environmental performance or promote the value of environmental protection and sustainable organisational performance. One large multinational cement

company highlighted in their PDDs, their global target to reduce CO² by 20% over a 10-year period and promote the CDM mechanism. However, the company (Lafarge Malayan Cement Berhad) only implemented two projects in the country although they have 4 plants and a nationwide network of facilities.

Generally, the overarching approach of the CDM business organisations is to comply with relevant legislation and government policies rather than adopt the proactive approach of promoting environmental values and developing ecologically sensitive strategies and plans (Dahlmann, Brammer and Millington, 2008; Starik and Rands, 1995).

4.4.2 Biodiversity

Only 11 (11.2 %) business organisations referred to biodiversity issues. Restoration and remediation of habitats particularly around landfills and construction sites consistent with GRI requirements are the focus. Engagement with biodiversity effects was minimal. One power producer highlights the need to protect the marine environment from chlorination and water cooler discharge in its seawater intake facility. A GLC, concluded that tree felling for a hydro plant had minimal impact on the forest eco system:

“the area involved is also considerably small in relation to the surrounding forest areas but the surrounding forest areas are still big enough to sustain the animal diversity of the area,” (Tenaga Nasional Berhad, 7664, p. 48).

However, the hydro plant is located within a forest reserve in Cameron Highlands which is regarded as an environmentally sensitive water catchment area with rich flora and fauna (Gasim *et al.*, 2009). The PDD is silent on this aspect though it is stated that:

“Long-term impacts of the proposed project to forest ecosystems are to be monitored and addressed by the formulation of a monitoring system.” (p. 48).

However, this was a nebulous statement as no details were given as to what was to be monitored and how it would take place.

For some palm oil business organisations, Rhinoceros beetles were referred to as ‘pests’ in the plantations as they often damage the young palm trees, (PDDs 1186, 1198, 2429 and 5390). The tension between an indigenous species known to feed on decaying plants (and provide an ecological service) and the introduced palm plants to the local eco system is obvious but this

biodiversity impact was not considered. Foster *et al.*, (2011) suggest that the impacts of changing the equilibrium of the biodiversity complexity can result in these issues.

4.4.3 Natural Resources

The overarching emphasis is on eco-efficiency, i.e. maximising sustainable yields by ensuring the most output from the least input of natural resources. Eco-efficiency aims to minimise the volume of throughput in production by using the environment efficiently (Bebbington, 2001). Sustainable development requires dematerialisation and redesign to best fit within ecological systems so as to be eco-effective and reduce the overall impact on the ecological limits (Milne and Gray, 2013; Gladwin, Kennelly and Krause, 1995), eco-efficiency fails to achieve this. The 17 business organisations (mostly in palm oil and agribusiness) refer to maximising sustainable yields referred to ‘fuel efficiency’, ‘efficient combustion,’ and ‘efficient use of fossil fuels,’ as a contribution to sustainable development. The composting of the palm oil industry’s empty fruit bunches (EFB) and palm oil mill effluent (POME) to produce organic fertiliser and methane for renewable energy is consistent with Starik and Rand’s (1995) ecological modernisation approach of eco-efficient resource use.

Some business organisations referred to enhancing and conserving natural resources.

Interestingly only palm oil business organisations mentioned as a sustainable development benefit the use of less land for their projects compared with existing land usage for Palm Oil Mill Effluent (POME) treatment. However, none specified the change in land usage in terms of hectares. It is not clear whether the desire to reduce land usage is more to do with the cost per hectare of land rather than a desire to conserve natural resources.

Renewable energy business organisations identify the sustainable development benefits of mini hydro projects. One mentions the conservation of natural resources and states that there is:

“no negative environmental impact because it relies on existing river release and it does not involve any tree cutting or any submersion,” (IS Technologies Sdn Bhd, 4906, p. 3).

which presupposes that mini hydro plants are environmentally benign. However, mini hydro plants are likely to have impacts from construction activity, changes in water quality and disruption to the river eco system (Abbasi and Abbasi, 2011). Another company states that the mini hydro project will result in the ‘*conservation of natural resources,*’ (Pekasa Technologies Sdn Bhd, 6910, p. 4) without specifying how this will happen exactly. The same

company mentions that the development of an access road which involves less than 5 hectares of land will require the management to “*take all precautions to ensure minimal environmental impact.*” Finally, a GLC implementing a large hydroelectric project identifies the ecological impacts of the project as ‘*not alarming to warrant special measures,*’ and the ‘*surrounding forest areas are still big enough to sustain the animal diversity of the whole area,*’ downplaying the impact on the ecological systems (Tenaga Nasional Berhad, 7664, p. 48).

4.4.4 Product Life Cycle

Only a total of 8 (8%) of the business organisations referred to the product life cycle as an important component of implementing sustainable development. However, the environmental impacts of project activities are mostly referred to as negligible or positive such as in reduction of odour and reduced acid rain.

A few business organisations emphasised the need to maximise material and energy conservation and minimise harmful ecological impacts during the life cycle of their projects (Starik and Rands, 1995). However, improving the ecological impacts of the supply chain were directed at how it could benefit the industry rather than improve biodiversity impacts. For example, one business organisation writes:

“The proposed project addressed the sustainability of the palm oil industry by improving the environmental impact of the supply chain. This project brings advantages to the palm oil industry, and to Malaysia as a whole,” (Inno Integrasi Sdn Bhd, 1359, 58).

There are only four business organisations (all from the palm oil industry) who mention research and development to facilitate the design of goods that would have sustainable use such as organic versus chemical fertilisers for plantations. These business organisations refer to studies carried out by both the Malaysian Palm Oil Board (MPOB) and the Nigerian Institute for Oil Palm Research.

In summary, the emphasis on product life cycle is superficial and limited as most business organisations refer to the immediate environmental impacts but not the wider impacts of their projects over the life cycle (Frame and Cavanagh, 2009). Palm oil business organisations use EFB and POME as the source for the bio-organic fertilisers which are used on the plantations creating a closed-loop system to mimic ecological systems (Starik and Rands, 1995) which is an improvement to existing practices. Nonetheless, the PDDs are silent on the macro level

ecological impact of the continuing replacement of tropical forests for palm oil production and corresponding loss of important ecological systems (Reijnders and Huijbregts, 2008).

4.4.5 Environmental technology

Many business organisations (78 %) mention this category as a contribution to sustainable development, concentrating on reorienting, innovation and proliferation of environmental technology (United Nations, 1987). There is a high level of incidences in the PDDs in relation to improving eco-efficiency through the accumulation of technological knowledge. Increasing eco-efficiency of natural resource exploitation was directed as cost savings rather than enhancing the carrying capacity of the natural resource base as envisaged in the Brundtland Report (UN, 1987).

Several business organisations referred to the transfer of technology from other countries, and emphasised the importance of proliferation of the technology within their industry. These business organisations referred to their own projects as ‘demonstration projects’ ‘showcases’ ‘convincing models,’ ‘examples for similar businesses,’ having ‘good replication potential,’ ‘first of its kind,’ ‘pioneering example,’ for the purposes of this proliferation.

One CDM developer writes:

“The development of such a first of its kind project is certainly a pioneering effort in Malaysia as well as worldwide. The successful deployment of such technology will, in the long run benefit the industries and country as a whole,” (Eko Pulp and Paper Sdn Bhd, 4611, p. 4).

Principle 9 of the UNGC (UN, 2016), calls for the diffusion of environmentally friendly technology via industry partners to ensure the technology is available to others. How proliferation would take place is not specified by the Malaysian business organisations. Further, this support of the CDM appears to be lip-service, as no projects have been registered since 2013 in Malaysia due to the low value of CERs, meaning proliferation has not taken place due to economic reasons.

Finally, none of the business organisations mentioned the negatives of technology as identified by the Brundtland Report (UN, 1987) and Gladwin, Kennelly and Krause, (1995). It is noteworthy that very few of the CDM projects required an EIA, although Gladwin, Kennelly and Krause (1995, p. 893) following their ‘sustaincentrism’ approach advocate a “*stringent ecological, social and economic impact assessment*” of new technologies before their introduction to ensure no adverse impacts. The key project assessment concerns related

to the economic impact of projects using accounting tools such as net present value (NPV) and internal rate of return (IRR).

Therefore, the PDD discourse was one of technological optimism in solving environmental problems and nature is a resource to be used efficiently which aligns with ecological modernisation perspectives. Further, the technological ‘solutions’ are an attempt to decouple economic growth from the corresponding ecological damage and are presented as a contribution to sustainable development (Scerri and Holden, 2014; Dryzek, 2005; Everett and Neu, 2000).

4.4.6 Materials and Energy

For the purposes of discussion these two items are placed together in the same section as they are inputs to the production process. CDM business organisations identify the management of these two elements as a contribution to sustainable development.

To minimise the use of fossil fuels, energy consumption must be redesigned to maximise conservation and minimise ecologically harmful by-products (Starik and Rands, 1995, UN, 1987) and be replaced with renewable energy and closed loop systems such as the use of biomass or biogas. Approximately 60% of the CDM business organisations (in 77 PDDs), refer to energy consumption and the need to reduce dependence on fossil fuels and move to renewable energy, (UN, 1987). Reduction of fossil fuel energy use is either through introduction of new energy efficient equipment or the production of biogas from methane capture or biomass. Furthermore, 38% of the CDM business organisations are involved in redesigning their production process to replace existing practices with a closed loop system to derive energy flows from biomass or biogas.

For materials, CDM business organisations concentrated on the redesign of the production process to ensure efficient use of materials, and reduction or recycling of waste back into the production cycle. However, only the output side and not the procurement process is considered by these business organisations. For example, a waste water management company writes:

“the project is a co-composting project that will lead to sustainable development through conversion of a present waste product to a valuable fertilizer. The process is an environmentally sound and efficient use of POME in a composting process, which also improves the utilisation of the EFB,” (Brite Tech Ventures Sdn Bhd, 2494, p.4).

Overall, the key emphasis is on the end of the production process (i.e. output) rather than

material and energy use throughout the supply chains, from procurement, input, production and output (Hopwood, Unerman and Fries, 2010).

4.4.7 Water

One of the SDGs is to ensure access to clean water and sanitation for all, (United Nations, 2015a). The Brundtland Report (UN, 1987) and the UNGC (UN, 2016) focus on improvement in water management and water foot printing to identify water usage associated with the life cycle of products and services. Approximately 25% of the business organisations focused on improving water management by specifically managing waste water and reducing pollutants (chemical fertilisers) into rivers, aquifers and the water table. Only 6% mentioned recycling waste water in their production process and only 20% monitored water quality readings. Specific targets are not given by the business organisations, except three business organisations stated they would meet the prescribed water quality standards of the DOE. However, stronger sustainability activities such as the measuring of water consumption and water foot printing are not undertaken. The consumptive efficiency criteria of the GRI are not addressed (Moneva, Archel and Correa, 2006). Further, SSN's (2004) sustainable development criteria for water in CDM projects included the evaluation of access to water supply for people locally but this is not mentioned for any of the projects. The priority for water is on meeting the basic water quality requirements, rather than the overall supply chain effect or clean water access for the local communities.

4.4.8 Effluent and waste/emissions

As the primary objective of the CDM projects is to reduce carbon emissions it is expected that all business organisations would consider carbon emissions when writing about sustainable development. However, 16% of the business organisations (palm oil, manufacturing, healthcare, renewable energy, sawmilling) do not mention emissions reductions as a contribution to sustainable development specifically. Only a minor number of business organisations refer to indirect missions (those arising from outside the project boundaries) arising from transportation, electricity consumption and acid rain. However, indirect emissions were not included as they were deemed too difficult to quantify (e.g. Lafarge Malayan Cement Berhad, 247 p.10).

Approximately 60% of the business organisations highlighted the importance of cleaner and safer production (UN, 2016) with the main focus on reduction of harmful methane emissions and contamination of water ways. Odour and noise pollution also received significant

coverage. Around 48% of the CDM business organisations referred to waste disposal destinations for EFB, POME, methane gas and landfill leachate. The business organisations highlight the recycling of the wastes back into the production process or treatment before release to the environment to ensure no environmental damage.

Only 20% of the business organisations refer to the design of production processes to minimise the release of harmful by-products into the environment. However, the redesigns are mainly ‘end of pipe’ type solutions aligned with a more traditional command and control approach, rather than a total ‘life-cycle’ approach to ecological sustainability envisaged by Starik and Rands, (1995) but resembles Dryzek’s (2013, p. 173) EM discourse where “*nature is treated as a source or resources and as a recycler of pollutants.*”

4.4.9 Risk

Managing sustainability related risks (such as threats to security of supply chain, new environmental regulations, business disruptions due to climate change and so on) is an important part of sustainable development for business organisations (Hopwood, Unerman and Fries, 2010). The UNGC recommends that business organisations align their core business activities with UN goals and issues including sharing risks in tackling major issues of corruption, human rights, labour rights and climate change. Gladwin, Kennelly and Krause, (1995, p. 893) reiterate this position in relation to risk of irreversibly damaging ecological systems.

Surprisingly the business organisations are not concerned with climate change risks or other ecological risks and only mentioned specific production related risks such as leakages of biogas, explosions and soil erosion are mentioned but mainly regarded as ‘negligible’ or insignificant.

4.5 Major Categories of QCARI- Social

There are four main social categories and 42 sub categories within the QCARI. Figure 17 provides a visual of the coverage based on the number of times the specific social items are mentioned. How the CDM business organisations contribute to the economic wellbeing of employees is the dominant category, followed by managing impacts on stakeholders. It is noteworthy that the social justice and ethics category receives much less attention in the PDDs.

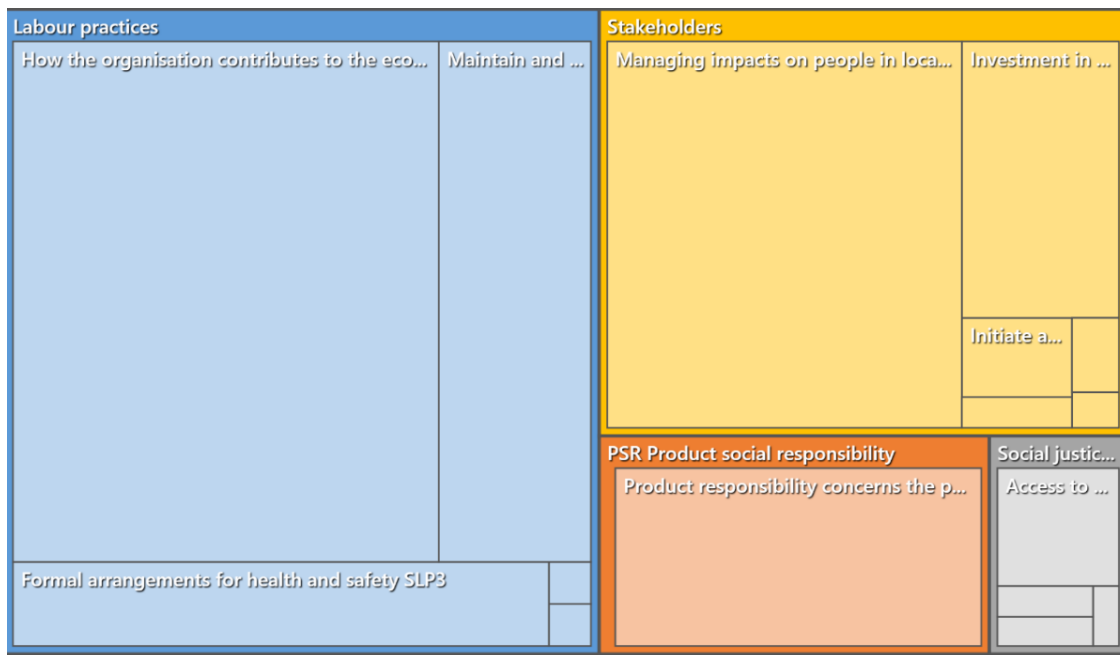


Figure 17: Social categories

4.5.1 Labour practices

There are 12 subcategories in the category of labour practices, however 9 of these are not written about in the PDDs (a summary is presented in appendix T). Business organisations concentrate on managerialist aspects of the relationship with employees, including economic wellbeing, human capital development and H&S. Job creation and long-term job security for the local community is mentioned by over 60% of the CDM developers.

Although job opportunities received the most attention, the actual number of jobs created is indicated by only 9 business organisations (17 PDDs). Jobs created per business organisation range from 6 to 80 job opportunities, the majority being in the 6-8 jobs per project category, a surprisingly small number. Only one company referred to prioritising local workers over foreign workers in their hiring process (Sarawak Power Generation Sdn Bhd, 2594).

Business organisations prioritised training, improving technological know-how, capacity building and upgrading technical skills of the staff within the maintaining and improving human capital category. Compliance with H&S requirements, improving the working conditions of employees (e.g. protective equipment, noise and odour levels) as well as medical checks is mentioned by 15% of the business organisations.

Although some of these business organisations employed immigrants and the indigenous nothing was written about discrimination, forced labour or the qualitative value of jobs offered. It is noteworthy that the potential significant environmental impact associated with foreign workers is that of communicable diseases requiring health screening. The working conditions and treatment of these workers on site, apart from the need to have provision of

proper sanitary facilities in accordance with the law is absent from the PDDs. Presenting migrant workers as competition to local workers or as a threat to society is a common occurrence in Malaysia (Razzaq, 2012).

In summary, business organisations cover the perfunctory managerialist or technical aspects of the employer-employee relationship, there being no mention of how for example sustainability values are communicated to employees or consideration of other social issues related to employees.

4.5.2 Community/stakeholder relations

Although there are 12 subcategories within community and stakeholder relations on the QCARI, CDM developers mentioned only 5 of them. Most incidences (39% of business organisations) related to identifying and managing impacts on people in local communities, (GRI). Comments are spread between ‘no impacts,’ ‘positive impact’ and ‘minor impacts.’ Minor impacts (40%) are noise, dust and odour because of project activities. Positive impacts (27%) are the benefits of the project activities such as the flaring of methane gas from landfills or the use of biomass for bio energy, whereas ‘no impacts (33%) arose due to the location within palm oil plantations or due to buffer zones between local communities and company activities. Approximately half of the business organisations that commented within this category made claims as to the benefits of their projects (e.g. health benefits, quality of life) to both the local and global communities. How projects would benefit the global community was not specified and appeared to be empty rhetoric. For example:

“This will be a benefit for both the global environment but also for the local environment where foul smell will be avoided,” (TSH Biogas Sdn Bhd, 2021 p. 95).

A small number of business organisations (15%) wrote about investing in the community through CSR activities including the construction of recreational parks, sponsorship of sporting events and donations to orphanages and nursing homes. Some of the funding was to come from the sale of carbon credits. Most of the business organisations wrote about how providing employment opportunities to the local community would contribute to the local economy and *“increase the livelihood of the people.”*

Only 5 business organisations mentioned involvement with environmental partnerships (Starik and Rands, 1995). One company (CyEn Resources Sdn Bhd) worked with the local municipal council to close and install a leachate collection system at a landfill site, the costs

are covered by the sale of the carbon credits. The remaining business organisations highlight their partnerships with palm oil mills to produce renewable energy for their manufacturing plants from purchased palm oil biomass. Collaborative inter-organisational arrangements such as these are promoted by the ecological modernist approach to sustainable development (Dryzek, 2013; Starik and Rands, 1995).

Only one GLC mentioned the relocation and associated health issues of the Orang Asli (OA) community due to the company's hydro plant activities. However, no details on the actual relocation such as how many families are affected, the area of land and crops confiscated for the project or the other impacts on the OA community. According to an NGO submission to the Human Rights Council of the United Nations, the 3 communities of Semai people who are affected by this relocation protested against the project in their territories claiming no free, prior and informed consent (United Nations, 2013). The PDD is silent on these issues. Gladwin, Kennelly and Krause, (1995) write that as part of their 'sustaincentrism,' organisations should become rooted in the local community, however only one company (Hartalega Sdn Bhd, 1186) identified their long standing relationship in supporting the local community to improve their quality of life. Gray, Adams and Owen, (2014) identify 3 elements of community involvement, philanthropy and corporate giving, community involvement and investment and engagement with NGOs. The CDM business organisations are primarily involved at the simplest level of community involvement by corporate giving rather than any robust engagement with the community and societal issues. The subcategories that received the most coverage are from the GRI which is primarily concerned with the 'business case' for community involvement (Moneva, Archel and Correa, 2006). Other areas related to the needs of present and future generations, protection of human rights, anticorruption and involvement with educational institutions to increase environmental literacy are not mentioned.

4.5.3 Social Justice/Ethics

Sustainable development is also a social concept covering a wide number of issues such as equity and promotion of the common good, equitable sharing of resources, human rights, anticorruption, consumption practices, access to essential services and social wellbeing, (UN, 2016; SSN, 2004; Gladwin, Kennelly and Krause, 1995; Starik and Rands, 1995; UN, 1987). Only 11 business organisations (from palm oil, rubber, power generation and biotechnology) commented on this area in their PDDs. The focus of attention is access to energy by the local community, no other essential services such as water, healthcare, etc. are mentioned (SSN,

2004). Three business organisations from the palm oil and rubber industries linked the increase in job opportunities to a reduction in social disparity, reduction in rural-urban migration and a contribution to peace in the society. Considering the limited numbers of job opportunities available, the claims seem overambitious. None of the business organisations identified negative impacts on the local community. Categories of the QCARI covering equity, consumption, human rights, anticorruption and NGO partnerships are not mentioned by any company.

4.5.4 Product responsibility

Seven business organisations comment on the health and safety impacts of their projects. The CDM projects result in a reduction or elimination of negative health and safety impacts. These include the elimination of both landfill gas emissions and the use of chemicals (potassium, phosphorous and nitrogen) in inorganic fertilisers, which caused disease and health problems. There are no negative product responsibility issues identified by CDM developers.

4.6 Conclusion

The objective of this first part of the empirics was to use the various narratives of sustainable development as developed from the literature in the QCARI and compare with the narratives used by the CDM business organisations in their PDDs. Although this was an interpretive process (Milne, Tregidga and Walton, 2009; Mruck and Breuer, 2003), the data was presented as found from the coding and attention was also given to what was not included by the business organisations. Connections are made to the literature supporting the various narratives in chapter 2 to explicate the findings from the data.

Preliminary conclusions on the thematic content of the individual areas of economic, environmental and social, identify a 'business case approach' to sustainable development with more concern for environmental management issues than social issues. The environmental management issues of emissions, energy, pollution, waste water and technology received the most emphasis in the PDDs. Some business organisations exhibited features of an EM approach in terms of redesigning production processes into closed loop systems and entering collaborative arrangements to reduce ecological impacts, (Starik and Rands, 1995). However, most business organisations focused on the benefits of the development and use of innovative technology.

For economic sustainable development, business organisations focus on increasing self-reliance and business opportunities and reducing costs through efficiency savings. Full cost accounting did not feature in the PDDs (Bebbington, Unerman and O'Dwyer, 2014).

Environmental sustainable development is prioritised in the PDDs, specifically compliance with environmental legislation, emissions, energy and environmental technology. These categories are analogous to Gladwin, Kennelly and Krause's (1995) 'technocentrism' rather than 'sustaincentrism' or Brundtland's sustainable development. The clean-up of production processes and emphasis on economic growth as opposed to ecological limits are consistent with weak ecological modernist narratives (Dryzek, 2013; Starik and Rands, 1995). The 'pollution prevention pays' theme is reflected the CDM projects (landfill gas capture, POME or EFB usage, methane avoidance). The broader concerns of SD receive no attention in the PDDs. These include limits to ecological resources, the long-term viability and vitality of ecosystems, the use of just and humane technology and the non-substitutability of natural capital. In addition, business organisations do not consider the whole supply chain including environmental screening of suppliers.

The social aspects of sustainable development receive much less coverage in the PDDs. The instrumental aspects of the employer-employee relationship, job creation and health and safety, receive the most attention. Many of the significant social aspects are neglected in the PDDs such as child labour, immigrant rights, forced labour and the quality of jobs created. Stakeholder and community relations also receive limited attention with emphasis on CSR activities performed by the developers and unsubstantiated claims as to increasing the 'quality of life' for the local community.

There is little to differentiate the types of business organisations in terms of their SD narratives. GLC's emphasised investment in the country's infrastructure compared with other business organisation types. Many palm oil business organisations (all types) promoted the use of plantation waste as the source for the biomass energy on site and as bio-organic fertilisers creating a closed-loop system to mimic ecological systems.

A variety of broader sustainable development issues related to ecological limits, inter and intra-generational equity, human rights, consumption practices, anti-corruption, immigrant labour, indigenous rights and access to all essential services were not addressed. Many of these issues are pertinent to CDM business organisations. For example, palm oil and rubber producers which have been accused of deforestation and mistreatment of the indigenous, and manufacturing business organisations rely extensively on immigrant labour who are treated differently from local labour. Business organisations in the CDM follow narratives aligned to the business case and ecological modernisation (Starik and Rands, 1995). Whether business

organisations can bring sustainable development to a country like Malaysia is contestable because corporate activities have largely contributed to climate change and SD issues overall (Bebbington and Gray, 2001). It is also possible that business organisations are unable to implement operations which are informed by the broad, global systems level concept of sustainable development. Milne and Gray, (2013) argue that SD is a global concept which is difficult to operationalise at organisational level. Therefore, ecological modernisation fills the gap between the aspirational global aims of SD and organisational level operations. EM is technocratic and reductionist in approach and is more easily actioned by business organisations with the support of national and supranational government policies via mechanisms such as the CDM (Dryzek, 2013).

Chapter 5: Findings II

5.1 Introduction

This chapter presents the findings from both the ITA of PDDs and the interviews with senior managers from the CDM business organisations. In writing and speaking about sustainable development, it is assumed the CDM business organisations constitute different meanings of the term.

Interpretive textual analysis (ITA) is used to identify and examine themes from the 145 project design documents (PDDs) and 18 interviews with CDM business organisations' 'elites.' The analysis allows for a more in-depth and nuanced examination of how the CDM business organisations make use of language to create different narratives of sustainable development and uncover the "*taken for granted truths about the nature of markets, competition and economic actors*" (Livesey, 2002, p.339). Sustainable development narratives are determined by assumptions about nature, agents and their motives, the metaphors, rhetorical devices and concepts used in communication (Dryzek, 2005). The themes identified in this part of the empirical work are aligned with the findings in chapter 4 and are typified by managerialist and ecological modernist narratives of sustainable development (Gray, Adams and Owen, 2014; Levy, Brown and De Jong, 2010; Starik and Rands, 1995). Sustainable development issues such as climate change are solvable with technological solutions, supranational governance and managerial procedures. Business organisations can "*deliver sustainable development,*" (Laine, 2005) with eco-efficiency, technological advancement, expertise and regulation. This ecological modernist discourse has little concern for natural limits, rather it reduces the environment to inputs, outputs and waste emissions (Christoff, 1996). In addition, EM does not consider consumption issues and assumes technological advances will overcome ecological limits through managerial strategies, innovation and efficiency (Baker, 2007; Pepper, 1998). Growth and prosperity are considered congruent with sustainable development and the activities of the business organisations are for the benefit of the country. Business organisations present their CDM activities as aligned with the country's interests, and refer to themselves as '*good corporate citizens*' and '*pioneers*' in leading the introduction of innovative technology to bring sustainable development. However, within these narratives which ranged from 'business as usual' to EM, profitability and industry image are a priority and ultimately the key motivations for joining the CDM. Throughout this part of the work it was recognised that politics, supranational organisation power and vested interests play a role in the construction

of the SD narratives, particularly within the context of the CDM (Tregidga, Milne and Kearins, 2015; Bailey, Gouldson and Newell, 2011).

The chapter commences in 5.2 with an overview of the findings from the previous chapter and a discussion in 5.3 on the PDD as a communication document using Thompson's (1990) work on the transmission of symbolic forms. Section 5.4 covers the themes identified in the PDDs using ITA, followed by the different linguistic strategies used by business organisations in presenting their conceptions of SD in section 5.5. The various narratives arising from the interviews range from 'business as usual,' 'the business case,' EM and 'responsible citizenship' and are discussed in sections 5.6 and 5.7. Sections 5.8 to 5.10 explore the motivations of business organisations for entering the CDM, the role/(non-role) of accountants and the views of interviewees on whether the CDM can bring SD to Malaysia. As the process of analysing and presenting the findings is of an interpretive and subjective nature, the chapter ends with a reflexive account of the researcher's position and how this may impact the findings. The chapter then concludes.

5.2 Overview of Findings I

The findings from part I are briefly revisited here before presenting the findings for part II of the empirical work. The SD narrative so far for CDM business organisations falls under the 'business case' and 'ecological modernisation' primarily. Figure 18 provides a spider web diagram showing the sources for the narratives as based on the QCARI. The concentration is around the GRI (the 'business case'), followed by the Starik and Rands (1995) and UN related sources (BR and UNGC). There was minimal emphasis on the 'sustaincentrism' approach of Gladwin, Kennelly and Krause, (1995) or the environmental and social justice approach of SSN (2004).

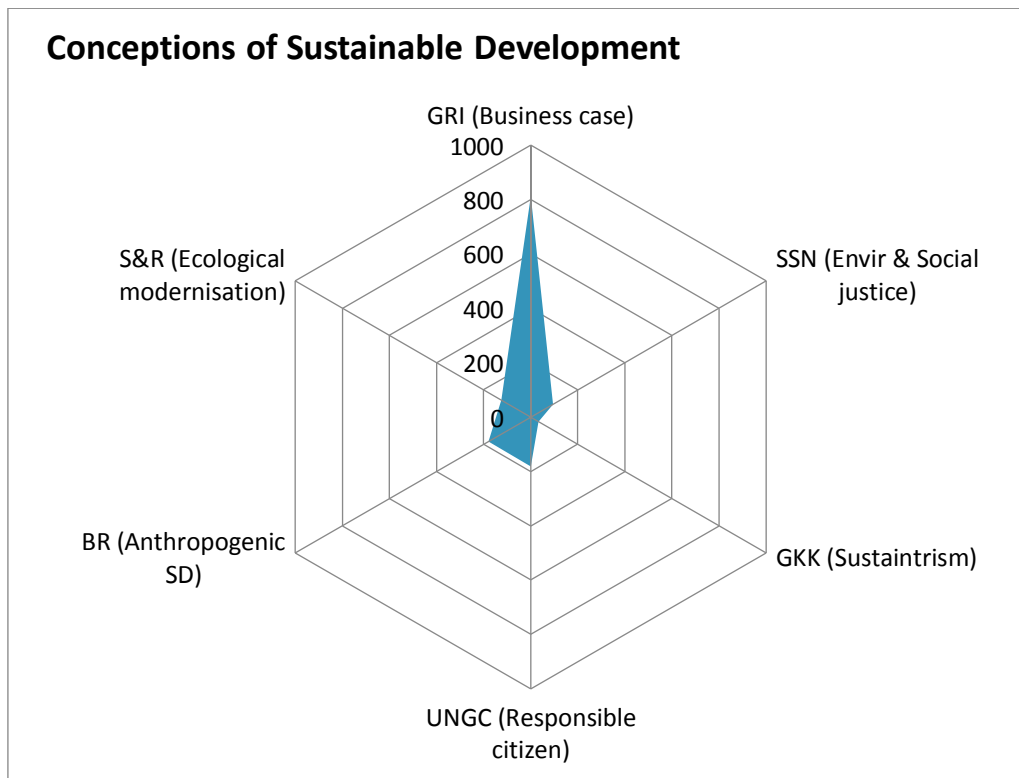


Figure 18: Conceptions of SD from the QCA

Business organisations focused on compliance with legislation, improvement of production processes, waste management, eco-efficiency, environmental protection, risks, labour practices and community contributions. Most of the coding items came from the GRI. However, broader issues of sustainable development such as natural limits, labour justice issues (forced labour, child labour) and social justice issues (eco justice, human rights, indigenous rights) are not mentioned. Many of these issues are germane to the business organisation activities, (for example a plantation company has been accused of land grabs and child labour, another energy company has been accused of exploiting local indigenous communities and flooding their land, both are involved in the CDM).

5.3 The PDD as a communication document

The ITA involved obtaining an overall impression of the PDDs. PDDs are a communication document between the producers (CDM developers) and the recipients (the CDM Board and other interested stakeholders). Thompson (1990, p. 165) provides a useful summary of the features of communication (transmission of symbolic forms) between producers and receivers. The features include, technical transmissions, supported by an institutional apparatus of transmission and space-time distanciation of transmission. These features are used to frame the discussion on the overall features of the PDD as follows.

5.3.1 The PDD as technical transmission

The PDDs are essentially technical documents mandated by UNFCCC. Their format is standardised allowing for a degree of fixation and reproduction. It was found that some CDM business organisations (3 GLCs and 3 private) had ‘cut and paste’ the same language in writing about sustainable development for their different projects. It was noted that the same consultant (AES Agriverde) worked with the developers on the projects and may have helped produce the PDD documents. This ‘cookie cutter’ approach to reporting on sustainable development suggests a superficial or empty engagement with the SD benefits of the individual projects.

Another attribute relates to the nature and extent of participation that the PDDs allow for (Thompson, 1990). PDDs are made available to the public on the UNFCCC website with links to a site for public comments. Although a cursory review reveals very few comments are made. Further, availability is not the same as understanding in a meaningful way (Lövbrand, Rindeljäll, and Nordqvist, 2009). The technical language in PDDs is one of economic and scientific rationality for quantifying carbon emissions and proving ‘additionality’ via investment appraisal tools. The use of accounting technologies such as Net Present Value (NPV) and Internal Rate of Return (IRR) appear to provide objective evidence as to the ‘valuable’ contribution of the projects to the climate change problem. Responsible business actions such as reduction of emissions are inextricably linked to investment viability and cost effectiveness (Ferguson, Sales de Aguiar, and Fearfull, 2016). The technical language and expertise of the CDM process excludes the ‘public’ from any real engagement in much the same way as accounting technical rhetoric:

“is used to distance a wider public from accounting debate conducted in a technical language with which they are unfamiliar, and which does not facilitate the expression of their concerns and knowledge,” (McKernan and MacLulich, 2004, p.334).

Stakeholder engagements are administered by the CDM developer. The engagements are advertised in specific newspapers and individual invitations are sent to specific individuals and organisations. Presentations are conducted at the CDM developers’ offices. The flow of information is primarily one way from the developer although there is a Q&A session which is published in the PDD. In many instances stakeholders’ engagements comprise of company officials, local government officials, local business representatives and capital providers (e.g. PDDs 247, 249, 503, 1214). Disch (2010) highlights this lack of awareness and engagement

in the CDM process by NGOs and ordinary citizens in his CDM project analysis in 6 countries.

5.3.2 *The institutional apparatus*

Symbolic forms can be used to exercise power in the pursuit of specific interests (Thompson, 1990). This power is exercised through “*channels of selective diffusion*” which Thompson (p. 168) describes as institutional arrangements for the distribution of information in different ways and to different extents. Similarly, PDDs distribute information produced by business organisations validated by experts and approved by a supranational organisation (UNFCCC) in the pursuit of ‘solutions’ for sustainable development and climate change. SD and climate change are areas of concern affecting ordinary citizens globally but the decisions affecting them are mediated by a select group of experts and officials.

5.3.3 *The PDD as exercising power*

Finally, the CDM institutional apparatus for the production and transmission of information allows for the exercise of power over distances. Thompson (1990 p. 168) refers to this as *the space-time distancing* of transmission. Accounting technologies such as NPV and IRR are complicit in this exercise of power over distances. Accounting numbers are used by project developers to ‘create’ and ‘resolve’ the carbon crisis by first ‘creating’ the emissions problem without the project and then illustrating how CDM financing can ‘solve’ the problem. Accounting becomes more than a neutral technical tool but “*creates an organisational reality based on technical coherencies*” (Hopwood and Miller, 1994, p. 169 also see Lovell and MacKenzie, 2011). PDD approvals are issued in Europe for projects all over the developing world and become part of a global environmental governance mechanism for carbon emissions (Ferguson, Sales de Aguiar, and Fearfull, 2016). PDDs therefore, are more than neutral technical documents outlining emissions savings projects.

5.4 **Themes identified in the PDDs**

The relevant SD extracts in the PDD were originally coded in NVivo 11 using the QCARI and were available for rereading in their original context in the full pdf format. Chapter 3 presented the ITA process. Guiding questions are used in the many readings. Questions include: what concept of SD is being used? Are there dominant themes identifiable within what is written or said? Are there positive and negative references to SD? Are there obvious omissions, absences, or silences related to SD? What are the similarities and differences? Is

there use of figurative language such as trope or metaphor, or other grammatical devices in use? What ‘claims to truth’ are being made, if any? (Laine, 2005). The overall findings follow, and are organised according to themes/structures and use of language (metaphors, omissions, claims).

5.4.1 SD is possible with efficiency, technological innovation and expertise

The business organisations concentrate on the benefits of production process efficiencies including energy savings, recycling of biomass, reduction of pollution and maximisation of material usage. Business organisations identified ‘better waste management practices,’ and ‘reduction in fossil fuels’ as key contributions to sustainable development. The technological adjustment to industry processes is driven by cost minimisation with incidental environmental benefits, ‘a win-win’ scenario (Christoff, 1996). Managing the environment in this way is more consistent with an EM approach to sustainable development (Hajer, 1995). In line with EM discourse, the emphasis on diffusion of technology (Jänicke, 2008) is evident from the various calls in the PDDs for the proliferation of their ‘showcases’ ‘demonstration projects’ and ‘convincing models’ of innovative technology. How proliferation would take place is not mentioned. The projects are a result of ‘partnerships’ with European business organisations following Huber’s (2008) EM notion of ‘co-production’ wherein technological innovation and its global diffusion is a joint effort between global businesses.

Climate change mitigation becomes ‘measurable’ via carbon emissions calculations and solvable via capital budgeting techniques such as NPV and IRR. One company attempted to ‘measure’ sustainable development using a specific tool designed by consultants to place a quantitative value on SD, via indicators. The company states:

“the total impact of the project on the sustainability is +45%. It shows that the project highly contributes to sustainable development,” (Aukmar Sdn Bhd, 3693, p. 5).

How 45% indicates a ‘high contribution’ or how it was derived is unclear. In addition, technological innovation and expertise can ‘fix’ the current problems in achieving sustainable solutions for company operations but also increase business opportunities, for example:

“the utilisation of these biomass sources as fuel also creates a value demand for these wastes and stimulates the development of businesses related to biomass.” (Filmax, 3004 p. 33).

Privileging of scientific expert knowledge is evident in the EM discourse of sustainable development (Dryzek, 2013; Pepper, 1998). Business organisations write about the ‘greening’ of production, requiring no major changes to ‘business as usual,’ only changes to ‘end-of-pipe’ waste output. The emphasis was on improving industry image (Bebbington, Larrinaga and Moneva, 2008). One company writes:

“These co-benefits include a reduction in atmospheric emissions of volatile organic compounds (VOCs) that causes odours and acid rain and promotion of an improved, modernized image of the palm oil industry,” (Green Lagoon Technology Sdn Bhd, 3636 p. 51).

In summary, the technological and scientific optimism shown in the PDDs has links to Gladwin, Kennelly and Krause’s (1995) ‘technocentrism’ or Starik and Rands’ (1995) EM rather than sustainable development.

5.4.2 Growth and prosperity are compatible with sustainable development

The Brundtland Report (UN 1987) highlighted the natural limits to ecological resources, requiring conservation and enhancement of ecological systems and minimisation of overconsumption. The tension between natural resource limits and economic growth have been expounded upon by many, (Jackson, 2009; Meadows, Randers and Meadows, 2004; Beder, 2000; Gladwin, Kennelly and Krause, 1995), and more recently by the planetary boundaries work of Rockström *et al.*, (2009) and Steffen *et al.*, (2015).

Natural limits and overconsumption did not feature in the PDDs at all. Business organisations wrote about stimulating economic growth, and ‘increasing business opportunities’ without reference to the corresponding consumption this would entail (Jackson, 2009; Young and Tilly, 2006). In addition, the natural resources (forests, water, rivers, land) upon which many of the industries depend is effectively ignored, (palm oil, rubber, landfills, hydro). For example, one company reveals that its wood biomass is:

“derived only from primary and secondary wood-based industries and plywood mills in the host country and hence do not decrease carbon pools and are therefore considered as renewable biomass.” (Filmax Sdn Bhd, 3004, p. 22).

The tree logging incurred prior to the input stage to this industry would have impacted the

flora and fauna of the forest eco system but is effectively ignored as it is outside the project boundaries. Lehman (1996) draws attention to this narrative, which presupposes economic gains and efficiency measures in one part of the eco system can be used to remediate damage on another part although the eco-system is irrevocably changed. Moreover, the usage of biomass to produce energy reduces the environmental impact of waste wood but does not ensure the replenishment of natural stock (Polimeni *et al.*, 2008; Gladwin, Kennelly and Krause, 1995). Consequently, industry ranks above nature in the PDDs. The discourse is one of ecological modernisation where nature is both a resource and a ‘waste treatment plant’ (Dryzek, 2013).

In most of the PDDs environmental impacts are either positive or in the case of negative impacts, they are labelled as ‘minimal’ ‘minor’ ‘localised’ and ‘limited.’ In some PDDs (2517, 3379), naturally occurring fauna such as Rhinoceros beetles are euphemistically referred to as ‘pests’ as they cause damage to palm oil trees (Thompson, 1990). These are indigenous species which are important to forest eco systems (Foster *et al.*, 2011).

The tensions between industry and nature is evident in some PDDs. PDDs outlined the SD benefits of the projects on the one hand, and environmental impacts under a separate heading that was not linked to the SD contributions. Another example of the decoupling of nature and industry, is the case of a small hydro dam project in Gua Musang forest where the indigenous, Temiar people reside. The response to questions in the stakeholders’ meeting regarding the benefits to the indigenous was that the Aboriginal Development Department (a government agency)

“has long applied for electricity supply to remote areas for progress. With this power supply, progress will be adjusted.” (Perkasa Sdn Bhd, 6910 p.48).

An EIA was not required, and the potential impact of the river diversion on the Temiar people, who depend on the river and forest for sustenance was disregarded.

In summary, continuous economic growth is presented as a ‘*necessity and a natural state of affairs*,’ (Mäkelä and Laine 2011, p. 223). The severance of industry activities from the resultant impacts on nature is in keeping with the ecologically benign economic growth of ecological modernisation (Scerri and Holden 2014; Mol and Jänicke, 2009) or the ‘no limits’ approach of Gladwin, Kennelly and Krause’s (1995) ‘technocentrism.’

5.4.3 Business organisations’ interests are aligned with those of Malaysia

A recurring theme is that CDM project activities are good for the country. This alignment of

industries' interests with the country's interests is consistent with the work of Prasad and Mir (2002) for the US oil industry in the 1970s and 1980s. A unification strategy was used in the PDDs to align industry interests with Malaysia's interests. The unification strategy constructs "a form of unity which embraces individuals in a collective identity, irrespective of the differences and divisions that may separate them." (Thompson, 1990, p. 64). This was done through showing how the company activities benefited the country in many ways, while ignoring the differences, compromises and potential conflicts inherent in promoting the economy at the expense of the environment and society in general, (Mäkelä and Laine 2011). The list of contributions is presented in appendix U. Some of the contributions include improving the national economy, increasing the number of skilled workers, strengthening Malaysia's regional position in innovative technology and creating a positive impact on the country's Balance of Payments (BOP). The contributions extended by the business organisations were economy centric having less attention on social and environmental aspects of SD for the country.

Many business organisations involved linked their renewable energy projects with the Malaysian government's Fifth Fuel Diversification policy implemented to reduce reliance on fossil fuels and the National Development Policy illustrating how their projects contributed to the government's policies.

Some business organisations wrote about the overall impact of their project in very positive terms presenting a 'win-win' for all parties and exhibiting an 'enlightened self-interest.' For example, a car parts manufacturer wrote as a contribution to social sustainability;

"Reduction of energy use for manufacturing process will strengthen the company in terms of cost competitiveness and green aspect of its products. That will strengthen our competitiveness against other manufacturers such as foreign competitors, which will bring more income and business stability. As long as the company is competitive, it will maintain current employment level or even create more opportunity for the local people to be employed. As a result, taxes to be paid to the local government will be increased and also social well-being in the local area will be increased with secured employment," (Denso Malaysia Sdn Bhd, 1372 p. 4).

In serving the interests of the country including, employees, government and local community, the business organisation is serving its own interests. The organisation, by being socially responsible creates a win-win for all resulting in benefits of cost competitiveness and business stability. In presenting the activities of the business in this way the impact of the

industry activity of producing more car parts is decoupled or downplayed (Laine, 2009).

5.4.4 Compliance with regulation can bring sustainable development

A notable feature of many of the PDDs are the references to compliance with Malaysian environmental regulation and/or Malaysian government policy on sustainable development. The attention to compliance with regulation is consistent with research findings in the early days of social and environmental and sustainability reporting in developed countries, (Laine, 2010; Tregidga and Milne, 2006; Buhr and Reiter, 2006). Malaysian CDM business organisations use compliance with regulations as a way of inferring responsibility for the environment and society (Buhr and Reiter, 2006). Consistent with findings by Tregidga, Milne and Kearins (2014, p. 486) in New Zealand business organisations in the 1992-1999 period, Malaysian CDM business organisations exhibit a 'compliance mentality' whereby meeting regulation standards are a priority. This is evidenced by reference to numerous environmental statutes (e.g. Environmental Quality Act 1974, Clean Air Regulations 1978, Factory and Machinery Safety Regulations 1986). The CDM business organisations rely on legislation to portray a commitment to the environment. However, the PDDs do not explain the specific provisions which are complied with, instead business organisations appear to use the relevant legislation as a legitimacy device to convey responsibility.

Other business organisations write about how they will ensure industrial activities are within the boundaries of legally permitted limits or standards, e.g. effluent discharge limits. The commitment to regulated process standards rather than the outcomes for the environment and society are unlikely to lead to sustainable development. Laine (2009) argues that business organisations use compliance with environmental regulation as a legitimating device to portray that their environmental performance is up to par or that regulatory compliance somehow mitigates environmental harm caused by business organisations (Bebbington and Thomson, 2007). Ostensibly, CDM business organisations have not moved beyond compliance.

Furthermore, numerous business organisations emphasise that environmental impact assessments are not required by the law but that they will still ensure compliance with environmental regulations and standards. These business organisations appear responsible as they are doing the right thing even though there is no scrutiny of the environmental impacts via an EIA. The implied good conduct is consistent with the findings of Buhr and Reiter (2006) and Tregidga, Kearins and Milne (2013) in examining company reports in Finland and New Zealand. The underlying assumption is that business organisations are responsible and

will do more than is expected of them in managing the environment. This is also illustrated by the following excerpt:

“The national authority of Malaysia does not request an environmental impact assessment. The plant will be built according to the local and national regulations. The project activity is ‘environmentally friendly’ as it will not cause negative impacts and contributes to the reduction of GHGs,” (MG BioGreen Sdn Bhd, 1198, p. 36).

Readers must take it on faith that the project is ‘environmentally friendly’ in the absence of an impact assessment and the company will ensure it will “not cause negative impacts.’

Other CDM business organisations are required to perform environmental impact assessments, (EIAs). In one noteworthy example a public GLC summarised the outcome of the EIA as follows:

“a detailed environmental impact assessment (DEIA) was approved by the Malaysian Department of Environment on 18th November 2008. The environmental impacts of the project are not considered to be significant.”

The summary of the social impacts for the same project, concluded that land acquisition from the Orang Asli (indigenous community);

“would not represent a significant change in land uses’ and that there were ‘other minor indirect impacts on land, assets, access to natural resources and livelihoods as a result of project activities,” (Tenaga Nasional Berhad, 7664, p. 49).

However, an NGO submission to the United Nations Universal Periodic review (UN, 2013), specifically identifies this project as one related to questionable evictions and flooding of Orang Asli land to make way for a dam project. The company appears to gloss over the sustainable development issues related to equity and use the EIA process as a legitimating device. In addition, questions asked by the stakeholders are not shown in the PDD and the PDD concludes ‘*all questions were duly answered and no negative comments were raised. At the end of the session, attendants expressed their support for the project,*’ (Tenaga Nasional Berhad, 7664, p. 51). The compliance with legislation and provision of EIAs portray business organisations as solving sustainable development problems (Tregidga, Kearins and Milne,

2013) however, as Banerjee (2014) writes, sustainable development outcomes of corporate activity are not addressed, and a tick box approach to regulation is adopted.

5.4.5 Sustaining the reputation of industry

Numerous business organisations wrote about their climate mitigating improving the image of the industry. These industries may be considered as ‘dirty industries’ including palm oil, rubber manufacturing and cement manufacturing (Adams, 2004; Deegan and Rankin, 1999). The focus on the image of palm oil related business organisations is foreseeable due to the increasing public scrutiny of the environmental impacts of palm oil cultivation and associated biofuels (Padfield *et al.*, 2011). At least 30 business organisations wrote about the image of the palm oil industry, including promoting a better image for palm oil technology, modernising the image of palm oil production and elevating the status of the palm oil industry to one that has a healthier and greener image.

For example, a private company writes how their project contributes to sustainable development including;

“The project activity will help promote the use of ‘green’ renewable fuel (biogas) and this in turn will help form a better image of the palm oil industry and the technologies employed,” (Sungei Kahang Palm Oil Sdn Bhd, p. 83).

The emphasis on image by the business organisations can be linked to image restoration as identified in the reputation risk management literature (Benoit, 1995) explored within SEA by Bebbington and Larrinaga (2008). Reputation risk management can be a motive for social and environmental reporting. It could be argued in general that CDM participation is motivated by improving the image of certain industries and reducing the negative public perceptions of their sustainable development impact. The emphasis on image was further explored in the interviews (in section 5.6).

Other business organisations refer to how they contribute to sustainable development and are pioneers in their field in this regard. One rubber glove manufacturer refers to its contribution to sustainable development and communities and writes that its vision which has been put into practice since it commenced operations is *“to be recognised as a caring company to the community and the environment,”* (Hatalega Sdn Bhd, 1186, p. 91).

This appears to be a form of symbolic management of its activities (Ashforth and Gibbs 1990) as there is a gap between what sustainable development entails and what the company

practices based on its activities of corporate donations, building playgrounds and recreational parks and sponsoring sports festivals. In this way, the company is presenting a reputational façade based on its corporate vision statement. (Cho *et al*, 2015).

Some business organisations (e.g. Lafarge Malayan Cement Berhad) indirectly build reputation through CDM participation (Bebbington and Larrinaga 2008) and identify themselves as ‘pioneers’ ‘leaders’ or ‘role models’ by entering into CDM projects when they write:

“Malaysian cement industry will be a pioneer utilizing such technology and promotes Lafarge Malayan Cement Berhad to be a technology leader and a role model to other cement or similar industries in the region,” (Lafarge Malayan Cement Berhad, 247, p. 19).

In summary, many of the business organisations are concerned with the reputation of their industries rather than any substantive engagement with how their projects or corporate activities impact sustainable development. This is illustrated by how they write about the SD benefits of their projects, including improving the image of ‘dirty’ industries, or building reputation through activities and self-laudatory references to being pioneers and role models.

5.5 Language use in the PDDs

Through a continuous process of examining and rereading the PDDs it became clear that various linguistic strategies are in use by the CDM developer business organisations. These are identified through the rereading process undertaken when identifying the themes in section 5.4. It is not the purpose of this section to explore the linguistic micro dynamics (Phillips and Hardy, 2002) of the PDDs in great depth but to draw attention to how language was used in the PDDs. The PDDs are technical communication documents, however the discourse of sustainable development was mediated through persuasion via appeal to authorities (Livesey, 2002) omissions (what was not being said), rhetorical devices (Laine 2009), enhancements (Merkl-Davies and Koller, 2012) and self – representation as ‘good’ organisations because of a commitment to sustainability (Tregidga, Milne and Kearins, 2014).

Appendix V presents in detail the linguistic devices, explanations of how they are used and examples from the text. However, the following is a summary of the findings in respect of how various linguistic devices are used in the PDDs. The most obvious omission related to

the normalisation of industry activities such as the cultivation of palm oil and the impact on natural limits (Padfield *et al.*, 2011). Moreover, a variety of renewable energy projects did not consider problems of consumption such as increasing landfill waste, the source of the landfill gas projects and assumed biomass supply would be in perpetuity although it depended on increasing deforestation and palm oil cultivation (Polimeni, *et al.*, 2008). Other omissions related to the social justice issues surrounding both the indigenous and immigrant workers. Business organisations appealed to legislation, professional bodies and standards (e.g. Board of Engineers, RSPO, ISO) to support claims on the superiority of technology or why a specific calculation method was used for emissions, or discount rates used for capital budgeting.

The SD benefits of the CDM projects are ‘talked up’ in many of the PDDs although the projects are small or symbolic investments in climate change mitigating processes compared to the size and nature of the investing business organisations. For example, references to ‘*significant contributions to the SD of Malaysia*’ and ‘*immense environmental benefits*’ and improving the ‘*quality of life*’ of the community reoccurred. However, business organisations stopped registering projects with the CDM once the CER prices fell and there was no money to be made (MNRE, 2015).

Business organisations also use self-laudatory language to demonstrate how ‘committed’ they are to sustainability and meeting the highest standards in environmental management without specifying how that commitment is actioned. Others are ‘*pioneers*’ and ‘*role models*’ leading the way in introducing new innovative technology. This portrayal of business organisations adapting and spearheading progress is a subtle yet powerful use of language as it suggests radical change to the status quo when in fact changes are ‘low-hanging’ fruit in the production process (Milne, Kearins and Walton, 2006). This use of language is comparable to the continuous progress ‘journey’ metaphor used by business organisations in New Zealand and Finland (Tregidga, Kearins and Milne, 2013; Laine, 2010).

5.6 The interviews

The interviews provide additional data for teasing out the more nuanced understandings of sustainable development and determine if there are any differences in how the interviewees spoke about SD and how the business organisations wrote about SD. Further, as interviewees are giving their personal perspectives on sustainability, it was important to determine if there was any dissonance between the individual and company understandings. The interview questions are semi structured focusing on company responsibilities for SD, climate change,

motivations for joining the CDM and the experiences of the interviewees with the CDM process. The interviews also included questions on the usefulness of the PDDs and the stakeholder engagement process. Chapter 3 outlines the interview process including the interviewee selection, interview guide (appendix Q), the documentation procedures, the limitations of interviews and the analysis approach. The interviews are analysed using a similar approach to the PDDs, i.e. using the codes from the QCARI as a starting point and taking into consideration the overarching themes identified in the ITA as well as the SD literature from chapter 2. This was primarily an inductive process.

5.6.1 The interviewees

The interviewees are 'elite' personnel including CEOs, directors, sustainability heads and general managers involved in the CDM process. Details of the interviewees are presented in table 7, (Chapter 3). The higher number of interviewees from the palm oil and related industries reflects the percentage of the total CDM projects in the palm oil plantation industry, (40% of all projects are in this industry).

5.6.2 Analysis of interviews

Each interview except for one, was recorded and transcribed within a day or two. Notes were also made during the interviews, however recording allowed for more engagement with the interviewee and further probing for more insights into specific areas (Hayes and Mattimoe, 2004). The transcription process allowed for active reading and development of further insights and themes. Memo notes documented insights, issues and linkages between PDDs and interviews permitting a better 'feel' for the data (O'Dwyer, 2008) and preliminary findings were identified at this stage. The transcriptions were uploaded to NVivo for formal analysis and synthesis. The formal analysis focused on meaning, using an open coding process a posteriori. The initial codes were either traced to the existing codes from the QCARI, or if the existing codes were not appropriate for the data being coded, a new code was created at the nodes in NVivo. In all, 62 open codes were identified which were refined and eventually reduced to 13 higher level themes. These 13 themes are presented in figure 19 and give the overall 'story of the analysis' including the resulting SD narratives (O'Gorman and MacIntosh, 2015). Some of the themes overlap SD narratives such as environmental management of production processes which overlaps both the business case and EM narratives. The role of accountants is not related to any specific SD narrative and resulted from the nature of the interview questions asked.

5.7 Interview narratives of SD

The analysis of the interviews highlighted various conceptions of sustainable development. Some starting with emphasis on CSR activities which falls into the ‘business case’ narrative. Others talked about ‘responsible citizenship’ while others talked about how technology, regulation and more government intervention could bring sustainability into the industries. The conceptions of SD are discussed further in the following sections. These conceptions or narratives are discussed based on the higher-level themes identified and taking into consideration the wider literature from chapter 2.

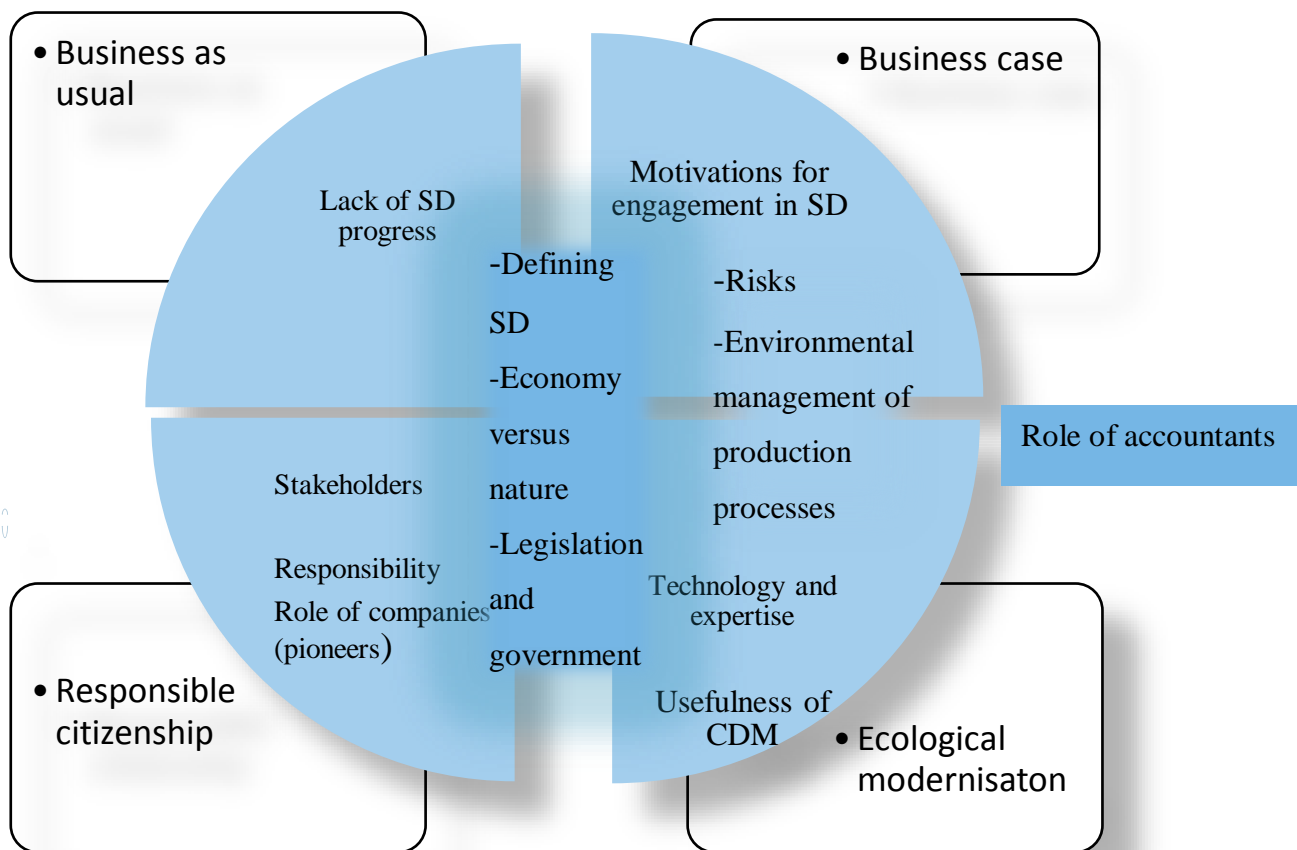


Figure 19: 13 higher level themes from interviews and corresponding SD narratives

5.7.1 Business as usual

A key conception of SD as identified from the literature is the ‘business as usual’ or managerialist approach to sustainability which assumes that there is no inherent conflict between profitability/growth and the critical concerns of sustainable development (Spence,

2007; Gray, 2006). Business can continue to operate as it has always done. This narrative was evident with many of the interviewees from the private business organisations. The interviewees spoke of profits first, greening not being a priority unless legislated and sustainability was not the responsibility of smaller business organisations.

It was noted that the PDDs are silent on the tension between growth and SD particularly for industries such as palm oil, rubber and timber which are subject to public criticism for destruction of forests (Tan *et al.*, 2009). Interviewees reasoned that their industries bring much needed employment for the alleviation of poverty. One managing director (Interview 12) talks of how one of the larger plantation business organisations (FELDA) was started to help to alleviate poverty amongst the rural poor. A CEO of a palm oil subsidiary of a plc follows the same reasoning:

“The forest was chopped down many years ago and now it’s being used as palm oil plantation, this is inevitable for any developing country to create job opportunities, grow the economy and so on, it is inevitable that the country must find some activities to do this, it just so happens in our country it is palm oil but in other countries take Australia it is big time mining,” (Interview 6).

Economic growth is taken to be synonymous with development. However economic growth doesn’t always result in equity for the poor (Banerjee, 2003). There is a paucity of research around palm oil and poverty alleviation in Malaysia. However, Cooke (2012) argues that whilst the government encourages smallholders to produce palm oil to increase livelihoods, important issues of land tenure and promotion of large scale joint ventures with big plantation business organisations is undermining control of their lands.

Further, many interviewees are unequivocal about the need for business organisations to make profits first and foremost explaining that without profit there could be no sustainable activities. As a Managing Director from a power-generation company explains:

“Sustainable development, must first be profitable. If you do not have profit you cannot support the business, you cannot support the people and you must do it in a sustainable manner, manage sustainability so that you leave a legacy for the next few generations to continue the business,” (Interview 13).

The interviewee saw no inherent contradiction between making profits and ‘*leaving a legacy*’ for future generations (Banerjee, 2003). Others reinforced this view by indicating that

business organisations have the role to be profitable *'but in a responsible way'* (Interview 17). Another interviewee states that Malaysia is a developing country so business organisations are trying to “*survive*” with “*good bottom lines*” and therefore “*greening is not their priority*” unless “*it was made mandatory by regulations,*” (Interview 11).

Further, many interviewees expressed a belief that sustainability was not the responsibility of private business organisations which are generally smaller, but was that of the *'big boys'* (public listed business organisations). Five interviewees mentioned that bigger business organisations had the resources to engage in sustainability initiatives compared with smaller business organisations who “*cannot afford it,*” (Interview 18).

An interesting perspective was presented by an MD of a large private rubber manufacturer:

“We have only a turnover of USD 200 million. I am comparing us to the big plantation boys. As a private company, we don't have CSR on sustainable development as a company policy as such, but on an ad hoc basis we do CSR but we don't allocate funds for it. Let's say this CSR costs us a little bit more to do we may do it. If we were listed it may be different,” (Interview 9).

The company would not be considered ‘small’ in most jurisdictions as it has an annual turnover of US\$200 million but the MD felt that it was not able to engage in sustainability initiatives as it was a private company. As the company was not listed there was no pressure to be involved in sustainability initiatives.

Regulatory requirements and external pressures are influencing imperatives for business organisations to engage with sustainability initiatives (Higgins and Larrinaga, 2014; Banerjee, 2008). Interviewees referred to RSPO requirements, the DOE regulations and community complaints on matters such as pollution. Without these regulatory or stakeholder pressures, it is unlikely these business organisations would have considered environmental issues. As one managing director from a rubber manufacturing company states “*If we were to pollute the rivers the villagers would complain to the government and the government would come after us. It has happened before,*” (Interview 9).

In summary, profitability was a priority for the private business organisations (only one subsidiary of a plc had similar comments), who felt that sustainability initiatives are the responsibility of the bigger business organisations as they had the necessary resources for implementation. These findings are consistent with Meath, Linnenluecke and Griffiths, (2016) and Johnson and Schaltegger, (2016) who found that smaller business organisations have difficulty in implementing sustainability measures due to lack of resources and less

institutional or stakeholder pressure to do so. Unless, businesses are led by owners who inculcate a culture where social and environmental issues are given equal priority with the economic, (Kerr, 2006) many will adopt a ‘business as usual’ approach to sustainable development.

5.7.2 The Business Case

The ‘business case’ for engaging with the sustainable development agenda is one of the main business approaches to SD identified in the literature. It calls for engagement with a weak form of sustainability which engenders eco-efficiency and promotes the idea that sustainable development should be led by business creating a ‘win-win’ for all (Cho *et al.*, 2015; Andrew, Kaidonis and Andrew, 2010; Laine, 2010; Banerjee, 2008; Gray and Bebbington, 2000). Interviewees particularly from both listed or subsidiaries of listed business organisations were aware of sustainability issues such as global warming, finiteness of natural resources and the hazards of pollution. Many acknowledged some form of responsibility for sustainability issues, recognising the dependence of business on ecological systems and the responsibility of business for creating many of the issues such as climate change. An MD suggested that responsibility for sustainability should be part of corporate culture for all business organisations big and small (Interview 14) and another MD of a palm oil plc remarks:

“The businesses cannot separate themselves from the environment as they depend on the environment to continue their business....and a lot of these emissions are from company operations so they naturally have a responsibility,” (Interview 1).

However, how the SD responsibility should be determined was less clear as the same interviewees spoke of a profit driven approach to sustainability or one which enhanced the image of the company (Bebbington and Larrinaga, 2008):

“You can talk about what is appropriate, what are the things you should do, the so-called corporate social responsibility activities, being social and all that. If they make a lot of money they will probably take a few small percentage out just to satisfy the personnel and the image of the company,” (Interview 14).

Analogous to the findings in the ITA, interviewees saw no apparent tension between their company activities and environmental and social impacts. The GM of a plc acknowledged that sustainable development meant organisations should not destroy the environment yet:

“In terms of livelihood, oil palm is supporting a huge population. The criteria of sustainability we have to practice and we also have to ensure it is not at the expense of the local community, to support the local community, when we go in, we offer jobs, we build schools, and we build hospitals,” (Interview 3).

The tension between ecological and social imperatives is not recognised. A similar tension arose where some of the business organisations provide schools and jobs to the indigenous peoples and spoke about this in the interviews. However, it is extensive logging and palm oil planting that affects the ancestral lands of the indigenous and their ability to earn a livelihood (Nor-Hisham and Ho, 2016).

Many interviewees speak about sustainability as engaging in CSR activities rather than any real engagement with changing their business practices to a more “sustaincentric” approach. The “sustaincentric” approach recognises the inextricable linkage between human life and ecological systems and the need to protect and maintain ecological systems upon which human life and the economy depends (Gladwin, Kennelly and Krause, 1995). At least 6 interviewees mentioned CSR when speaking about sustainable development. Although conflating corporate sustainability with CSR is common (Montiel, 2008), corporate sustainability is ideally an end state with corporate activities being part of the larger ecological system, whereas CSR is an ‘add on’ to current business activities (Montiel, 2008). CSR activities may improve corporate image and public relations, reduce risks and costs or increase competitiveness (Dyllick and Muff, 2015) but are unlikely to lead to sustainable development.

When asked about sustainability practices, (apart from their participation in the CDM process) many of the interviewees talked about reducing costs via focusing on ‘low hanging fruit’ or eco-efficiency measures such as switching off lights, using LED bulbs, changing air conditioning for energy saving, reducing water usage/pollution and recycling.

In addition, the ‘business case’ claims to create shared value for all, by maximising value for business and ensuring sustainable development is ‘safe in the hands of business’ (Porter and Kramer, 2011). Shared value for all was evident from some of the interviewee quotes. The Head of Sustainability of a listed palm oil company says, *“it is better that we share prosperity with people”* when asked to comment on what SD meant to him (Interview 2).

A director from a rubber manufacturing company indicates that the global leader of his company knows what he is doing in this regard:

“He is European, so he realises obviously, all the rules and regulations. He has been here for over 30 years and knows what is good for the company and what is good for the country,” (Interview 9).

Meanwhile the General Manager of a palm oil plc insists that because the company is a member of the RSPO it should be trusted to do the right thing:

“If we self-police ourselves so we don’t fall foul of the RSPO principles, we declare we are a sustainable company. This is our policy already, once we do that we don’t want to fall foul of our policy,” (Interview 3).

In summary, the interviewees were mostly concerned with ensuring that sustainable development initiatives they engaged in were profitable. The possible tensions between their business activities and the resultant impact on the environment and society are primarily ignored or minimised. Hahn *et al.*, (2010) surmise that the idea of ‘win-win’ business situations is simplistic and inevitably most SD related business decisions will involve conflicts between the three areas of SD. In this regard, one interviewee (interview 13) talked about ‘*trade-offs*’ when making decisions regarding the impact on the environment versus development but failed to explain how this would be done. Another three interviewees mentioned having to ‘*balance*’ the economic, social and environmental aspects of SD in decision making (Interviews 5, 14 and 18) but are unclear as to tensions involved in the ‘*balancing*’ process. This is consistent with findings by Milne, Tregidga and Walton (2009) of business organisations appearing to blend the three areas without problems (see also Bansal, 2005).

5.7.3 Ecological modernisation (EM)

EM has been described as a “*modernist and technocratic approach to the environment that suggests that there is a techno-institutional fix for present problems*” (Hajer, 1995, p. 32) or ‘*sustainability from within*’ through the greening of business (Blewitt, 2015). The key weakness of EM is its lack of concern for ecological restraint and issues of social justice, poverty and intra/intra generational equity (York, Rosa and Dietz, 2010; Christoff, 1996).

Although Mol, Spaargaren and Sonnenfeld (2014) argue that issues with technological determinism, social inequality and power are starting to be addressed in current scholarship. Notwithstanding, most of the business organisations' SD discourses are 'business as usual' or 'business case' narratives, some discourse elements are decidedly within the ecological modernisation narrative. The different SD conceptions fall on a continuum (refer figure 3) so there are some overlaps and business organisational narratives will not fall neatly into single conceptions. Discourse elements (entities recognised or constructed; assumptions about nature, actors and their motives and key rhetorical devices) adapted from Dryzek (2005) and built upon from the EM literature (refer appendix W) were used to identify EM features within the interviews. No one interview exhibited all the EM discourse elements. The EM features and corresponding interview quotes are now discussed.

Entities recognised by the interviewees in the SD discourse are supranational and national governments, the free markets and expertise transferred from developed to less developed countries. These parties have a role to play in providing the right structure and incentives to industry (Dryzek, 2013). Interviewees accepted the capitalist system as given and the state and markets as the '*driving force*' to ensure '*leading technology*' (Interview 1) is proliferated from developed nations to developing nations. State intervention should not be by regulation but through incentives because business organisations "*would only meet the regulatory standards for emissions and not try to exceed them*" (Interview 4).

EM assumes nature is a provider of resources which can be subordinated to the economic system via environmental management and micro management of pollution, waste and resource depletion. Natural limits can be overcome with technology and the state's role is to ensure standards are set for pollution, water and air quality (Dryzek, 2013; Langhelle, 2000). For many of the interviewees, nature was important to the survival of their business "*as they depend on the environment to continue their business*" (interview 1), but there was no apparent conflict between business activities and natural limits. Nature could be managed according to ISO, RSPO or DOE standards and technology "*helps us take care of the environment,*" (interview 5).

The key actors in EM are governments, business organisations and scientific and economic experts which all have a role to play in the CDM. Interviewees drew attention to the national government's commitment to reduce carbon emissions by 40% by 2020. They also highlighted the role of the global markets in compelling business organisations to engage in sustainability initiatives due to "*buyers' perception*" and "*the social contract*" at the global level. Experts are the biggest contributors to the CDM process and business organisations could make money while introducing innovative "*solutions*" to overcome issues such as

disposal of biomass, (interview 11).

The key EM rhetorical devices are 'tidy household,' 'progress,' and 'reassurance,' (Dryzek, 2013). Interviewees spoke of Malaysia being a developing country and "*not so advanced*" therefore needing time to "*transform*" industry and "*progress*," there was no apparent urgency in relation to the current planetary issues. The focus was on meeting energy needs and creating value from efficiencies in pollution control and material and energy usage.

However, a few interviewees went beyond the eco-efficiency measures and talked about having closed looped systems whereby the production process would be self-sustaining and profitable (Starik and Rands, 1995).

Consequently, interviewee narratives exhibited different elements of a weak form of EM discourse rather than a strong form of EM. The priority is centred on technocratic solutions to industrial pollution rather than any serious engagement with the ecological impacts of business or even the social justice issues surrounding the poor and indigenous (Christoff, 1996). Some interviewees expressed criticism of the CDM process in terms of its bureaucratic implementation rather than any dissatisfaction with its aims. These are discussed in section 5.10.

5.7.4 Responsible citizenship

Some of the interviewees referred to their organisation being a '*responsible citizen*,' a term found in the literature as part of the corporate discourse on sustainability and sustainable development (Bebbington and Larrinaga, 2014; McPhail and McKernan, 2011; Banerjee, 2008) and used by the UN Global Compact (2016) whose tagline is 'business as a force for good.' However, none of the interviewees talked about their business organisations being 'responsible citizens' in the wider context of human rights or eco justice, but rather from a narrow enlightened self-interest stance (Banerjee 2008; Spence, 2007). For example, the General Manager of a plc discusses the image of the company as a motivation for entering the CDM:

"We were embarking on the RSPO and doing LCA, so in all part and parcel of the whole thing together would bring value to the company as a responsible corporate citizen, as well as value to our products and direct revenue from CERs," (Interview 3).

Being a 'responsible corporate citizen' appears to have more to do with organisational image and marketing products, rather than any responsibility to wider stakeholders or the

environment. When asked what the characteristics of a ‘good corporate citizen’ was the Head of Sustainability of a plc stated:

“In those days you are talking about existing to make profit, but it’s not making profit per se, you must have certain responsibilities, you should be law abiding, you must respect the sovereignty of the land where you operate,” (Interview 2).

Of interest, this company has been accused of human rights abuses of workers and the indigenous in Liberia, Papua New Guinea and Indonesia (Skinner, 2013).

The conceptions of ‘responsible corporate citizenship’ fall short of the features of ‘sustaincentrism’ (Gladwin, Kennelly and Krause, 1995) such as ecological protection and social justice or Brundtland’s (UN, 1987) focus on equity and the common good, and are overshadowed by commercial concerns (Spence, 2007).

5.8 Motivations for joining the CDM

The CDM was implemented with a twofold objective of reducing carbon emissions by (a) introducing innovative technology to developing countries and; (b) to bring sustainable development to these countries. All interviewees are asked about their motivations for engaging in the CDM to give further insight into company decision making and to see if there are any tensions between the two objectives of the CDM and corporate interests, (Okereke, 2007). Table 13 summarises the overall motivations as described by the interviewees and appendix Y presents various interview quotes related to the motivations.

| | Motivation | No of interviewees |
|----|---|---------------------------|
| 1 | Financial incentives from selling the certified emissions reductions credits (CERs) | 18 |
| 2 | Changing/improving current production processes with new technology | 4 |
| 3 | Marketing/pressure from buyers | 4 |
| 4 | Consultants giving free advice and financing on success basis | 3 |
| 5 | Value to company CSR/image | 2 |
| 6 | Pressure from the Department of Environment | 1 |
| 7 | Potential regulation | 1 |
| 8 | The environment | 1 |
| 9 | Lack of alternatives from the government | 1 |
| 10 | Directive from foreign parent company | 1 |

Table 13: Motivations for entering the CDM

Based on the interviewees there are at least 10 motivations for entering the CDM. All interviews indicated the selling of the CERs from the projects as the main or only motivation. A smaller number of interviewees referred to the new technology or updating of production processes to reduce carbon emissions, reduce waste or minimise pollution as a motivating factor as well as pressure from customers. Most of the remaining motivations such as free consultancy/financing, buyer pressure, value to the company image and pressure from the DOE, appear to be still very much driven by business interests and fall within the ‘business case.’

5.9 The role/ (non-role) of accountants

An overwhelming majority of the interviewees responded that accountants played a minimal role in the CDM process. Many stated that accountants are not necessary, they simply needed someone who was numerate enough to prepare the NPV or IRR calculations, such as an engineer.

“Accountants didn’t play any role at all in our case. The consultant did the calculations for the financials based on the requirements,” (Interview 11).

Another MD comments:

“yes, definitely they get involved in things such as the cash flow analysis but I think it is at a minimum. The main contributors would be a combination of the engineers and consultants,” (Interview 13).

When asked whether traditional accounting models such as NPV or IRR are adequate considering the criteria the projects had to meet, most of the interviewees replied in the affirmative. One MD comments:

“Social benefits for example are very difficult to quantify. If we look at the environment today and how we use it, how do we know that what we are doing today is going to be detrimental to the world in say 50 years’ time?” He goes on *“if the UN wants to do a detailed study and how we affect the future of the planet they have to give us a specific format and we would fill it in,”* (Interview 9).

The main concern was that changing CBA models to include social and environmental issues would be too subjective. Cost benefit analysis (CBA), appearing neutral, facilitative and objective was of little consequence to the interviewees as it was a simple technical activity that could be done by “*anyone good with numbers.*” However, in the case of the CDM the use of NPV and IRR has the power to economise the act of emissions reductions by supporting project ‘additionality’ assessments (Lohman, 2009). In doing so the CDM becomes a calculable place, CBA the mediating influence between business organisations, experts and supranational organisations. CBA tools evaluate the viability of emissions reductions projects and whether they should be carried out or not, all the while assuming all projects are commensurate and therefore comparable (Miller and Power, 2013) purely based on economic factors only. This commensuration is silent on environmental and social matters or how the tensions between the economic, social and environmental are resolved.

5.10 Interviewees on the CDM as a SD tool

The interviewees were asked about implementing SD through the CDM. The responses indicated that approximately 6 interviewees felt that the CDM could serve as a platform for implementing sustainable development particularly due to the technical expertise from developed countries. This enabled improved environmental outcomes in addition to increased yields, and efficient use of natural resources. The Vice President of Sustainability of a plc comments:

“It helps us to take care of the environment and it involves looking at our supply chain and managing the impacts,” (Interview 4).

However, most interviewees felt that the CDM was not able to help with implementing sustainable development in the longer term. Apart from the comments in relation to the costly and bureaucratic process involving multiple levels of approval, some of the interviewees pointed out that certain industries and larger businesses are responsible for the bulk of CO², therefore one off clean technology projects are not enough to reduce emissions. Another interviewee said the government needed to do more but lacked the political will to reduce reliance on fossil fuel and another pointed out in relation to business organisations in general:

“Greening is not the first thing on their mind. It is very obvious when the carbon market crashed no-one registered for the CDM that makes it obvious enough,” (Interview 12).

Overall, it appears that the profit maximisation objective supersedes any real concern for sustainable development for the CDM business organisations interviewed (Olsen, 2007). There was some dissonance between the SD benefits outlined in the PDDs and the responses from the interviewees as to the contribution of the CDM to SD outlined here. Some interviewees recognise the inability of a technocratic approach to SD to succeed, but continue to follow the status quo in their business practices. Gray and Bebbington, (1998) refer to the cognitive dissonance within the sustainability agenda whereby senior management may hold differing views within their public and private spheres. This dissonance serves to enable ‘business as usual.’

5.11 Reflexivity

The development of findings for this chapter occurred over some time and relied on many readings of the data. This was an interpretative and iterative process involving synthesis of possible meanings in the data considering the wider context of the CDM and the relevant literature. Although there could have been other themes identified these are the main ones identified through what is a rigorous reading, rereading, documenting, coding, condensing, interpreting and synthesising. Interviews were analysed in a similar way and the literature from chapter 2 was used as a framework within which to locate and synthesise the data. However, in writing I acknowledge my own ‘situatedness’ within the research (Haynes, 2017). As a researcher interested in how sustainable development discourse is expressed by CDM business organisations, I am cognizant of my own position including:

“personal characteristics, such as gender, race, affiliation, age, sexual orientation, immigration status, personal experiences, linguistic tradition, beliefs, biases, preferences, theoretical, political and ideological stances, and emotional responses to participants,” Berger (2015, p. 220).

My values and beliefs are more consistent with Gladwin’s ‘sustaincentrism.’ The nature of the research is subjective and interpretive and my analysis, synthesis and communication of the themes is only one possible interpretation of the texts (Milne, Tregidga and Walton, 2009). However, this is not to say that my interpretation is biased or distorted as I have used various strategies for reflexive awareness such as identifying my motivations for the research, my ontological position and revisiting and maintaining notes during the research process.

5.12 Conclusion

The findings from the interpretive work on the PDDs and interviews are consistent with the earlier findings on the qualitative content analysis of the PDDs and the literature. Business organisations have primarily a ‘business as usual’ or a ‘business case’ approach to SD through the CDM with some elements of ‘ecological modernisation’ for the larger and listed business organisations. Relying on an institutional framework of supranational and national government providing the apparatus, policies and expertise, business organisations could bring sustainable development to the country, (Dryzek, 2013; Huber, 2008) if it was profitable and promoted the image of the industry.

Sustainable development can be achieved through eco-efficiency, technological innovation/proliferation and expertise. Eco-efficiency is driven by environmental management practices focusing on ‘low hanging fruit’ rather than any radical changes in production methods, (Huber, 2010). These ‘solutions’ to climate change are possible as part of a continuing ecologically benign economic growth, natural limits are no hindrance to continuing ‘*business opportunities*’ and growth, (Jackson, 2009; Mol and Jänicke, 2009). In pursuing these opportunities, business organisations are acting in the interests of Malaysia by strengthening its economic position, nothing was said about social and environmental interests of Malaysia. In addition, the interview analysis revealed some business organisations considered themselves as ‘*responsible citizens*.’ If SD and climate change is safe in the hands of business as the representations assume, then this must be demonstrated (Gray and Milne, 2002).

The language used in the PDDs was of business organisations being ‘*good corporate citizens*,’ ‘*pioneers*’ and ‘*role models*’ in introducing innovative technology to mitigate climate change and bring sustainable development benefits. It was noted that business organisations are silent on the broader concerns of sustainable development, particularly eco and social justice issues, some of which directly related to their business activities. These issues included deforestation, immigrant labour and treatment of the indigenous. Instead these issues are normalised as part of managing business activities (Laine, 2009). In addition, interviewees, tended to decouple the business response from these underlying factual issues. Finally, there was some cognitive dissonance (Chabrak and Craig, 2013; Gray and Bebbington, 1998) between the PDD narratives which positively presents how the CDM

projects contribute to SD and the interviewee narratives which in some cases are less positive about the CDM's SD potential.

In summary, the key features of the business organisations are aligned to anywhere from 'business as usual' to a very weak ecological modernisation discourse. The key features of the narratives are economistic, technocratic, technological and instrumental, bearing little relationship to sustainable development discourse featuring ecological protection and social justice.

Chapter 6: Discussion

6.1 Introduction

This chapter draws together the overall findings from the QCA and ITA of the PDDs, and the analysis of the interviews. The chapter teases out the overall narratives used by business organisations in Malaysia to see if they align with sustainable development as claimed by the CDM developers. Similar themes across the PDDs and interviews are identified and any differences particularly between what is written about sustainable development in the PDDs and what was said by interviewees are highlighted. Further, any contradictions which might reveal dissonance between what is written in PDDs and individual interviews is discussed. The chapter begins in section 6.2 by revisiting the differences between SD and EM and why the conflation of the two can lead to different framings, actions and outcomes for the SD agenda. A closer look at the wider EM context sets the scene for discussing the overall findings from the empirics. The metaphor of the ‘glass cage’ from organisation studies (Gabriel, 2005) is introduced to show how a narrative of ecological modernisation can be a hindrance to sustainable development though appearing to have the same aims. The various narratives teased out from the PDDs and interviews reveal a variety of incremental approaches to SD ranging on a continuum from ‘business as usual’ to ‘weak ecological modernisation.’ These are discussed individually in sections 6.3 to 6.6 with an overall discussion on whether CDM organisations are writing and speaking about SD in section 6.7. The missing elements of SD in the narratives of business organisations is also considered. The role/(non-role) of accounting and accountants in the CDM will be looked at briefly in section 6.7.6. CDM business organisations felt that accountants had little to offer them in the process. An appraisal of whether the CDM or similar mechanisms could bring sustainable development to a country like Malaysia through its business organisations is presented in section 6.8 including the barriers that need to be overcome to achieve SD. The chapter then concludes.

6.2 Sustainable development or ecological modernisation?

Before discussing the conceptions of SD at the micro level exhibited by CDM business organisations, it is helpful to establish the linkages between EM and SD and how they are conflated at both institutional and organisational level. CDM business organisations write and speak about sustainable development in the PDDs and interviews. However, upon closer examination, the narratives fall far short of sustainable development as prescribed by the Brundtland report (UN, 1987). Most of the business organisations use a ‘business as usual’ or

‘business case’ narrative whereas a minority employ a weak ecological modernisation discourse.

In earlier chapters, the CDM was presented as a tool of EM rather than of SD, so it is questionable whether business organisations operating within such a framework can bring SD. Institutionalisation of EM has resulted in a ‘locking in’ of institutional and organisational approaches to SD within an EM development trajectory which is unlikely to bring SD (Baker, 2007; Barry, 2007). This ‘locking-in’ or ‘cage’ marginalizes or makes invisible alternative framings of SD, including the aspirational SD of Brundtland (UN, 1987) or the ‘sustaincentrism’ of Gladwin, Kennelly and Krause, (1995). EM also legitimises the current corporatist governance framework of state, scientific and economic expertise, markets and business organisations involved in ecological restructuring (Bailey, Gouldson and Newell, 2011) and negates the more aspirational elements of SD such as equity and eco justice.

6.2.1 The conflation of sustainable development and ecological modernisation

EM has been described as a theory, a discourse, a policy tool, and a technological fix for ecological problems (Buttel, 2000; Christoff, 1996). Many regard EM as synonymous with SD (Jänicke, 2008; Mol and Spaargaren, 2000; Huber, 2000,) or conclude that EM has a lot to contribute to the eventual transition to SD (Scerri and Holden, 2014). However, others argue that conflating EM with SD is a perilous precedent as both are very different in their approaches and the expected outcomes (Baker, 2007; Hopwood, Mellor and O’Brien, 2005; Dryzek, 2005; Langhelle, 2000). SD is more aspirational and inclusive of ecological restraint, social justice and intra/inter-generational equity. However, EM and SD are not mutually exclusive as there are some elements of EM which may contribute to sustainable development such as the elimination of pollution through technological advances. Nonetheless, these advances are usually incremental (Bailey, Gouldson and Newell, 2011). There are overlaps between the ‘business case’ and EM, such as the management of nature through a programme of profitable environmental management, (Christoff, 1996). However, EM is much wider than the ‘business case’ as it aims to integrate ecology with business by privileging technology and markets, and using scientific and economic expertise to do this. EM is supply side focused and ignores the impact of growing consumption which cannot be overcome with innovative technology alone (York and Rosa, 2003).

At macro or institutional level, EM proponents maintain that progress and development can solve SD problems, as industry will become more ecologically rational due to market forces,

and the efforts of the public, social organisations and the government towards solving ecological problems (York and Rosa, 2003).

6.2.2 EM at the institutional level

How business organisations write and speak about sustainable development will be influenced by the political and institutional context within which they operate (Deegan, 2017).

Consequently, in this study it is important to consider the complex institutional, political and organisational realities within which mechanisms such as the CDM operate before discussing the conceptions of SD at organisational level. Within policy circles, particularly in Western countries, EM is the dominant conceptualisation of SD (Baker, 2006). Public policy aims to 'green' the economy by corporatist strategies which include the use of markets to incentivise industry to engage with eco-efficiency measures, develop innovative technology and create partnerships to add new profitable services, (Barry, 2007). EM's technocratic supply side approach ignores the tensions surrounding growth and ecological limits and consumptive life styles. Instead, institutions are considered flexible enough to deal with these challenges without any radical changes to institutional structures (Pataki, 2009). Although EM and SD are often conflated (Langhelle, 2000) there is a marked difference between their discourses at institutional and policy level (refer table 3). The key differences relate to SD's higher normative ideals in relation to ecological limits, equity, democratic participation, environmental and social outcomes, non-corporatist implementation mechanisms and balanced consideration of risks. Although many countries, including Malaysia, have subscribed to SD, the SD policies and their implementation are EM couched in terms of SD. For example, Malaysia's latest development policy is called the 'green growth' strategy, (EPU, 2015) and fails to address the inherent contradictions of consumption, growth and ecological protection, (Barry, 2007). Policy setting is within an institutional government framework supported by scientific and economic experts and business organisations combining both economy and ecology. For example, the EM approach to climate change has resulted in "*the gradual reframing of a 'wicked' problem as a technological, economically and politically tractable problem,*" (Bailey, Gouldson, and Newell, 2011. p. 685). As Baker (2007) writes governments make symbolic legal and declaratory commitments to SD but implementation is in the form of EM which falls short of the Brundtland vision for SD. EM is chosen over SD due to its ability to produce pragmatic and cost-effective solutions to environmental problems (Huber, 2008). Moreover, EM is easy to administer, focuses on the processes rather than the outcomes, (Wright and Kurian, 2010) is business friendly, secures

economic competitiveness and does not requiring major or radical changes to existing economic and political structures (Lundqvist, 2015; Carter, 2007; Baker, 2007). As stated by Dryzek, (2013 p.185) EM is a discourse which connotes ‘*progress*’ and ‘*reassurance*’ that the status quo can continue.

6.2.3 Institutionalisation of EM, from ‘iron cage’ to ‘glass cage’?

The prior sections have established that EM and SD are not the same thing. EM is a limiting concept which fails to address the broader concerns of SD (Pataki, 2009; Langhelle, 2000). However, current institutional frameworks and governance mechanisms appear to be on an EM development trajectory rather than an SD one, although there is a symbolic commitment to SD (Baker, 2007). Industrialisation has led to the degradation of ecological systems due to anthropogenic domination of nature, as can be seen with the climate change crisis and the breaching of planetary boundaries (Steffen, *et al.*, 2015; Rockström, *et al.*, 2009). Murphy, (2002, p. 81) refers to this as the “*iron cage of a degraded eco system*” and Buttel, (2000, p. 60) the “*iron cage of environmental despair.*” The way out of this iron cage is through SD and sustainability but these ubiquitous concepts have not provided the necessary guidance for industrialised nations. Buttel, (2000, see also Curran, 2015) suggests that SD is more suitable for development in the South. Therefore, in the north EM was conceptualised as a more attractive proposal for environmental improvement through the application of science, technology, capital and the state. An EM trajectory to development is an impediment to SD, a form of ‘glass cage’. The ‘glass cage’ is a metaphor first conceived by Gabriel (2005, p. 18) to explain modern day work and consumption and is used here to illustrate how EM cripples the advancement of sustainable development.

The ‘glass cage’ signifies an obsession with transparency, efficiency, audits, reviews, feedback, lists and league tables (Gabriel, 2005, p. 18). Similarly, ecological modernisation reduces ecological problems to micro manageable technocratic solutions based on cost efficiency, measurements and feedback. Focus is on the process not the outcomes (Wright and Kurian, 2010). The ‘glass cage’ of ecological modernisation acts as an invisible barrier to the transformative actions needed for sustainable development. Its structure (of market logic, technological optimism, and scientific expertise, within an economic model) frames the SD ‘problem’ and sets the boundaries as to what is included and what is left outside the glass (eco justice, social equity, ecological protection). However, its transparency manages to evoke possibilities for sustainable development through the ‘greening’ of corporate activities and

government policies via innovative technological solutions and market mechanisms, without achieving sustainability.

The EM 'glass cage'

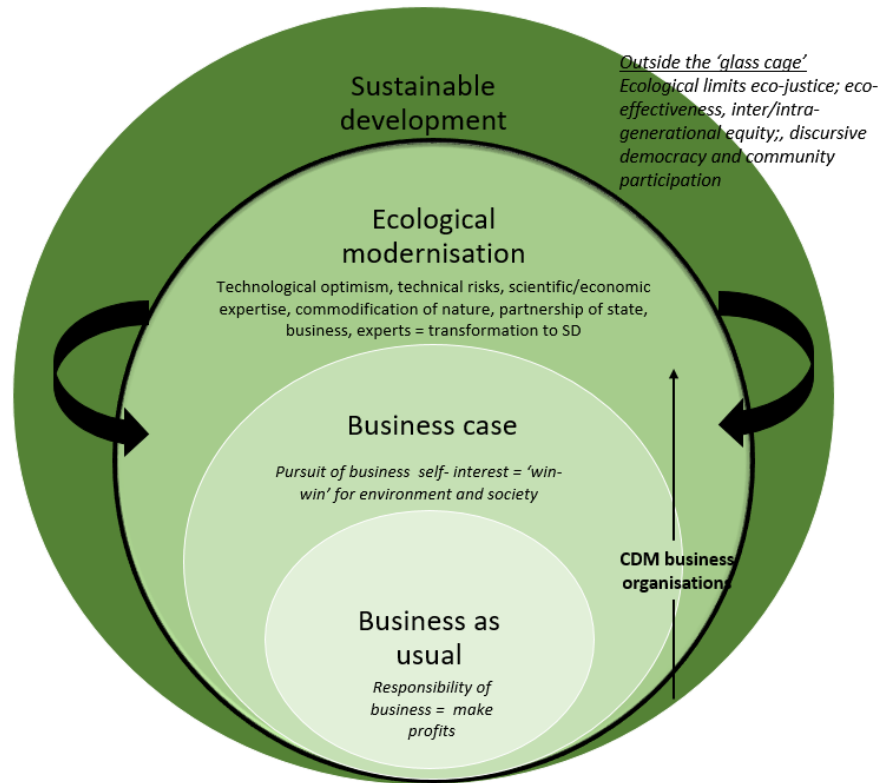


Figure 20: The EM 'glass cage'

The 'glass cage' ensures that those who might hold business organisations to account (citizens, NGO's, governments, etc.) look and see an image of business organisations 'doing the right thing' such as engaging with global institutions on environmental issues, arranging voluntary partnerships with NGOs, investing in innovative environmental technology and reducing emissions through marketable instruments. Further, it hides the reality of entrapment for those inside, engaged in a limited 'doing' of sustainability separate from natural eco systems, and societal participation. Those outside the glass cage, stakeholders in the planet such as the environment, the poor, the indigenous, the ordinary citizen, future generations are unable to participate in the political and managerialist workings within the glass cage as the democratic participatory processes called for by SD are weak or non-existent. Inside the glass cage the narrative of ecological modernisation, shuts out the discourse of sustainable development (Spence, 2007), it has nothing to say about humanity's relationship to the wider ecological systems, planetary boundaries (Rockström *et al.*, 2009)

the macro management of natural resource depletion, eco-effectiveness and eco-justice issues arising from the globalisation of economic development (Banerjee, 2011). As Gabriel (2005, p. 11) writes it is possible “*to get trapped within the bureaucratic mechanism,*” so too it is possible to be trapped within an EM narrative which holds the promise of SD but is constrained by different aims. It is within this context the business organisations in this study are operating.

6.3 CDM developer conceptions of sustainable development

This section draws on the empirical work from chapters 4 and 5 to identify the overall conceptions of sustainable development as written and spoken about by the CDM business organisations. The methods used in the empirical work are qualitative content analysis and interpretive textual analysis of PDDs and interviews. These combined methods permit a broader exploration of the conceptions of SD and enable corroboration of findings between methods which enhances the trustworthiness (validity) of the research (Lapsley, 2008; Guba and Lincoln, 1994).

The CDM developer business organisations are not writing and speaking about sustainable development of Brundtland (UN, 1987) or ‘sustaincentrism’ of Gladwin *et al.*, (1995). The conceptions ranged on a continuum from ‘business as usual’ to weak ecological modernisation, meaning from a position of no or limited engagement to a position of partial engagement with the SD agenda.

Figure 20 illustrates how business organisations approach to sustainable development may fall into any of these ‘states.’ Each ‘state’ is an incremental change from the previous state, requiring changes in operations primarily (Benn, Dunphy and Griffiths, 2014). ‘Business as usual’ is smaller than the others as it encompasses less responsibility for the environment and society. Moving from one state to another widens responsibility to the environment and society. However, the move from EM to a state of sustainability encompassing healthy social and ecological systems requires a process of sustainable development which:

“necessitates integrating environmental policies and development strategies so as to satisfy current and future human need, improve peoples’ quality of life, and protects the environment, which we depend on for life support services.” (Shields, Verga and Blengini, 2013, p.2).

This move requires more than an incremental change to production processes, waste treatment and fossil fuel consumption. It requires a transformational change, a breaking of the ‘glass cage’ of EM, including transformation of the economy and its institutions, and the relationship between society and the environment.

The conceptions of sustainable development are affected by business organisation engagement with the economy, socio-economic and wellbeing issues and the environment. A business organisation’s engagement with sustainable development is determined by the social responsibilities it is willing to accept (Gray, Adams and Owen, 2014). The following discussion considers the various narratives identified from the empirics in chapters 4 and 5. The PDDs and interviews show that business organisations are primarily concerned with economic benefits of the CDM projects, environmental efficiency, ‘low hanging fruits,’ compliance with regulation and protection of reputation and image.

6.4 Business as usual

The main priority of the CDM developer business organisations is the maximisation of wealth and continued profitability of their business organisations, (Dyllick and Muff, 2015). If contributing to the environment or sustainable development at the operational level brought an increase to the bottom line via reduction in costs, then it was a worthwhile ‘add-on.’ However, most the private business organisations engaged in the CDM primarily for the economic benefits from selling CERs. None of the business organisations wanted to engage in more CDM projects due to the collapse in the CER market prices. Interviewees were explicit that profits came first and business organisations would only engage in sustainability initiatives if they had extra income to do so or the initiative was profitable to the company. This pure form of ‘business as usual’ follows the traditional business model espoused by Friedman (1970) where business has responsibility only to maximise wealth for shareholders. Business organisations reduced energy consumption, decreased pollution into waterways and treated waste but were compelled to by the potential economic benefits or the need to change production processes due to DOE pressure, public complaints or the threat of regulation. These would result in costs to the business in the form of fines or loss of revenue due to removal of operating licences by the DOE.

Many of the private business organisations stated they had no responsibility to go beyond their normal business activities if they complied with regulations. Compliance with regulations was a key feature of the PDDs as seen both in the qualitative content analysis and interpretive textual analysis. This was the highest mentioned category, with an emphasis on

compliance with air and water quality and noise pollution standards. By complying with regulations business organisations inferred responsibility towards the environment and society although they operated within a ‘business as usual’ stage (Laine 2010; Buhr and Reiter 2006). Many emphasised they were not required to complete EIAs but still considered the environmental issues surrounding their projects, though most of these were considered ‘negligible.’ Promotion of law and regulations to raise environmental performance and promote environmental protection were not mentioned (Starik and Rands, 1995). In addition, business organisations in the palm oil industry were aware of the Malaysian DOE’s plans to implement stricter effluent standards and wanted to ensure they were compliant (Zainuddin *et al.*, 2017). Many of these business organisations have not moved beyond compliance and use regulations as a legitimating device to portray an acceptable level of environmental performance (Tregidga, Milne and Kearins, 2014; Laine, 2009). Many private business organisations, proposed that responsibility for sustainability initiatives lay with large and public listed business organisations rather than smaller business organisations. This is consistent with research in other countries where sustainability initiatives and reporting are driven primarily by large business organisations from ‘sensitive’ industries (O’Dwyer and Owen, 2005). While there are potential barriers to the involvement of SMEs in sustainability initiatives, such as lack of resources, competencies and lack of public visibility (Meath, Linnenluecke and Griffiths, 2016; Bos-Brouwers, 2010). As one interviewee (17) states in the context of Malaysian SMEs and sustainability:

“If you are a smaller company you can still get away with a lot but if you are a bigger company it is very difficult to keep secrets nowadays, information is so easily accessible and travels fast.”

This disavowal of social responsibility beyond wealth creation and regulatory compliance is of concern as SMEs make up a significant proportion of many economies. In Malaysia SMEs contribute approximately one third of the GDP and 50% of employment. Without regulatory and consumer pressure or government incentives, it is difficult to see how these business organisations will change their mind sets from ‘business as usual’ to one which considers sustainability.

6.5 The Business Case

The ‘business case’ approach to SD takes ‘business as usual’ and introduces sustainability issues into business operations. In other words, there is a ‘business case’ for incorporating environment and social issues into company decision making as it is in the self-interest of business to do so (Gray and Bebbington, 2007). However, the overall aim in this approach to SD is to prioritise the economic (Dyllick and Muff, 2015). The ‘business case’ promotes business as one of the leaders in the sustainable development agenda. Businesses are seen as capable of implementing sustainable development. In other words, SD is ‘safe in the hands’ of business (Cho *et al.*, 2015; Beder, 2014; Andrew, Kaidonis and Andrew 2010; Laine, 2010; Banerjee, 2008; Gray and Bebbington, 2000).

For the CDM business organisations the initiative to engage in ‘sustainability’ activities resulted from eco-efficiency savings and improvement of corporate image. Consistent with management literature, benefits may be in the form of reduced costs through eco-efficiency measures, reduced business risks, improved public relations, improved brand value, ability to attract talented employees and improved competitiveness (Dyllick and Muff, 2015; Schaltegger, Freund and Hansen, 2012). Voluntary engagement with sustainability initiatives may also reduce the threat of regulation (Carroll and Shabana, 2010). The key concerns of the business organisations as reflected in the PDDs and interviews are now discussed.

6.5.1 Sustaining eco-efficiency

Cost minimisation through a process of environmental management was paramount in these business organisations. The development of CDM emissions reduction projects could add value in terms of increased infrastructure investment and reduced costs of fossil fuel imports. Eco-efficiency measures such as reduction in energy consumption, waste recycling, waste and effluent disposal, material conservation and maximisation of yields (e.g. in the agribusinesses) were the primary focus rather than any real engagement with the sustainable development agenda (Milne and Gray, 2013). The narrative throughout the PDDs was one of ‘*efficient management*,’ ‘*efficient operation*,’ ‘*efficient use of resources*,’ ‘*efficient utilisation*,’ ‘*fuel efficiency*,’ ‘*efficient combustion*,’ and ‘*efficient use of fossil fuels*.’ The pursuit of ‘low hanging fruit’ does not require radical changes to how a company conducts itself and are usually inexpensive to implement. The efficiency measures primarily concentrate on the end of the production process (Narain and van’t Veld, 2007) and add little real value to the overall consumption of natural resources.

Of the 98 Malaysian business organisations engaged in the CDM, 5 were GLCs. GLCs are expected to contribute to the country's economic and social goals under the New Economic Policy (Lau and Tong, 2008). However, GLCs had a similar SD narrative when compared with other large business organisations, i.e. compliance with regulation, cleaner and safer production, reduction of emissions and energy consumption. The main difference between GLCs and other company types was the importance of significant infrastructure investment and services as well as assessment of risks in implementing corporate sustainability. The requirement to create returns for shareholders and value for society appears to be diametrically opposed and GLCs prioritised the former adopting the 'business case' conception of sustainable development.

6.5.2 Sustaining industry image

In addition to the economic benefits of implementing eco-efficiency measures, other benefits accrued to the CDM business organisations in the form of improving the image of the business organisations. Sustaining the reputation or image of the company was included as a sustainable benefit in many of the PDDs. As noted in both the interpretive textual analysis and interviews, this was a reoccurring theme particularly for those business organisations involved in 'sensitive' industries such as palm oil, agribusiness and rubber products (O'Dwyer and Owen, 2005; Adams, 2004). The introduction of the new technologies would provide a 'cleaned up' or 'greener' image of the industry and its products. At least 30 business organisations operating in the palm oil industry referred to 'greening' the industry and improving the image of palm oil as a sustainable development contribution. Improving industry reputation and avoiding possible costly disenfranchisement or loss of customers appears to be a motivation for engaging in the CDM rather than any substantive engagement with the sustainable development agenda (Bebbington and Larrinaga, 2008). Including participation in the CDM projects in annual reports or marketing literature would add to the reputational façade of these business organisations. A reputational façade,

“deals in the image of the corporation. This façade can inflate a corporation's realistic, achievable goals or mask performance that is unacceptable to certain groups,” (Cho *et al.*, 2015).

Pressure from buyers, 'getting production processes under control' and image were also given as motivations for joining the CDM.

6.5.3 Understating the social aspects of sustainable development

The environmental category received the most attention in the PDDs and interviews rather than the social component of sustainable development. This is in keeping with the more traditional business views of SD and mirrors the guidance from business organisations such as the ICC (Laine, 2005). The ICC's 2015 Business Charter for Sustainable Development under its Responsibility for People and Society, concentrates on employment growth, job creation, enhancing skills and human rights. Anything beyond this was apparently dealt with through relevant national level legislation, i.e. *“as far as human rights and other societal aspects of sustainable development are concerned, national laws and regulations, including labour and environmental laws, are in place and need to be complied with.”* (ICC, 2015 p. 9). Although it is not clear how (particularly in developing countries) following regulations will alleviate poverty and promote human rights, inclusiveness and wellbeing. The social issues narrative for the CDM business organisations mirrored that of the ICC's with an emphasis on labour practices, specifically the employer-employee relationship including economic benefits, technical training and health and safety issues. However, there was no mention of how sustainability values were communicated to employees. The narratives in the PDDs and interviews were silent on wider sustainability issues of labour discrimination, human trafficking, equality and immigrant workers, though in the case of the latter, many of the business organisations engaged foreign workers in their operations. In addition, Malaysia is known for cases of forced labour and human trafficking as identified by the International Labour Organisation (Harkins, 2016).

Very little was included on community and stakeholder relations in the PDDs, except for the project benefits in bringing clear air and clean water and the philanthropic activities of a few business organisations (from carbon credit proceeds). The philanthropic activities included building community centres and donations for education and community sporting events. Issues relating to the encroachment on indigenous land or treatment of foreign workers (Razzaq, 2012) were minimised or unmentioned. Further, many self-laudatory statements on the participation of stakeholders and the improvement of their 'quality of life' were made without any real explanations as to how actual quality of life was improved. Ashforth and Gibbs (1990) argue that this is a form of symbolic management of company activities where the company appears to align with societal values. This empty symbolic narrative falls short of any real engagement with social or ecological sustainability (Milne and Gray, 2013). In summary, business organisational concern is with sustaining the business, as one managing director (interviewee 14) of a green technology company speaks about energy efficiency:

“If it’s something extra which is not going to cost you money then it allows you extra profit in terms of savings. So, any sustainable projects that we look at or invest in have to have that element in it, you must be economically sustainable.”

Notably, most the sustainable development references in the PDDs were based on the ‘business case’ narrative of the GRI and this applied to all company types. Concern for sustainability issues clearly lies in furthering the strategic aims of the CDM business organisations.

6.6 Ecological modernisation (EM)

‘Business as usual,’ the ‘business case’ and ‘ecological modernisation’ conceptions of sustainable development are produced at the micro level of business organisations as shown by the empirical work in this study. However, ecological modernisation is more than a micro level conception. EM is referred to as a sociological theory and may be applicable at the micro (entity) and macro (national/global) level. EM is regarded as a technological and scientific approach to business production processes, a policy discourse for governments and a belief system (Christoff, 1996). The EM policy discourse uses the language of business, i.e. economics and eco-efficiency. EM decouples economic growth and environmental degradation using technological innovation and diffusion and integrating environmental policy into government and industry activities, as illustrated by the CDM (Ninan, 2011; Janicke 2008). Dryzek (2013, and Hajer, 1998) gives a useful overview of the discourse elements of EM. These include the entities recognised or constructed, the assumptions about natural relationships, actors and their motives and the key rhetorical devices used in the narrative. These elements are now used to frame the findings on EM within the PDDs and interviews.

6.6.1 EM at micro level (entity)

As the research explores the conceptions of sustainable development constructed by CDM business organisations, this section will explore what EM might look like at micro/entity level. At entity level the features of EM would include those set out in figure 21. These features are based on literature from the EM field, (Lundqvist, 2015; Pataki, 2009; Huber, 2008; Dryzek, 2005; 2008; Langhelle, 2000; Buttel, 2000; Söderbaum, 1999). Many of the features can be identified from the empirical work on the PDDs and the interviews with the

Malaysian business organisations. The following discussion identifies the key ones within the PDDs and interviews.

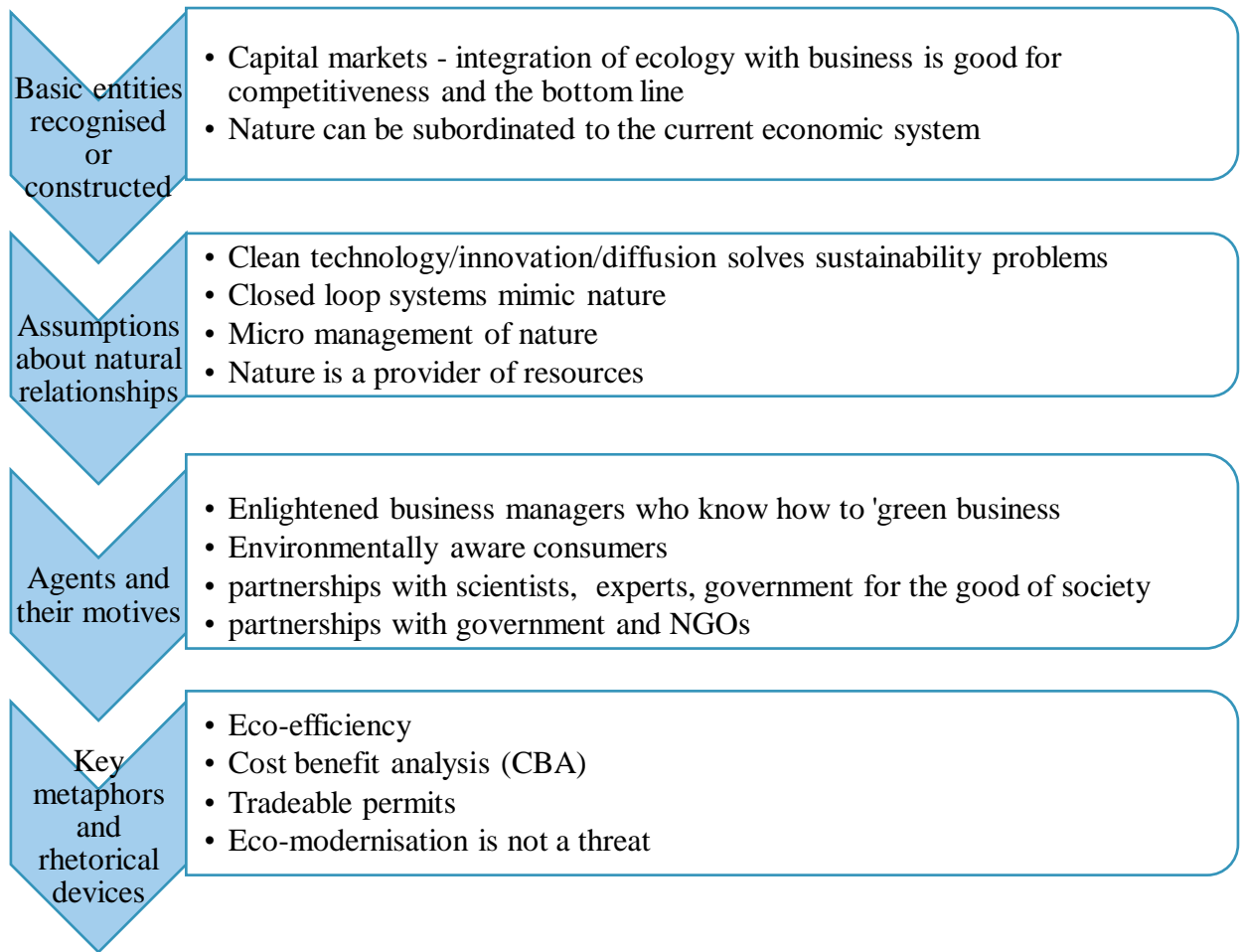


Figure 21: Ecological modernisation features at entity level

6.6.2 EM at entity level in CDM business organisations

The first main theme from both the qualitative content analysis and the interpretive textual analysis is the privileging of innovative technology in the management of the environment such as emissions, pollution, energy consumption, effluent and waste from production processes. There is money to be made in clean technology, e.g. recycling biomass from plantations into fertiliser or methane from landfills into biogas for energy production. The ‘pollution prevention pays’ principle is evident (Dryzek, 2013). Technological innovation is an ‘opportunity’ leading to increased competitiveness and efficiency and at the same time a contribution to sustainable development. Modernisation leads to ‘win-win’ solutions for all even at global level and advances the growth of industry. As one private company writes:

“The project is a ‘win-win’ initiative, where global and local environmental benefits can be generated through an integrated and mainstreamed approach to support national sustainable development priorities,” (PDD 929 p. 2.).

Although business organisations write about the benefits of technological innovation and proliferation, interviewees were more cautious about the ability of technology to overcome ecological problems and bring sustainable development to the country. The rhetoric in the PDDs is one of pioneering achievements with projects labelled as ‘*showcases*,’ ‘*demonstration projects*,’ or ‘*convincing models*’ for other business organisations who may want to follow the same path. Many write optimistically about the proliferation of similar technology nationally and regionally. Scientific and technological optimism is a key feature of EM and has close links to Gladwin, Kennelly and Krause’s (1995) ‘technocentrism.’ However, when asked about the ability of such innovation to bring sustainable development, some interviewees were less optimistic compared with the rhetoric in the PDDs and felt that there needed to be more effective policy making and legislation in place to push business organisations towards cleaner production. As the MD of a waste water management company explains:

“No there has to be technology with the right policy. You have to have the stakeholders involved and the carrot and stick approach must be in combination without which technology alone is it not going to be the only driver obviously,”
(Interview 15).

The second theme relates to assumptions about nature (Dryzek, 2005) evident in the CDM business organisations. Nature is decoupled from economic growth and is easily subordinated to the economic system (Pataki, 2009) and environmental management systems. Although nature is a provider of resources and services to the CDM business organisations (e.g. forests, water, land, rivers as well as the indigenous and fauna), there is no obligation to protect natural resource limits or consider the non-substitutability of natural capital (Gray, 2010; Jackson, 2009; Gladwin, Kennelly and Krause, 1995). Nature is reduced to an environmental management problem, including the managing of pollution outputs, of pests, and vulnerable communities such as the Orang Asli whose villages are in the way of development (TNB’s hydro plant). Biodiversity was only mentioned to the extent ‘*maximum sustainable yields*’ could be achieved and most environmental impacts were minimised as ‘*negligible*’ ‘*minor*’ or ‘*localised*.’ Continuing economic growth is not in conflict with ongoing depletion of natural

resources, such as deforestation and the ever increasing consumption evident from increasing landfills (Zainu and Songkip, 2017; Jackson 2009). A few of the business organisations refer to closing the loop of their production processes by mimicking eco systems in their product life cycles. However, this is for the purposes of cost reductions in waste disposal, increasing eco-efficiency and marketing of products rather than any real concern for conserving natural resources (Gladwin, Kennelly and Krause 1995; Starik and Rands, 1995).

The third EM theme relates to the marketization and commodification of nature. The underlying assumption is that environmental issues (e.g. carbon emissions) can be managed efficiently, via pricing of these environmental externalities in markets. The forces of supply and demand will ultimately rectify the environmental externalities and allocate natural resources in the best way (Grubb, Haney and Wilde, 2009). Whether markets can achieve such solutions is debatable. Many issues surround the increasing industrialisation and therefore growing emissions of major developing countries such as China and India (Boden, Marland and Andres, 2017). The responsibility for reducing emissions and the commodification of the atmosphere that essentially belongs to everyone is an ethical issue (Caney, 2012). Responsibility for emissions reductions is passed to the developing world via the CDM offset programme (Pearse and Böhm, 2014) and the vested interests of the elite group (experts, consultants, business, government) control the carbon markets (Lohmann, 2009). In addition, carbon markets have failed as of 2017 to reduce emissions. Pearse and Böhm (2014) provide a useful analysis of why carbon markets will not bring the radical emissions reductions needed, including problems with corruption, imperfect markets and political barriers.

In Malaysia, interviewees spoke of the collapse of the CER market which left some project developers abandoning the scheme as the costs of verification were too high. Others spoke of the bureaucracy and time involved in having projects approved by the UNFCCC and the lack of clear guidelines on resubmitting rejected PDDs. One interviewee, a General Manager of a renewable energy company highlights the irony of the market mechanism stating:

“I don’t know if someone is willing to sit down and do a carbon study on the whole process of the CDM. The carbon emissions emitted may be more than the carbon emissions saved. The amount of travelling involved with consultants and the technology providers from European countries is tremendous. Piles of paper, verifiers and validators come in groups from Europe, Hong Kong and Japan,” (Interview 11).

This was insightful because the CDM mechanism places emphasis on measurement, methodologies and rules without looking at the bigger picture (Pearse and Böhm, 2014). In EM, markets are a key mechanism for their allocative efficiency and cost effectiveness, not only in terms of tradeable pollution permits but for the proliferation of innovative environmental technology. As the progenitor of EM, Huber (2008) opines that lead markets are key to the diffusion of pioneering environmental technology. In the CDM this is done through CERs, i.e. pollution permits. CDM business organisations develop carbon emissions reducing projects, earn CERs for the emissions reductions and then sell these to European business organisations to meet carbon reduction targets. Notably, Malaysian CDM business organisations in their PDDs lauded the transfer of technology and ‘talked-up’ the SD benefits and the proliferation potential across the region. Unfortunately, due to the collapse in CER prices most of the interviewees said they would not engage in further CDM projects as their main motivation (economic benefit) was gone. Many of the business organisations transferred to another scheme ran by the Malaysian government (a feed in tariff) to sell energy to the national grid (Lim and Lam, 2014). As Pearse and Böhm (2014) argue the utopian faith in the effectiveness of carbon markets are at odds with the sustainable development objectives. This is borne out in Malaysia as environmental and social issues were not an incentive to engage in the CDM.

The fourth EM theme arising from the empirical work relates to the actors involved in the CDM institutional apparatus. The collective interests of stakeholders in combatting climate change and bringing SD are represented by government, businesses, scientists, economists and other experts (Dryzek, 2013). Scientists, through the UNFCCC make claims about climate change and economists and consultants construct an approach to solving the problem while contributing to sustainable development all based on scientific rationality and expertise (Beck, 1992). Further, the institutions (government, businesses, capital markets) that to some extent created the ecological problems are now privileged in the problem solving (Hajer, 1997). This marginalises other sustainable development issues (as the focus is on climate change) and other ‘non-expert’ stakeholders who are unable to contribute to the process (Lohmann, 2006). The process is mediated between the DNA, the business organisation and the experts, limiting the potential for participatory and discursive democracy required within SD (Wright and Kurian, 2010). Marginalisation occurs in a few ways; one, due to the technical language of PDDs which is one of economic and scientific rationality (whether in the form of accounting for emissions, or cost-benefit analyses) and the validation and verification processes. Secondly, local stakeholders affected by the projects are invited to make comments and attend stakeholder meetings which are recorded in the PDDs. However,

these engagements are entirely controlled by the CDM developer in terms of the medium used to invite stakeholders and which stakeholders are invited. A review of the PDDs showed that most stakeholders in attendance at these meetings were representatives from the CDM developer, government departments, local business representatives and capital providers. In some cases, local community representatives attended but (based on the nature of questions asked and recorded in the PDDs) lacked the awareness to actively engage in the meetings (Disch, 2010). Sustainable development requires engagement with stakeholders and inclusive democratic decision making at local level to ensure corporate accountability and better social outcomes (Banerjee, 2014). However, this seems to be lacking in many of the meetings. As one interviewee points out many of the local community are more interested in employment opportunities than engaging with the sustainable development benefits of the project:

“They show interest, many of them come in for the stakeholders meeting, for many of them the first question is, do we have jobs? Generally, it’s about ‘what’s in it for me?’”
(Interview 13).

In summary, the foregoing features of the CDM process and implementation of projects in Malaysia exhibit a very weak form of EM. The features of EM lie along a continuum, (similar to SD) from weak to strong. The weak form of EM as exhibited by business organisations in this study is economistic, technological, instrumental and technocratic (Christoff, 1996) and does not address ecological problems nor engage with the systemic issues of SD. Weak EM concentrates on economic growth via the markets, growth can bring a ‘win-win’ combination of social and environmental benefits as well. Moreover, the focus is on the supply side in the economy and it is assumed that stakeholders are enlightened and will make rational choices that reduce environmental impacts (Scerri and Holden, 2014).

6.7 Are CDM business organisations writing and speaking about SD?

The business organisations are not writing or speaking about SD, although the majority (approximately 80%) of the PDDs are positioned as contributing to SD. Contributing to SD was a requirement of the Kyoto Protocol, although some business organisations choose to focus only on environmental benefits and do not mention sustainability or SD. Whilst the business organisations present a story line of ‘doing’ sustainable development the PDDs reflect narratives of ‘business as usual,’ ‘the business case,’ and ‘weak ecological modernisation.’ Drawing on the above discussion and the literature review, figure 22

summarises and compares the SD conceptions of the CDM business organisations with those from the literature. There are many similarities between both. However, the TBL is not a feature in the PDDs nor in the interviews, perhaps due to the organisational context within the CDM. The PDDs and interviews de-emphasise the messier and less certain aspects of sustainable development. These aspects include nature, social, stakeholder engagement and regulation and are now discussed.

6.7.1 Nature: a limited resource or no limits?

The CDM business organisations write about nature as a resource to be used efficiently in the production processes and as a waste treatment plant (Dryzek, 2013). Some of those interviewed recognised the importance of preserving natural resources but only to the extent it was a profitable activity for the organisation. The key argument many interviewees made was that without growth and profits, business organisations were not able to promote sustainability. Although research is ongoing at UN level on the value and integration of ecosystem services (e.g. tropical forests, wetlands, oceans, etc.) with the economic system (TEEB 2010), this was not something considered in the CDM.

Planetary boundary issues (Rockström, *et al.*, 2009) such as biodiversity loss did not feature in the company narratives although the nature of some of the industries (palm oil, timber, hydro power generation, rubber) were linked to the destruction of flora and fauna due to deforestation (Tan *et al.*, 2009). Limits to growth (Holden, Linnerud, and Banister, 2017; Bebbington *et al.*, 2015; Jackson, 2009, Gladwin, Kennelly and Krause, 1995) were missing from the narratives. A further conspicuous missing element in the narratives is that of the sustainability of supply chains. Sustainability within the supply chain is not as important as reducing costs by reducing imports. Overall, the approach to nature is instrumental, with a focus on compliance with environmental legislation and investment in environmental innovation provided it is economically beneficial.


| Conceptions of SD | Business as usual | The business case | Triple bottom line | Ecological modernisation | Sustainable entrepreneurship | Sustaincentrism |
|--|---|---|--|--|--|---|
| No sustainability Weak sustainability Strong sustainability  | | | | | | |
| Features from the literature | Max shareholders' wealth Legislative compliance No ecological limits | Growth/continuity of business CSR/philanthropy Environmental management | Business leads sustainability 'Win-win' TBL synonymous with sustainability | -Technological and scientific optimism -Eco-efficiency is key -Markets solve modernity's problems -Strategic management of nature, outputs and people | Shared value 'sufficiency' 'strategic satisficing' | -Eco justice -Eco effectiveness -Inter & Intergenerational equity -Consumption limits - 'Connectivity' - 'Inclusiveness' - 'Prudence' - 'Security' |
| Features in Malaysian CDM Business Organisations | Overriding profit motive No responsibility for Social or environmental Regulatory compliance only | Economic motive Environmental management Eco-efficiency Industry image Philanthropy | "Win-win" | Eco-efficiency Technological innovation No ecological limits Weak participatory process | | |

Figure 22: Conceptions of sustainable development: comparing the literature and Malaysian CDM business organisation narratives

6.7.2 Social imperatives

The social aspects of sustainable development receive limited attention in the PDDs. The focus is on human resources and the employer-employee relationship such as economic benefits and health and safety issues. Embedding of sustainability considerations into human resource functions including recruitment, training and development and reward systems is absent (Starik and Rands, 1995). Not all business organisations engage in community and stakeholder activities and the few that do adopt a benevolent philanthropic approach donating funds and building community centres which could be considered the simplest form of community involvement (Gray, Adams and Owen, 2014). Higher forms of engagement as identified by Gray, Adams and Owen (2014) include community involvement and partnerships with NGOs. These are written about in the PDDs but a few of the interviewees (interviewees 2, 3 and 6) spoke of their experiences with NGOs. The interviewees (two GMs and a Head of Sustainability from plcs/subsidiary of plc) were opposed to what they saw as interference in their operations by NGOs. One referred to the NGOs as ‘attacking’ and ‘self-righteous’ when they queried the company on their practices in relation to child labour and deforestation. Another saw NGOs as ‘well meaning’ but misguided. However, there were two business organisations in partnership with NGOs to bring housing to stateless children of immigrant workers and provide support to the indigenous. Although another interviewee (interviewee 8) highlighted that the children were stateless due to the business organisations recruiting cheap immigrant labour. Immigrant workers bring their children from a neighbouring country illegally, however the children are not allowed schooling and health care under immigration laws (Lumayag, 2016). Business organisations claim they are providing education when in fact the children should not be living on the plantations in the first place. None of the interviewees spoke about the issues surrounding the equitable treatment of migrant workers, the rights of the Orang Asli, human rights and human trafficking, (Ismail, Arifin and Cheong, 2017). It appears that business organisations are not practicing any form of sustainable development but a ‘business as usual’ approach when it came to social issues affecting the community.

6.7.3 The participatory process

Democratic stakeholder participation is an essential element in sustainable development. Participation enables those that can affect and are affected by business organisations, to hold companies accountable for issues related not only to accounting and reporting but wider social and environmental issues (Holden, Linnerud and Banister, 2017; Rinaldi, Unerman and Tilt,

2014). Stakeholder engagement was required for each of the CDM projects. However, based on the PDDs the engagements were controlled by the developer as invitations were sent to specific parties or advertised in selected newspapers. Information flowed one way from the developers in giving power point presentations, exhibiting a ‘business knows best’ approach to the stakeholder meetings. Q&A sessions were allowed with some business organisations publishing them in their PDDs. However, it was noted for example in one controversial hydro project by a GLC, the Q&A was not published and a general statement as to the questions asked was given in the PDD:

“All questions were duly answered and no negative comments were raised. At the end of the session, attendants expressed their support for the project.” (PDD 7662, p.51).

The company was being disingenuous because this project caused many issues for the local indigenous community (United Nations, 2013). In many of the engagements only government and company officials, local businesses and capital providers were present. Disch, (2010) in his stakeholder analysis of CDM projects in 6 countries highlights the lack of awareness and engagement in the CDM process by ordinary citizens and NGOs. The overall stakeholder process appears to ‘rubber stamp’ the projects in line with the business objectives of the CDM developer. Some of the business organisations use the stakeholder engagement sessions as an avenue to promote the business organisation’s image writing about their ‘commitment’ to the environment, to environmental stewardship, to sustainable agriculture and meeting the highest standards of environmental management.

In summary, the stakeholder engagements were primarily symbolic and legitimating with the business organisations capturing and controlling the engagement process (Archel, Hussilos and Spence, 2011). The type of dialogic process envisioned by Bebbington, Brown and Frame (2007) is necessary if real and meaningful stakeholder engagements are to further the sustainable development agenda.

6.7.4 Commitment to regulatory compliance

The Malaysian CDM business organisations place a high emphasis on compliance with environmental regulation more specifically regulation dealing with pollution, emissions, water, waste and health and safety. Although compliance with regulations infer responsibility towards the environment and society (Bebbington and Thomson 2007; Buhr and Reiter 2006), as Adams and Whelan (2009) opine, legislation may pressure business organisations to change but the profit motive will overshadow those concerns. A ‘compliance mentality’ will

not ensure sustainable corporate practices (Tregidga, Milne and Kearins, 2014) as the focus is on reducing risk of sanctions by authorities of failing to meet minimum regulatory standards. As one interviewee stated:

“I am under pressure to ensure we comply with all relevant regulations. The Malaysian DOE has all these standards for waste water, methane gas, emissions standards and so on.” (Interview 9).

The response of the CDM business organisations to regulation could be considered reactive (Dahlmann, Brammer and Millington, 2008) rather than proactive. This approach is adopted in the GRI. The GRI focuses on ‘end of pipe’ issues of pollution and emissions primarily, which is unlikely to bring any form of sustainable development. Starik and Rands (1995) outline regulation related activities that corporates should follow, including taking political action to promote the adoption of laws that ‘raise the floor’ of environmental performance. Although, Malaysian CDM business organisations have tried to promote the CDM market mechanism until the CER market collapsed. However, it appears that Malaysian CDM business organisations are merely conforming to the ‘business case’ approach of compliance with regulation to maintain a good corporate citizen image and avoid punitive fines (Blewitt, 2015). To move towards sustainability, business organisations would have to go beyond regulatory compliance and eco-efficiency and transform themselves into part of the overall ecosystems by embedding socially and environmentally responsible business practices throughout their entire operations.

6.7.5 Where do the business organisations fit into the SD agenda?

Blewitt (2015, p. 203) (building on Benn, Dunphy and Griffiths, 2014) writes about waves of sustainability from first to third wave on a continuum. The first wave business organisations are aligned with ‘business as usual’. Business organisations either reject or are non-responsive to sustainability issues. They are profit maximisers, generally opposed to government and NGO intervention in their operations and see nature as a free resource. Many of the private Malaysian CDM business organisations fall into this category. Second wave business organisations are aligned with the ‘business case’ and ecological modernisation as they value conservation and promote value creation for the purposes of reducing risks of sanctions. Environmental management is a way to introduce eco-efficiency into operations. Some business organisations within this band focus on innovation and stakeholder engagement to

produce environmentally friendly products and services. They also emphasise good corporate citizenship to maximise economic benefits.

The empirical findings show that many of the plc and plc subsidiaries follow a weak ecological modernisation narrative. None of the business organisations could be considered ‘sustaincentric’ (Gladwin, Kennelly and Krause, 1995) or third wave business organisations, i.e. those that transform to “*reinterpret the nature of the corporation to an integral self-renewing element of the whole society in its ecological context.*” (Blewitt, 2015, p. 203). If we assume that business organisations can move through stages and cross boundaries from one stage or one wave to another, e.g. from ‘business as usual’ to ‘the business case,’ the question remains what is needed to assist business organisations in doing this and if it is possible at all.

6.7.6 The role/non-role of accountants in the Malaysian CDM

Based on the findings from the PDDs and the interviews it was clear that accountants played a very minor role in the CDM process. In most cases their participation was in the form of completing the investment appraisal calculations (e.g. NPV or IRR) to prove ‘additionality’ i.e. that the project could not be undertaken without the income from the CERs. Many of the interviewees stated that accountants were not essential as other technical people such as engineers and consultants could perform the necessary calculations. Accountants were involved in providing cost information such as capital costs, disposal proceeds for old machines, etc. but primarily on larger projects. The Head of Sustainability of a plc (interview 2) pointed out that the accountants were only involved in financial information and were not involved in GHG issues as usually his technical department completed that information. Another MD (interview 1) pointed out that environmental scientists and environmental engineers produced the relevant information for the PDD.

When asked if the investment appraisal methods used in the PDDs should be modified to include some quantification of sustainability issues most interviewees said they couldn’t see how this could be done. One MD of a private rubber company said that trying to ‘measure’ social issues would be a huge challenge and knowing the impacts of corporate activities 50 years from now would be impossible. Another VP of Sustainability in a plc suggested that accountants should capture the value of externalities and the impact of carbon for monitoring purposes. However, none of the business organisations used any form of full cost accounting for externalities (Bebbington, Brown and Frame, 2007). Cost benefit analysis (CBA), appears to be merely a technical activity to justify project viability and additionality tests. The mediating influence on decision making between the various CDM actors going unnoticed (Lohmann, 2009). The use of NPV and IRR has the power to economise the act of emissions

reductions and form the basis of deciding whether projects should be implemented. It is possible that some projects should have been implemented because of their environmental and societal benefit rather than their economic benefit, but such projects would not have met the necessary economic criteria and would have been rejected, (Miller and Power, 2013). Therefore, the discipline of accounting as practiced has much to offer the sustainable development agenda however it is not evidenced in the CDM process itself, (Bebbington and Larrinaga, 2014).

6.8 Can the CDM bring sustainable development?

The double objective of the CDM to reduce carbon emissions in a cost-effective manner and bring sustainable development to developing countries is almost contradictory. The developer business organisations are concerned with eco-efficiency and cost effectiveness making sustainable development concerns a secondary concern as evidence from the empirical findings. The CDM is a tool of EM as it enables the ‘greening of capitalism.’ EM emphasises the efficient use of natural resources to maximise cost efficiency and profits. It depends on the neo-classical free market and assumes nature is subordinated, commodified and managed within the economic system. These features are incompatible with SD, however, as a policy tool, EM goes beyond the ‘business case’ as it calls on transnational institutions to tackle global environmental problems (Huber, 2008), privileges science and technology as a solution to ecological constraints (Söderbaum, 1999), requires internalizing the costs of nature (Pepper, 1998), calls for the micro management of pollution and waste at company level (Anderson and Masa, 2000) and assumes that the problems of industrialisation and modernisation can be solved through more of the same (Mol, Spaargaren and Sonnenfeld, 2014; York and Rosa, 2003; Buttel 2000; Langhelle 2000).

EM and SD frame environmental issues differently, leading to different solutions and outcomes. Further, EM has little to say about social issues (Mol, Spaargaren and Sonnenfeld, 2014; Langhelle 2000). The narrative used will have an impact on the framing of problems and solutions. As Dryzek (2013, p. 11) opines “*language matters, that the way we construct, interpret, discuss and analyse environmental problems has all kinds of consequences.*”

Returning to the metaphor of the ‘glass cage’ introduced at the beginning of the chapter, it seems impossible for CDM business organisations to move to a third wave where operations are engaged in sustainable development, when the CDM mechanism itself is framed within an ecological modernisation discourse. In conflating ecological modernisation and sustainable development the business organisations are trapped in a ‘glass cage’ of technological and scientific optimism, instrumental rationality, measurements and policies, regulations and

procedures, which are formulated by an elite group of policy makers, business organisations and experts (Lohmann, 2009). The business organisations are symbolically committed to SD while practicing a weak form of EM. Following the EM trajectory will result in reducing the scope, goals, targets and ambitions of SD (Baker, 2007; Langhelle, 2000) and fail to address the broader SD objectives and the tensions and contradictions evident in issues such as human needs (present and future) poverty, ecological limits, social justice and equity.

Some of the interviewees identified issues with the CDM including the inability of its technocratic approach to bring SD. However, their primary motivation for participation in the CDM was the CER price. Once the CER prices dropped the business organisations moved on to the Malaysian FIT programme abandoning the CDM (MNRE, 2015). This cognitive dissonance between appearing to support SD via the CDM on the one hand and the unwillingness to deviate from the conventional profit maximising path on the other serves to enable 'business as usual' (Chabrak and Craig, 2013; Gray and Bebbington, 1998).

6.8.1 Breaking the 'glass cage' of EM

Is it possible for business organisations to move beyond the business case or weak ecological modernisation? A move from EM to SD requires more than an incremental change (Benn, Dunphy and Griffiths, 2014), it will require a transformational change, a breaking of the 'glass cage' which involves reorganisation of the economy and its institutions, and the relationship between society and the environment. Balancing the three pillars of SD is impossible if economic growth and profitability remain the primary and driving force for development (Holden, Linnerud and Banister, 2017). Furthermore, transformation in policy making and government intervention in the form of regulation and incentives are required to incentivise change. This will include the questioning of economic growth (Jackson 2009) as a driver for development and a more radical privileging of the ecological systems we depend on (Steffen, *et al.*, 2015; Rockström, *et al.*, 2009). An interdisciplinary and integrated approach to the 17 SDG, including issues of global equity rather than current piecemeal approaches by governments and business organisations will change the current EM trajectory. The relationship between nature and society should become the focal point, inclusive of the environment, the poor, future generations as stakeholders, rather than prioritising business (Bebbington and Larrinaga 2014).

Implementing SD at organisational or industry level alone will not address sustainable development because it is a global and eco systems wide concept, spanning spatial distances and economy wide processes. Activities in one industry may improve sustainability but at the expense of another industry or society (Gray, 2010; York and Rosa, 2003). Difficult questions

about whether certain economic activities should be allowed to continue and their links with consumption levels, particularly in developed societies (Jackson, 2009) have to be asked. As Gray (2010, p. 48) opines “*to assume that the notion of “sustainability” has tangible meaning at the level of the organisation is to ignore all we know about sustainability.*” Nonetheless, it is necessary to chip away at the ‘glass cage’ of EM by exposing its claims to environmental reform and sustainable development.

6.9 Conclusion

From the overall findings, the business organisation narratives included, ‘business as usual,’ ‘the business case,’ and a weak form of ‘ecological modernisation’ none of which could be described as sustainable development. The key missing elements in the narratives were related to nature such as limits to growth, ecological interdependence, planetary boundaries and social aspects related to stakeholders and the community particularly, migrant workers, the poor, indigenous and future generations. The narratives were primarily economic and technocratic in focus. Whether business organisations could have engaged with a SD narrative is debateable because of the CDM itself being embedded within an EM narrative. The EM narrative is described as a glass cage (Gabriel, 2005) which acts as both an invisible barrier beyond which business organisations cannot go and one which gives the illusion of ‘doing sustainable development.’ Breaking the glass cage of EM will be difficult as it is a business centric approach that sits well within the current capitalist economy.

As Gabriel (2005, p. 11) writes it is possible “*to get trapped within the bureaucratic mechanism,*’ so too it is possible to be trapped within an EM narrative which holds the promise of SD but is constrained by different aims. Therefore, mechanisms such as the CDM are unable to deliver sustainable development.

Chapter 7: Conclusions

7.1 Introduction

The outcome and implications of the findings were discussed in the previous chapter. This final chapter reflects on the meanings and conceptions of SD by Malaysian CDM business organisations and whether the CDM is a catalyst for SD within a developing country. Due to the seriousness of the global climate change challenge and the sustainable development objectives of the CDM it was considered possible that the mechanism could influence existing SD business practices. One of the key objectives of the CDM is the implementation of SD in developing countries. Therefore, there is potential for the mechanism to enable developers to actively engage with not only the introduction of new technology but SD too.

A theoretical framework (section 2.10) was used to examine the dominant narratives used by the CDM organisations. The theoretical framework presents on a continuum the various 'middle range' conceptions of SD found in literature from academic, industry, supranational and NGO sources. These approaches to SD are not mutually exclusive and demonstrate incremental transitions towards 'sustaincentrism' (Gladwin, Kennelly and Krause, 1995) starting with the least responsibility for sustainability, i.e. 'business as usual.' However, the empirical evidence shows that CDM companies fall anywhere on the 'business as usual' to weak 'ecological modernisation' spectrum. Moving beyond EM to SD ('sustaincentrism') requires more than incremental changes to business practices. A radical transformation in how business is conducted is essential to make the transition.

The research findings show that discourse matters within the CDM business organisations. The CDM is shaped by an EM narrative and is therefore unlikely to bring sustainable development as claimed in the Kyoto Protocol (UN, 1987). Discourse in this context is "*the specific ensemble of ideas, concepts and categorizations that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities,*" (Hajer, 1995, p. 44). These conceptions act to frame the issues, problems, practices and solutions of specific phenomena such as SD. For example, the 'business case' narrative ignores the potential conflict between SD and continuing growth of business. Further, CSR and philanthropy are made synonymous with SD in the 'business case' narrative. The TBL narrative identifies SD as a 'win-win' for business organisations. In addition, TBL reporting is assumed to be commensurate with sustainable behaviour (Milne and Gray, 2013).

The EM narrative is compatible with 'business as usual,' 'the business case' and 'the triple bottom line,' narratives and can therefore encapsulate them all although it falls short of 'sustaincentrism' as formulated by Gladwin, Kennelly and Krause (1995). EM champions

both continued economic growth and concern for the ecological crisis by ‘greening’ business and the economy but provides no challenge to the way of doing business (Everett and Neu, 2000). An EM narrative limits real engagement with SD as envisaged in the Brundtland Report (UN, 1987). The EM narrative is influential as a technocratic policy solution to the ecological crisis and as an ideology which permeates business organisations and governmental institutions (Christoff, 1996). Due to the embeddedness of this hegemonic discourse, difficult questions are not asked (Spangenberg, 2016; Everett and Neu, 2000). These include questions about the decoupling of economic growth from ecological damage, the commodification of nature, planetary boundaries, consumption patterns, irreversible ecological damage, economic values versus societal values, reliance on imperfect markets and community versus expert engagement. Consequently, the EM narrative creates an impression that business organisations and government institutions are making SD progress, although it is a narrative of the ‘status quo’ (Everett and Neu, 2000). The framing of SD in this way limits the radical change required to embrace real SD progress and redirects attention to technological fixes, ‘win-win’ solutions, the power of markets to solve ecological crises, voluntary arrangements between government and business, the use of experts and the transitioning to a ‘green’ economy as seen in the CDM.

The ‘glass cage’ metaphor (Gabriel, 2005) illustrates the entrapment within an EM narrative which promises SD, yet constrains actions to technological fixes, reliance on scientific expertise and the rational processes of markets. Within the ‘glass cage’ there is an illusion of SD progress due to new technology overcoming ecological constraints, the greening of business and unfettered economic growth. Meanwhile this is a mirage masking the main challenges of SD. The lack of a radical break from the constraints of the EM narrative, renders invisible issues of overconsumption (particularly in Northern countries), the nature of some industries (resulting in extraction and deforestation), inter and intragenerational equity, the limits to growth, planetary boundaries and community level engagement. The EM narrative produces a narrow and constricted approach to SD, and is part of the common business language within which companies are happy to operate (Pataki, 2009). This is reflected in the narratives of the Malaysian CDM business organisations which have only a symbolic commitment to sustainable development. Sustainability is simply an ‘add-on,’ something to be ‘managed,’ ‘an economic exercise,’ and something that can be dispensed with if unprofitable.

The corporate sustainability reform and changes called for in the more critical SEA research (Deegan, 2017; Tregidga, Milne and Kearins, 2015; Bebbington and Larrinaga, 2014) require ‘emancipation’ from current institutional, political and organisational structures. The CDM as

an EM tool reflects normative values of ‘eco-efficiency,’ technological supremacy and unlimited growth. Likewise, governments, institutions and business organisations appear to subscribe to the concept of sustainable development within the CDM whilst implementing EM. Institutional arrangements and government policies are framed within an EM narrative that constrains the potential of SD at business organisation level. Further, the profit centric pursuits of business organisations reduces their ability to engage other than symbolically with the sustainable development agenda as it requires more than simply ‘balancing’ the economic with ecological and social objectives. Accordingly, the CDM business organisations practice EM whilst labelling their activities as SD.

This chapter proceeds as follows, section 7.2 reviews the research questions outlined in Chapter 1 and how this study has answered them. Section 7.3 is a reflection on the research process itself and the research contribution made by this study. Directions for future research and engagement with practice are considered in section 7.4 followed by the limitations of the study in section 7.5. Then the chapter concludes.

7.2 Answering the research questions

This section will revisit the main research questions of the study and discuss how each question has been answered in the study.

7.2.1 Research question one

How do CDM business organisations in Malaysia write and speak about sustainable development within the context of the CDM? How does this compare with existing academic literature on sustainability?

Conceptions of sustainable development are wide and varied due to the malleability of the term (Bebbington, 2001). They range from weak conceptions giving priority to humanity’s needs and the substitution of manmade capital for biodiversity loss and eco system changes, to stronger conceptions which do not allow for such substitutions (Neumayer, 2013; Gray 2010). The qualitative content analysis, interpretive textual analysis and the interviewees with top management in the CDM addressed this question. The various conceptions of sustainable development were drawn from a range of literature, representing academia, business, supranational organisations and a non-profit organisation to provide a guide to access the PDD content. The triple ‘pillars’ of SD were examined as this was how they were mainly

presented in the PDDs. Although business organisations wrote and spoke about SD, the narratives could be encapsulated within EM and fell very short of SD (UN 1987) or ‘sustaincentrism,’ (Gladwin, Kennelly and Krause, 1995).

An EM discourse of ‘eco-efficiency,’ ‘cost benefit analysis,’ ‘emissions rights,’ ‘cost-effectiveness,’ and ‘industrial progress,’ pervaded what was written and said by the CDM business organisations (Ferguson, Sales de Aguiar and Fearfull 2016). The conflation of SD and EM narrows the parameters of SD and silences many of the pressing issues surrounding SD.

The conceptions of sustainable development were found to be business centric, and very closely aligned to the economic objectives of the business organisations. From the interviews, a company’s profitability was a prerequisite to engage in any sustainability initiatives. Some private business organisations adopted a pure Friedman (1970) doctrine to sustainable development saying it was the responsibility of larger business organisations to engage in sustainability initiatives as they had no resources to do so. Engagement with SD at the operational level had to result in increased profitability via a reduction in costs. In addition, the main motivation for entering the CDM was not to improve environmental or social outcomes (although for some organisations that was a secondary benefit) but to receive income from the sale of CERs. Other pressures to reduce energy consumption and pollution included DOE pressure, public complaints and the threat of regulation.

The extent to which any business organisation will engage with SD depends on the responsibilities they are willing to accept (Gray, 2014). Some of the private business organisations stated they only had responsibilities to the extent of applicable laws.

Compliance with environmental legislation was paramount with many references to the government’s SD policy, inferring a concern and commitment to the environment and the sustainable development of the country (Tregidga, Kearins and Milne, 2013; Laine 2010).

Consistent with an EM approach, legislative compliance emphasises pollution abatement, for water, air or noise (Jänicke, 2008). However, many of the business organisations saw no need to move beyond regulatory compliance although this was inadequate in meeting the goals of SD.

The larger business organisations were more concerned with eco-efficiency measures such as reducing energy consumption, material conservation and maximisation of yields. These measures were ‘end-of-pipe’ treatments requiring incremental changes to the business organisations’ practices (Narain and van’t Velt, 2007). In addition, greening operations and sustaining industry image were concerns for at least 30 of the business organisations and

particularly for those engaged in ‘dirty’ industries such as palm oil and rubber products (O’Dwyer and Adams, 2005).

EM privileges the diffusion of innovative technology to solve sustainability problems. For CDM business organisations, technology was an innovative solution to overcome ecological constraints and micro manage pollution (Anderson and Masa, 2000). Further, technological optimism was expressed in the PDDs about the proliferation of the new technologies not only throughout the country but the region too. Technological innovation was an ‘opportunity’ to increase efficiency and competitiveness while contributing to SD. The conceptions of sustainable development fell on a spectrum between ‘business as usual,’ ‘the business case’ and weak ecological modernisation. The incremental changes to production processes, waste treatment and fossil fuel consumption is unlikely to transform business organisations and the economy to a state of sustainability. Whereas the Brundtland Report (1987) recognised the usefulness of innovative technology it also recognised the need to adopt life styles to enable society to operate within ecological limits (Baker, 2007). However, there was no mention of ecological limits or the conservation of natural resources. Nature was reduced to an environmental management problem which could be controlled through technology. To move from an EM position of eco-efficiency and regulatory compliance would require business organisations to transform their activities by embedding social and environmentally responsible business practices throughout their entire operations.

Narratives were silent on many of the environmental and social imperatives of SD. The business organisations involved in industries with significant environmental impact, such as palm oil, timber, rubber and cement manufacturing, gave limited attention to biodiversity and natural resource limits. Natural resources were clearly a provider of resources and services (Jänicke and Lindeman, 2010; Pepper, 1998) and the impact on eco systems and natural resource depletion was ignored. This raises questions about the purported sustainable development benefits of the projects. Eco-efficiency does not replenish natural stock and may even increase the rate of its depletion (Coulson *et al.*, 2015; Polimeni *et al.*, 2008; Gladwin, Kennelly and Krause, 1995). Many of the business organisations were eager to ensure a ‘green image’ for the industries and their exported products rather than any real concern for the ecological systems upon which they depended. The underlying EM assumption that ecological issues can be managed efficiently via markets and pricing of externalities was evident from the narratives, although some interviewees lamented the collapse of the CER prices. SD issues of planetary boundaries, limits to growth and the non-substitutability of natural capital were missing from the narratives.

Consistent with an EM narrative, the social dimensions of SD received limited attention in the PDDs and the interviews. EM is silent on social justice issues, resource distribution, poverty and equality. The main social aspect emphasised was the employer-employee relationship including economic benefits, training and health and safety. Crucial sustainability issues of labour discrimination, human trafficking, equality and immigrant workers were neglected, although many of the business organisations engaged unskilled foreign workers. In addition, community and stakeholder relations were treated as synonymous with philanthropic activities rather than any real engagement with the local communities on key issues such as encroaching on the land of the indigenous to build a hydro project or plant oil palms. Rhetoric on improving ‘quality of life’ for communities was not supported with evidence of substantive community engagement. When considering the sustainability indicators of economic, ecological and community, interviewees clearly prioritised the economic. Whilst some developers were unequivocal that profitability came first, those from the larger business organisations justified their ‘profits first’ view by drawing attention to how prioritising the economic would help support social objectives such as providing employment or business opportunities for the poor. Potential conflicts between the economic and social were ignored and only a few interviewees talked about ‘balancing’ the three areas of SD in decision making, with primacy given to the economic. This perspective was exemplified by all interviewees stating that their primary motivation for entering the CDM was to earn the financial incentives from selling the CERs.

These findings show that the business organisations are not engaged in sustainable development, but forms of ‘business as usual’ or weak ecological modernisation of production processes. These are very narrow conceptions of what sustainability activities should encompass and far from the stronger models of ‘sustaincentrism’ found in Gladwin, Kennelly and Krause, (1995), the Brundtland Report (UN, 1987) and the SDGs (UN, 2015a). The latter calls for a broader socio-environmental perspective covering ecology, poverty, human rights, inequality, corruption, inequitable growth and consumption. Unfortunately, the conceptions of SD encapsulated within the EM narrative help mask the unsustainability of business organisations claiming to bring sustainable development to the country through the CDM.

7.2.2 Research question two

Does the CDM aid or hinder sustainable development in a developing nation?

The CDM and the economic and institutional structures surrounding it are instruments of ecological modernisation (Huber, 2008; Jänicke, 2008; Dryzek, 2005; Langhelle, 2000). However, the narratives constructed within the CDM process conflate EM and SD, thereby normalising the use of markets in solving ecological problems, the supremacy of scientific and technical expertise, the commodification and subordination of ecological systems to the markets and the micro management of nature as a pollution sink and a provider of resources and services. It is not clear whether the conflation of EM with SD is deliberate or not. It is possible that business organisations are unable to engage with a more radical or stronger model of sustainability as they are operating within economic and political structures that promote an ecological modernisation strategy aligned with narrow business interests (Archel, Husillos and Spence, 2011; Archel *et al.*, 2009; Spence, 2007). EM provides a 'sharper focus' than SD on how to go about greening business (Dryzek, 2013). Nevertheless, this equivalency of EM and SD hinders the SD agenda because they are not the same in terms of their scope and goals (Langhelle, 2000).

The CDM institutional arrangements include a supranational organisation (UNFCCC) supported by a complex network of transnational organisations, governments, business organisations, scientific and technological experts. These entities frame the wicked problems of climate change and sustainable development within an EM discourse that limits or excludes SD narratives. Rather than subordinate production and consumption processes to ecological limits, the EM narrative uses markets and capitalist institutions to determine how to overcome natural limits and ensure continued economic growth (Banerjee, 2008). However, Jackson (2009, p. 67) argues that the EM approach of decoupling growth from ecological limits is a 'myth.' SD narratives surrounding ecological boundaries, inter and intra-generational needs, eco justice, eco-effectiveness, discursive democracy, strong community participation and non-market based solutions through cooperation are excluded from the EM discourse. EM does not require transformation of the economic, political or social institutions thereby depoliticising ecological issues (Blühdorn, 2011). Consequently, while ecological modernisation goes unchallenged, the broader concerns of the sustainable development agenda, including ecological conservation, responsible consumption and production, equality, eco-justice and intra/inter-generational equity are marginalised. In turn, the alignment of political institutions with the overarching objectives of business organisations reinforces the

status quo. Therefore, highlighting the need to scrutinise more closely the role that supranational and national governments play in mechanisms such as the CDM and in the implementation of sustainable development.

The EM discourse is influential at environmental policy level and fails to challenge the supremacy of markets, private interests and the commodification of nature (Spangenberg, 2016). The approach to SD is to 'green the economy,' masking the existing destructive developmental model premised on continued growth (Brand, 2010). Ecological resources are reduced to marketable production factors subject to supply and demand. Economic values rather than social values take priority in policy formulation and the design of instruments to ameliorate SD issues (Brand, 2010; Baker, 2007). Market oriented policy formulation and discourse is promulgated by national governments, experts, industry and through intergovernmental cooperation. There is little room for the transformative potential of local community participation or alternative ways of approaching SD as issues are framed through a top-down technocratic process (Brand, 2010). There is a gap between the aspirational SD of the Brundtland Report (UN, 1987) and the practices derived from EM based policies. The pursuit of eco efficiency through market based policies undermines the social democracy of the Brundtland report (UN, 1987) which concerned itself with ecological limits, consumption in Northern countries, social justice and humanity's needs (Baker 2007).

The CDM is an EM tool as it promotes green technology as a business opportunity and a solution to bring SD to developing countries by outsourcing carbon emissions. Its overall emphasis is on production issues, promotion of incremental change rather than any radical change in consumption and production patterns (Ninan, 2011). Further, consistent with EM ideology, the CDM is a market based mechanism that commodifies the atmosphere assuming that the market can alleviate the ecological issues of SD.

A key feature of SD is the democratic participation of stakeholders through global and local civil society. The political system is insufficient to make all the decisions on behalf of citizens (Holden, Linnerud and Banister, 2017). Although the CDM requires stakeholder participation for each project it was found that these engagements were controlled by the project developers and selected stakeholders were primarily from government departments, company officials, local business and capital providers. Disch (2010) highlights the lack of public and NGO participation in CDM stakeholder engagement due to lack of awareness. Further, there are marginalised stakeholders within the CDM process as identified in some of the projects such as the indigenous who lost their lands to make way for a hydro project and migrant workers who work for low wages on plantations (Banerjee, 2011).

The empirical interpretive textual analysis highlighted an attempt by business organisations to align their activities with the country's interests by identifying the benefits of their projects for the country. These benefits were primarily linked to the economy rather than any social and environmental objectives, (Mäkelä and Laine, 2011).

Therefore, the unquestioning acceptance of the narrowing of what constitutes sustainable development has significant implications for the implementation of SD. While appearing to commit to sustainable development, which is in the public interest (Baker 2007; Tinker, 1984), political institutions and policy makers:

“secure and defend social practice and socioeconomic structures that are well known to be unsustainable (ecologically, socially and economically),” (Blühdorn, 2011, p.36).

Accordingly, whether supranational mechanisms such as the CDM can bring SD to developing countries is arguable as the conception of SD appears to be limited by the business organisations engaged in the process but also the surrounding socio-political architecture. When EM is framed as SD, business organisations may be unable to ‘break free’ from an ecological modernisation path particularly if government policy and strategy are also following an EM trajectory. Therefore, as Deegan (2017, p. 74) writes it is important to examine the political foundations of research and to not assume that issues such as *“climate change and social justice can somehow be dealt with as above politics.”*

The organisation studies metaphor of a ‘glass cage’ was used to illustrate the limits of EM in implementing sustainable development. Gabriel (2005 p. 9) uses the characteristics of glass which *“suggests certain constraints, discontents and consolations.”* There are limits but they are invisible due to the transparency of the glass. The ecological boundaries, social inequity, poverty, etc., are invisible as everything inside the glass cage appears to be operating as usual. These exclusions do not affect the workings within the glass cage, and the glass cage acts as a barrier disengaging those within from ecology and the social life. The images reflected appear to be something they are not. In this way, EM obfuscates and masks what business organisations are doing and is presented as something it is not, i.e. sustainable development. Gabriel (2005) opines, that the primary property of glass is optical, one that presents changing images. Similarly, the business organisations present themselves as ‘doing’ sustainable development but are concerned with a green image and the greening of industry. Further, the glass cage has links to Foucault's panopticon (Gabriel 2008 p. 314) in that it *“hides the reality of entrapment.”* Business organisations are trapped within an EM trajectory which is inferior

to the more challenging path of sustainable development. The instrumentality of the CDM processes, are reflected in the use of cost benefit analyses, the scientific formulae to measure carbon emissions, the validation and verification processes and the feedback and approvals from the executive board, meanwhile climate change continues to worsen (IPCC, 2014). The discontents arise from the apparent empty commitment to sustainable development and the pragmatic application of ecological modernisation. Consolation comes from the ‘win-wins’ for business and the environment, the eco-efficiency, the cost effectiveness and ‘low hanging fruits’ available.

Some (Milne and Gray, 2013; Gray, 2010; York and Rosa, 2003) surmise there cannot be a ‘sustainable’ organisation as sustainability is a planetary wide concept which does not fit within organisational boundaries. Therefore, research attention must be given to the linkages between organisations and the macro level economic, social and ecological systems within which they operate, including political influences. In this way, alternative narratives may enable the upsetting of the current EM trajectory and influence policy making. Clearly neither SD nor climate change is safe in the hands of business organisations, as borne out by the research. Within the glass cage of EM, the organisational images shimmer with the promise of moving towards better things, i.e. SD, while deforestation continues, habitats are destroyed, fauna become extinct, the poor are ignored, indigenous lose their livelihoods their rivers and land and immigrant workers are exploited (Brock, 2015).

Therefore, the CDM is unlikely to bring SD to a developing country as it is a tool of EM which sets business organisations on an EM trajectory which is far removed from the Brundtland’s (UN, 1987) vision which put social and eco justice at the heart of sustainable development (Langhelle, 2000).

7.2.3 Research question three

What is the role/ (non-role) of accountants in the CDM process?

Bebbington and Fraser (2014) suggest that sustainability accounting has the potential, albeit difficult challenge to bring about organisational changes to move toward sustainability. In terms of carbon accounting, whilst there has been a proliferation of methods there is a lack of clear guidance by the profession (Asci and Lovell, 2011, Sales de Aguiar and Bebbington, 2014). In addition, there are many organisations promoting self-regulatory disclosures but as Andrew and Cortese (2011) argue there has been little input from the accounting profession.

The role of accountants in the CDM is to produce cost benefit analyses (CBA) to determine the ‘additionality’ of projects, i.e. demonstrating how carbon emissions are reduced by implementing the project. Investment appraisal methods using primarily IRR and NPV are used to justify the need for CDM funding to implement projects (UNEP, 2008). The framing of climate change within calculable places such as these, leaves decision making to economics and the markets and excludes or ignores issues such as whether certain industries should be allowed to exist. This is borne out in the literature, for example CBA methods have limitations as they tend to exclude non-monetised benefits of projects (Bebbington *et al.*, 2007). Lohmann (2009) also argues that decision making using CBA misses out on the social context and frames decision making in such a way as to exclude intergenerational eco justice issues. The qualitative content analysis revealed that NPV and IRR calculations used varying rates for discounting purposes justified by business organisations own cost of capital requirements. For example, within the palm oil industry itself discount rates could range from 6% to 12%. Further, in some instances a simple cost analysis was performed where CDM revenue was the only income stream. When the CDM CER prices dropped, revenue dropped and the projects were no longer viable, in this way environmental and social issues benefits of the projects were not factored in and decisions were made purely on an economic basis. There was also a sense from some interviewees that ‘creativity’ was possible in producing CBA numbers. Using accounting as a ‘decision usefulness’ tool to justify entering into CDM projects has reduced accountability for the short term economic rather than for sustainability. Lehman (1995) suggests that accounting should defend actions undertaken, therefore accounting within the CDM ought to consider the long-term effects of business organisation activities and the impact on the environment and society. Although accounting may be seen in the academic literature as a catalyst to prioritise sustainable development, accounting in the context of the CDM continues the existence of calculable spaces and ‘captures’ the sustainability agenda and excludes the ecological and the social (Lohmann, 2009; MacKenzie 2009; Tinker, Niemark and Lehman, 1991).

Accounting reduces qualities into quantities in the CDM via CBA and carbon accounting and hides the subjectivity within the calculation process and the formulae used. It gives legitimacy to the process and sets the financial figures “*above the fray apart from political interests and intrigue,*” (Miller, 1994, p. 4, see also Hopwood, 2009). Unfortunately, by doing so it silences the ‘other’ narratives of the ecological and social and only makes visible or knowable that related to the economic.

The interviewees’ predominant views were that the accountant’s role was not necessary in the CDM process unless CBA calculations were more complex. Many stated that others such as

engineers or consultants were equally capable of carrying out tasks that accountants would normally do. Therefore, it seemed from the business organisational view, that accountants had a limited role to play and were generally absent from the CDM process. This ‘functional fixedness’ is perhaps something that the Malaysian accounting profession must consider or be left behind in the climate change agenda. While academic accountants may engage with sustainability accounting, climate change, environmental and social accounting, it would appear there are many areas where practising accountants are absent including the CDM (Catasús, 2008). Further, the calculative technology of accounting reinforces the ‘glass cage’ of ecological modernisation, it enables the maintenance of the ‘status quo’ by reducing sustainable development and climate change to an exercise in managerialist cost effectiveness and efficiency.

7.3 Reflecting on the research study

The study involved looking at a different accountability setting that the usual sustainability reporting found in annual reports (Bebbington, Russell and Thomson, 2017). The setting for this research is provided by the CDM, whereby business organisations had to give an account of how they reduced carbon emissions and contributed to sustainable development. The research contributes to the literature problematizing the SD narrative by business organisations (Tregidga, Milne and Kearins, 2015; Tregidga, Kearins and Milne, 2013; Milne, Tregidga and Walton, 2009; Laine, 2005, 2009, 2010; Livesey and Kearins, 2002; Prasad and Mir, 2002) within a specific SD context, i.e. climate change. SEA research in developing countries is nascent though growing (Thomson, 2014), and this study focuses on CDM business organisations in Malaysia, a country which grapples with a variety of ‘wicked’ problems related to sustainable development such as climate change, poverty, human rights, floods, droughts and biodiversity loss.

Both the managerialist and critical literature was reviewed in the early chapters and it was decided to use the ‘middle-of -the road’ approach (Gray and Collison, 2002) to frame the research. The ‘middle-of-road’ approach seeks to bridge the gap between business centric and the critical, recognising the need to:

“move organizations from their primary focus on economic success and wealth accumulation for management and shareholders to a broader mission in which there is explicit cognizance of both the social and environmental implications of corporate success,” (Gray and Collison, 2002, p. 805).

This included using both business centric literature as well as more ‘sustaincentric’ literature (e.g. SSN, 2004; Gladwin, Kennelly and Krause, 1995) to develop the qualitative content analysis instrument and form the basis for the interpretive textual analysis. However, it became clear that the recurring narratives fell along the spectrum of ‘business as usual,’ ‘the business case’ or weak ecological modernisation. The management of business organisations are primarily concerned with maximising profits and concern for sustainable development related issues arises only if there is a ‘win-win’ for the business organisation in terms of economic benefits or enhancement of image. Some observations arising from the research are now discussed.

7.3.1 Sustainable development, a wicked problem

Business organisations cannot nor will not address sustainable development because they are in the business of making money and will consent to the demands of an implicit ‘social contract’ when it benefits them to do so (Deegan and Unerman, 2011). Ideas of accountability to society under an implied ‘social contract’ (Mathews 1993) depend on the power relations within society and who determines the terms of the ‘social contract.’ A ‘middle-of-the-road’ approach accepts the existing societal, institutional and organisational structures and attempts to change them to include sustainability issues (Gray and Collison, 2002). The existing ‘glass cage’ of ecological modernisation privileges cost effectiveness, efficiency, end of pipe solutions and not the wider issues of sustainable development. The ‘glass cage’ consists of the existing societal, institutional and organisational structures which reinforce the neo-classical economic approach to business activity and reduces the pursuit of sustainable development to a superficial exercise. Therefore, to break through this ‘glass cage’ a more radical or critical approach must be adopted including asking the more difficult questions about the way business is done, whether certain businesses should operate at all, whether that involves new ways of doing business or policy and regulation changes. This leads to the next point, whether unmasking current organisational sustainable development narratives really matters.

This research challenges the conceptions of sustainable development created by business organisations engaged in the CDM. It also contributes to the theoretical development of SD, in using both a qualitative content analysis and form of discourse analysis to exposing the masking of an EM agenda as SD. However, as Brown and Dillard, (2013) surmise exposing underlying ‘truths’ as in the case of sustainability narratives will not necessarily change how business organisations operate. They continue, such approaches:

“ignore the entrenched nature of ideological frames, the powerful vested interests involved and psychological fears associated with fundamental change,” (p. 4).

Therefore, a much broader research engagement is needed to give greater visibility to the part played by institutional structures, political strategies and policy formulations which impact on business organisation activity. Business organisations are not operating within a discrete enclosed environment. Therefore, it is essential to examine ‘the bigger picture’ so as not to limit or reduce complex issues such as sustainable development or climate change (Brown and Dillard, 2013). In examining the conceptions of sustainable development, an exploration of the underlying contradictions of business organisation objectives, government policies and political foundations is also necessary.

7.3.2 Business organisations part of the solution?

In the previous section, it was highlighted that business organisations are not operating within a discrete enclosed environment, they are part of the broader ecological and social systems. However, for much of the management and accounting literature, the business organisation is the unit of examination when it comes to sustainable development as with this study. Whether business organisations can ever be part of the solution for issues they create such as climate change, natural resource depletion and equity (Bebbington and Larrinaga, 2014; Gray, 2010; Banerjee, 2008) is questionable. A further related concern is whether we should consider sustainability and sustainable development at the organisational level at all. Gray (2010, also York and Rosa, 2003) emphasises this point in writing that sustainability is a planetary concept which does not lend itself to organisational boundaries and it may be possible to have global sustainability without each individual organisations being sustainable. Bebbington and Larrinaga (2014) allude to a similar line of reasoning, when they write about a more integrated, multi-level and transdisciplinary approach to SD issues of water, energy, health, agriculture and biodiversity. These issues are both national and global and not found within the boundaries of business organisations.

In summary, this study allowed for an examination of the sustainability discourse of businesses engaged in a supranational climate change mitigation mechanism. Although the literature shows that business can have a noticeable influence on government policy on climate change and sustainable development (Banerjee 2012; Welford, 1997; Hajer, 1995) in this study it appeared most of the influence came from the UNFCCC and the experts. Individual organisations had little influence except to follow the procedures prescribed by the

UNFCCC. The ecological modernist narrative within which the CDM lies and the enlightened self-interest of the business organisations make it impossible to attain sustainable development practices. Therefore, moving forward, it is proposed that a closer look is needed at how organisations might break through the EM ‘glass cage,’ This will require a move away from ‘middle-of-the-road’ approaches or working within the system as suggested by managerialist literature (Hahn *et al.*, 2017). A more radical, perhaps subversive examination of not only business organisation activities but the structures and policies that continue to support them is needed, with practical steps for transformation.

7.4 Practice implications and directions for future research

In the preceding section, it was suggested that to break the current trajectory of EM, broader critical engagement is required with not just business organisations but with the current institutional, political and social structures which contribute to the eco-modernist approach to sustainable development. It has been argued that the ‘middle of the road’ SEA literature has continued with the ‘political quietism’ criticised by Tinker, Neimark and Lehman (1991, see also Owen, 2008). However, to effect transformation in how business organisations do sustainable development, the continued practice of EM as synonymous with SD must be exposed and undermined. Therefore, further research is required to explore and unmask the EM agenda which is presented as sustainable development. Further the political and social links between business organisations, institutions, structures and practices which legitimise the symbolic commitment to SD must be examined (Deegan, 2017). This will involve a multi-disciplinary and multi-pronged inroad by researchers and (hopefully) practitioners into the world beyond business organisations, to examine how the EM ideology within institutional structures, supranational organisations, politics and policy making has resulted in limiting the potential of SD within business organisations. Everett and Neu (2000, p. 8) articulate this point well stating:

“Ideological work requires the de-institutionalizing or rupturing of current story lines, of current discursive closures, and their replacement with new discourses and new discursive strategies.”

The current story line of ecological modernisation, masked as sustainable development within governmental, society and individual organization level, must be disrupted. Using the glass cage metaphor, the encapsulating glass of EM must be broken, to enable a new discourse of sustainable development which includes ecology and social relations.

7.4.1 Organisational change in practice

The study identified that sustainability concerns were only considered to the extent that they were beneficial to the business organisations in terms of profitability or image. Future research would also benefit from asking why organisations are unwilling to fully embrace a stronger sustainable development. This would involve engaging with organisations to ask harder questions. The interview questions asked in this study did not challenge the existing narratives of the interviewees. The managerialist literature identifies what business organisations are doing for sustainable development (Mitchel, Curtis and Davidson, 2012; Porter and Kramer, 2011; Pinkse and Kolk, 2009). However, current research explores the inaction of business organisations on climate change (Slawinski et al., 2017). The same research questions should be asked regarding sustainability of corporate activities through engagement with decision makers. In other words, what are the barriers to fully engaging with the sustainable development agenda? Some in the more critical school may argue that engagement with business organisations is of limited value due to potential ‘capture’ of the research agenda (Deegan, 2017). Engagement should be opened to more adversarial social movements who have useful networks and alliances for grappling with a wide range of social and environmental issues (Brown and Dillard, 2013). Nevertheless, business organisations continue to appropriate the sustainable development narrative and mould it to suit their own agendas. Therefore, it seems apposite that this appropriation should be challenged (Tinker and Gray, 2003) and business organisations made to explain their inaction. A study of the linkages between the conceptions of sustainable development at the business organisation level as in this study and the discourse at the meso-level of national government (DNA) and macro level of supranational organisation UNFCCC would provide a valuable overview of the contradictions, tensions and ideological positions which may hinder transformation and the shift out of the EM trajectory (Brown and Fraser, 2006).

7.4.2 Sustainability reporting in Malaysia

As noted in earlier chapters, sustainability reporting and accounting is voluntary in most jurisdictions (Deegan and Shelley, 2014). In this study, reporting on sustainable development contribution was compulsory, however based on the qualitative content analysis it was evident that the business organisations relied heavily on the voluntary GRI guidelines when writing about sustainable development. Although the GRI guidelines have wide appeal to business organisations as a legitimate sustainability reporting tool, Gray and Milne, (2015, p.

22) write they are a: “*woeful approximation to anything related to accountability or sustainability.*”

Commencing from 31 December 2016, Malaysia’s stock exchange requires listed business organisations to produce a Sustainability Statement (Kweh, Alrazi and Lee, 2017). Bursa Malaysia’s Sustainability Reporting Guidelines leave it up to business organisations as to the format but refers to the GRI guidelines as a possible framework to follow. This new development creates space to critically engage with Bursa Malaysia, business organisations and their sustainability officers and accounting practitioners, to understand how organisational narratives of sustainability are developed and whose voices are heard in the process, (O’Dwyer, Unerman and Bradley, 2005). In addition, how these reports might influence users is an additional space for research (Higgins and Walker, 2012).

7.4.3 Sustainable development awareness

Another area requiring further research are the ways to increase awareness and ensure accountability in the advancing of sustainable development issues. Breaking the ‘glass cage’ of EM, requires stakeholders to challenge and exert pressure on business organisations, governments and policy makers to move away from the current EM development path. For stakeholders to fully engage with the real problems of ecological destruction, poverty, human rights, inequality, corruption, inequitable growth and consumption, requires not just information flows from the business organisation (O’Dwyer, Unerman and Bradley, 2005) but awareness of sustainability issues by all stakeholders. Unfortunately, research shows that only the economically powerful stakeholders are considered by business organisations (Rinaldi, Unerman and Tilt, 2014; Archel, Husillos and Spence, 2011,) as the focus is on increasing shareholder value. Calls for a broader and more democratic stakeholder engagement process are apposite to enhance stakeholder involvement (Mason and Simmons, 2014; O’Dwyer, Unerman and Bradley, 2005). However, it may not be possible even if the platforms are available for all stakeholders to articulate their interests due to lack of awareness, particularly in countries like Malaysia.

In this study, some of the interviewees mentioned the lack of awareness and education of the public on sustainability issues and therefore lack of pressure on business organisations. If inroads are to be made in unmasking current business organisation narratives presented as sustainable development, a question of who will do the unmasking arises? How will stakeholders hold business organisations to account? Education has a huge role to play to embed concern for sustainable development into personal and professional lives (Deegan, 2013; Gray and Collison, 2005). In Malaysia, research shows that accounting educators see

the value in including SEA components into university curriculums (Zulkifli, 2011) however, there is still much work to be done to include SD in the current Malaysian education system (Reza, 2016).

There is also a growing literature on accounting for carbon within SEA literature (Sales de Aguiar and Bebbington, 2014; Ascuí and Lovell, 2011; Cook, 2009; Bebbington and Larrinaga-Gonzalez, 2008), focusing on the European Emissions Trading System (ETS) and European business organisations. However, there is a gap in terms of research on the CDM and carbon trading in developing countries within SEA. The methods of carbon measurement used within the CDM could be explored as well as the use of CBA methods and how they affect decision making in the CDM.

7.5 Limitations of the research

The purpose of this section is to identify the limitations of the study. Limitations relate to the interpretive nature of the research, the types of documentation examined and the use of theory.

7.5.1 The research method

The qualitative content analysis research instrument (QCARI) was developed by the researcher based on a selection of literature from academic, business, government and NGO sources. Different literature may have been selected by a different researcher. Further, the interpretive textual analysis was interpretive and subjective, therefore it is acknowledged that this is the researcher's interpretation of the data (Philips and Hardy, 2002). However, to ensure trustworthiness (Lincoln, Lynham and Guba, 2011), the research design including methodology and methods have been clearly articulated in the study and the researcher has provided a reflexive account of herself regarding this research, identifying the motivations and the lens through which the research was performed (Milne, Tregidga and Walton, 2009). In addition, the findings of the research cannot be generalised, nonetheless they provide a useful insight into the conceptions of sustainable development within the specific context of a supranational mechanism in a developing country.

7.5.2 Documentary analysis

It may have enhanced the research to examine other types of documents (apart from PDDs) such as validation and verification reports conducted by Designated Operational Entities

within the CDM. Moreover, examination of annual reports and/or sustainability reports for the same business organisations may have benefitted the research to identify possible similarities and differences in sustainable development narratives. However, this would have created an extensive amount of additional work within the limited timeframe and annual reports may not be available for all private companies.

The interviewees were from the developer business organisations only and interviewing other actors within the CDM process such as DNA representative, consultants, Designated Operational Entities and CER buyers to get a wider representation of sustainable development conceptions within the CDM. Heterodox voices such as those of NGOs and the local press (Brown and Dillard, 2013) would have enabled the researcher to capture a 'richer' picture of SD in the CDM.

7.5.3 Theory

The main objective of this study was to examine how CDM business organisations write and speak about sustainable development in a developing country. This was accomplished by investigating using a triangulated approach of qualitative content analysis, interpretive textual analysis and semi-structured interviews. The analysis of all PDDs gave a comprehensive insight into the written conceptions of sustainable development and the interviews provided the perspectives of corporate elite managers within the business organisations. Whilst the motivations for entering the CDM are made explicit in the research the motivations for why the business organisations write and speak about SD the way they do is not so explicit. There are many theories in use within social accounting literature that may partly explain these motivations (legitimacy, stakeholder, institutional, agency, decision-usefulness, reputation risk management, see Gray, Adams and Owen, 2014; Thomson, 2014). However, it is argued that no one single theory could explain the motivations completely, although individual theories may contribute some explanations.

7.6 Conclusion

Within SEA literature and the broader managerial literature, sustainability and sustainable development and accountability of business organisations has become more mainstream (Tregidga, Milne and Kearins, 2015). However, despite the increased profile and the claim by business organisations to practice sustainability, major sustainable development issues remain as 'wicked' problems and challenges as they did decades ago (Bebbington and Larrinaga,

2014). In Malaysia, these issues are pressing, ranging from deforestation, biodiversity loss, poverty, indigenous and immigrant human rights, flooding, drought, pollution (Brock, 2015). There is a plenty of literature considering external reporting of what is labelled as sustainable development (Gray, Adams and Owen, 2014) and how traditional accounting in some ways has reinforced the status quo (Deegan, 2017; Bebbington and Larrinaga, 2014).

This study highlights that even within the CDM, a supranational mechanism to reduce climate change, with a clearly articulated objective to bring sustainable development to the developing country, there is only a symbolic commitment to sustainable development.

Proponents claim that EM can transform business activities (Mol, Spaargaren and Sonnenfeld, 2014). In addition, carbon markets are '*potentially radical instruments for a further eco-modernisation of production and consumption in global modernity*' (Spaargaren and Mol, 2013, p. 191)

The narratives of the business organisations examined are those of weak ecological modernisation at the most, masked as sustainable development. This maintains the status quo of ongoing social and environmental impacts of business activity but also masks the underlying ideological role of EM with its propensity for global regulation, technological intervention, scientific progress and 'win-win' solutions. Sustainable development concerns of poverty, eco-justice and inter/intra-generational equity are deposited in the pursuit of further economic growth and 'super industrialisation.' Breaking the 'glass cage' of EM requires developing visible counter narratives that identify the nuanced differences in the SD and EM discourses. This will also require more engagement with the institutional and political structures surrounding business organisations, other disciplines such as environmental sociology, environmental politics as well as a broader group of stakeholders including government, labour and non-governmental organisations (Owen, 2008).

The complex relationship between ecology and society and the accompanying political and institutional power underlying this complexity is minimised in the EM discourse. To emancipate those within the 'glass cage' of EM requires confronting the current narrow framing of SD to one that includes meeting humanity's needs, protecting ecological limits and ensuring social equity (Holden, Linnerud, and Banister, 2017). To break through from an EM narrative to one of SD requires a (re) naming, (re) labelling and (de) legitimisation (Everett and Neu, 2000) of ecological modernisation so that business organisations are emancipated from behind a glass cage which promises something they cannot deliver, i.e. sustainable development. In widening engagement with other stakeholders (government, public, employees, and policy makers) and examining the structures affecting business organisation

activity, it should be possible to transform the current EM trajectory to one more analogous with the aspirations of the Brundtland Report (UN, 1987).

Appendices

Appendix A: Colby's Basic Distinctions between Five paradigms of Environmental Management in Development

TABLE 1, continued. Basic Distinctions Between Five Paradigms of Environmental Management in Development

| <i>Paradigm: Dimension</i> | <i>Frontier Economics (FE)</i> | <i>Environmental Protection (EP)</i> | <i>Resource Management (RM)</i> | <i>Eco- Development (ED)</i> | <i>Deep Ecology (DE)</i> |
|--|--|---|--|--|---|
| <i>Environmental Management Technologies and Strategies:</i> | Industrial Agriculture: High Inputs of Energy, Biocides, Nutrients, & Water; Monocultures & Mecharized Production Fossil Energy Pollution Dispersal Unregulated Waste Disposal High Population Growth "Free Markets" | "End-of-the-Pipe" Clean-up, or "Business as Usual— Plus a Treatment Plant" "Command & Control" Market Regulation: Some Prohibition or Limits, Repair, & Set- asides, mainly focus on Protection of Human Health, "Land Doctoring" Environmental Impact Statements | Impact Assessment & Risk Management, Pollution Reduction, Energy Efficiency, Renewable Resource/ Conservation Strategies, Restoration Ecology, Population Stabilization & Technology-Enhanced Carrying Capacity, Some Structural Adjustment | Uncertainty (Resilience) Management, Industrial Ecology Eco-Technologies, e.g: Renewable Energy, Waste/Resource Cycling for Throughput Reduc-tion, Agro-forestry, Low Input Agriculture, Extractive Forest Reserves; Population Stabilization & Enhan-ced Capacity as for RM | Stability Management Reduced Scale of Market Economy (inc. Trade) Low Technology Simple Material Needs Non-dominating Science Indigenous Technology Systems "Intrinsic Values" Population Reduction |
| <i>Analytic/ Modeling and Planning Methodologies:</i> | Neoclassical or Marxist: Closed Economic Systems: Reversible Equilibria, Production Limited by Man-made factors, Natural factors not accounted for. Net Present Value Maximization Cost-Benefit Analysis of tangible goods & services | Neoclassical Plus: Environmental Impact Assessment after Design; Optimum Pollution Levels; Equation of Willingness to Pay & Compensation Principles | Neoclassical Plus: Include Natural Capital. True (Hicksian) Income Maximization in UN System of National Accounts; Increased, Freer Trade Ecosystem & Social Health Monitoring; Linkages between Population, Poverty, & Environment | Ecological Economics: Biophysical-Economic Open Systems Dynamics; Socio-Technical & Ecosystem Process Design; Integration of Social, Economic, & Ecological Criteria for Technology; Trade & Capital flow regulated based on Community Goals & Mgmt; Equity in Land distribution; Geophysiology | Grassroots Bioregional Planning; Multiple Cultural Systems; Conservation of Cultural & Biological Diversity; Autonomy |

Appendix B: International Conventions Ratified by Malaysia

1. The Convention on International Trade in Endangered Species of Wild Flora and Fauna (1978)
2. The Montreal Protocol (1989)
3. Basel Convention (1993)
4. The Convention on Biological Diversity (1994)
5. The Convention on Wetlands (RAMSAR) (1994)
6. International Tropical Timber Agreement (1997)
7. The Framework Convention on Climate Change (1999)

Appendix C: The role of the CDM Executive Board

THE EB comprises of 10 members and 10 alternate members who are parties to the Kyoto Protocol, this includes members from both Annex 1 and non-Annex 1 countries. They are required to serve two-year terms to a maximum of two terms. The CDM EB is required to:

- Develop procedures for the CDM;
- Approve new methodologies;
- Accredite Designated Operations Entities;
- Register projects (in accordance with specific procedures);
- Issue Certified Emission Reduction (CER) credits earned through CDM projects in accordance with specific procedures;
- Make publicly available information on proposed CDM projects in need of funding and investors seeking opportunities;
- Maintain a public database of CDM project activities containing information on registered project design documents, comments received, verification reports, CDM Executive Board decisions and information on all CERs issued;
- Develop and maintain the CDM registry.

(Source: UNFCCC CDM website)

Appendix D: Role of the Designated National Authority

- the establishment and implementation of a national regulatory structure for the CDM process including the developing of national policies to promote the CDM process
- consideration of sustainable development criteria for CDM projects
- authorization and approval of CDM projects
- act as an arbiter between the host country and the EB CDM by communicating implementation issues in the CDM process
- Institute capacity building and technical support for the CDM process in the host country
- seek new CDM opportunities and assist in improving current baseline and monitoring methodologies
- contribute to identifying new CDM projects
- facilitate investment for the CDM process
- involved in the management of CERS (if applicable),

(Source: CDM User Manual UNDP, 2003)

Appendix E: Minimum requirements for PDD content

The minimum project information required in the PDD

1. Title of the project activity
2. Purpose of the project
3. List project participants
4. Technical description of the project, including location, technical performance information, description of opportunities for technology transfer, and explanation of how the reduction in greenhouse gas emissions is to be achieved
5. Justification, if public funding being used that it is not being diverted from other uses

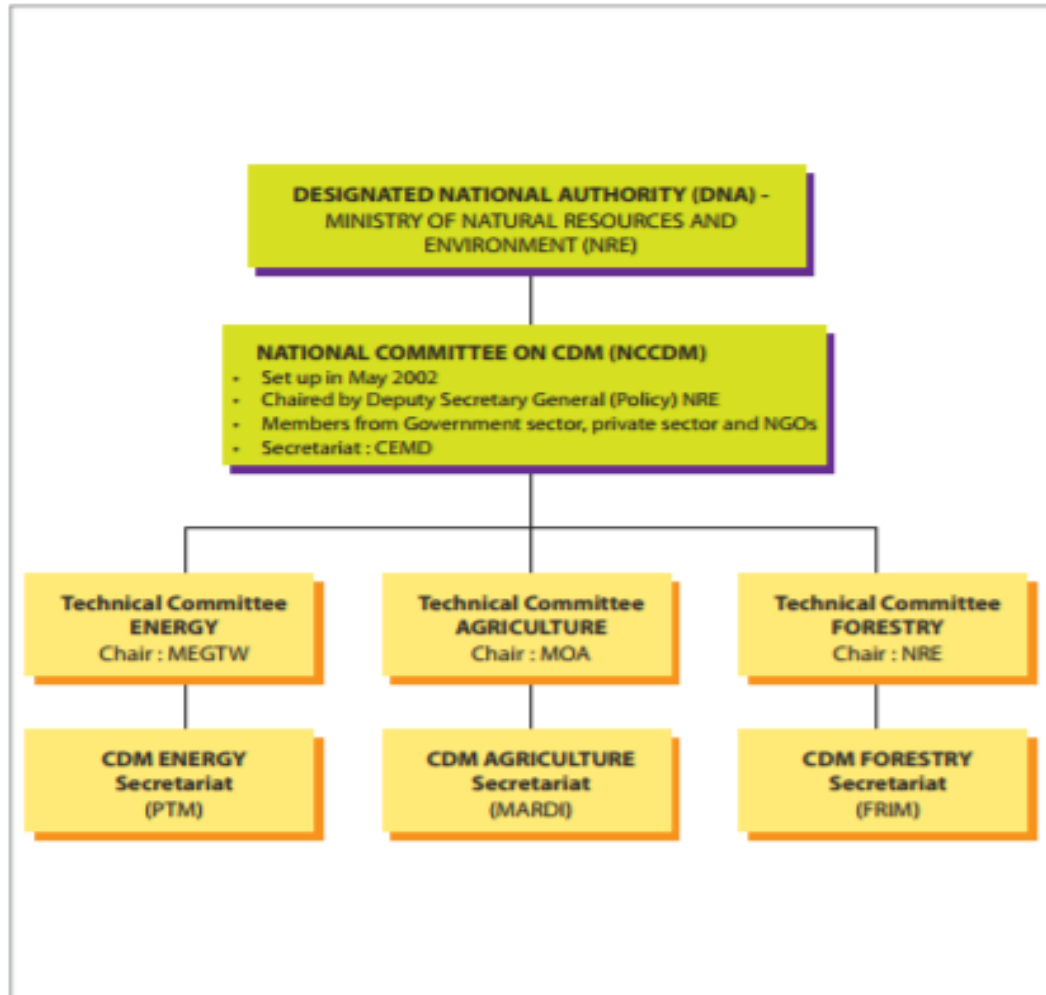
Additional recommended information: -

6. Project background
7. Problems and barriers being addressed by the project
8. Project planning (timetable)
9. Description of the key issues and stages in the project development (Milestones)
10. Any other information deemed relevant within reason
11. The determination of whether the emission reductions in anthropogenic emissions are additional
12. The description of the baseline methodology and its application
13. Information supporting an environmental impact assessment requirement

(Source: CDM: A Users Guide, UNDP, 2003)

Appendix F Malaysian CDM Institutional Arrangements

Figure A2: National CDM Institutional Arrangement



- CEMD : Conservation and Environmental Management Division
- MEGTW : Ministry of Energy, Green Technology and Water
- PTM : Malaysia Energy Centre
- MOA : Ministry of Agriculture and Agro-based Industry
- MARDI : Malaysian Agricultural Research and Development Institute
- FRIM : Forest Research Institute Malaysia
- NGOs : Non-Governmental Organisations

Appendix G: Project Assessment criteria

In approving projects, the MNRE has set out National CDM Criteria as follows:

1. CDM projects must support sustainable development policies of Malaysia and bring direct benefits towards achieving SD.
2. Project implementation must involve participation of Annex 1 Party/Parties as CER buyers. They are encouraged to participate as equity or technology providers.
3. Projects must provide technology transfer benefits and/or improvements of technology, including enhancement of local technology.
4. Project must fulfil all conditions underlined by the CDM Executive Board.
5. Project proponent should justify the ability to implement the proposed CDM project.

Source: MNRE, (2009a). Malaysian CDM Handbook. Putrajaya, MNRE.

Appendix H: Ecological Modernisation versus sustainable development

| Area | Weak EM | Strong EM | Sustainable development |
|--------------------|--|--|--|
| Environment | Economic growth in industrialised countries and environmental damage can be decoupled but economic growth can bring social and environmental benefits | Economic growth requires interventionist management of social and environment capital by government | Economic activity should enable prosperity within ecological constraints. Demands of society within limits of ecosphere. |
| Economic | Supply side focus, produce and distribute resources according to demand | Balance ‘supply side’ with intervention to reduce negatives of supply side policy on ecosphere and include social welfare | Demand side (consumption) also considered with supply side. Produce and distribute based on ethico-moral commitment to ecological footprint. Traditional growth paradigm cannot continue |
| Social | Economic wealth will create consumers who are enlightened and choose ‘green’ /ethical products and services therefore reducing environmental impacts. Justice is a product of policy responses to consumers’ ‘revealed preferences.’ | National “environmental citizenship” with environmental courts, and defenders enabling people to vote on environmental issues. Justice is a product of policy responses to ‘revealed preferences’ with active redistribution | Global ecological citizenship with participatory rights. Active citizens involved in policy process for ‘development’. Social and environmental are concerns of policy formulation. Support for fair use of global ecological footprint. |

Adapted from Scerri and Holden (2014).

Appendix I: Sustainability Reporting Guidelines

| Body | Sustainability Guidelines/standard/principles |
|--|---|
| CERES - Global Reporting Initiative | G4 Sustainability Reporting Guidelines |
| United Nations | United Nations Global Compact (UNGC) |
| United Nations Office of the High Commission on Human Rights | United Nations Guiding Principles Reporting Framework |
| AccountAbility | AA1000 Stakeholder Engagement Standard |
| Carbon Disclosure Project | Climate Change Guidance |
| Carbon Disclosure Standards Board | CDSB Framework for reporting environmental information and natural capital Climate change reporting framework Guidance on Carbon assets Guidance on Integrated Reporting |
| International Integrated Reporting Council (IIRC) | Integrated Reporting Framework |
| Sustainability Accounting Standards Board (USA) | Sustainability accounting standards (provisional for more than 80 industries) |
| GRI/UNGC/WBCSD | SDG Compass: Guide for Business action on SDG |
| International Standards Organization (ISO) | ISO 26000 Guidance on Social Responsibility ISO 14001 Environmental Management |

Appendix J: SouthsouthNorth Sustainability Matrix Tool Criteria

| Local/regional/global environment indicators | Social sustainability indicators | Economic and technological development indicators |
|--|---|---|
| Water quality and quantity Air quality, Other pollution Soil condition, Biodiversity | Job quality Labour standards Livelihood of the poor Access to energy Human and institutional capacity | Employment Balance of payment Technological self-reliance |

(Source: SSN, 2004)

Appendix K: Industry Types involved in the CDM, Malaysia

| | Industry | No of projects | Percentage % |
|----|--|----------------|--------------|
| 1 | Palm oil related (plantations, milling, manufacturing) ¹ | 71 | 49 |
| 2 | Manufacturing (air-conditioning, boilers, car parts, cement, electronics, healthcare products, paper, rubber, chemicals, rubber gloves) | 17 | 12 |
| 3 | Waste management | 15 | 11 |
| 4 | Power/energy generation | 11 | 7 |
| 5 | Agribusiness | 8 | 5 |
| 6 | Diversified conglomerate (consumer marketing, direct selling, retailing, financial services, hotels, resorts, property investment and development, gaming & lottery management, environmental services, motor trading and distribution, food and beverage, investment holding, aquaculture, biotechnology, mining, insurance, toll collection) | 8 | 5 |
| 7 | Green Technology | 5 | 3 |
| 8 | Biotechnology | 4 | 3 |
| 9 | Edible oils | 2 | 1 |
| 10 | Property related | 2 | 1 |
| 11 | Timber | 1 | 1 |
| 12 | Electrical | 1 | 1 |
| | | <hr/> 145 | <hr/> 100 |

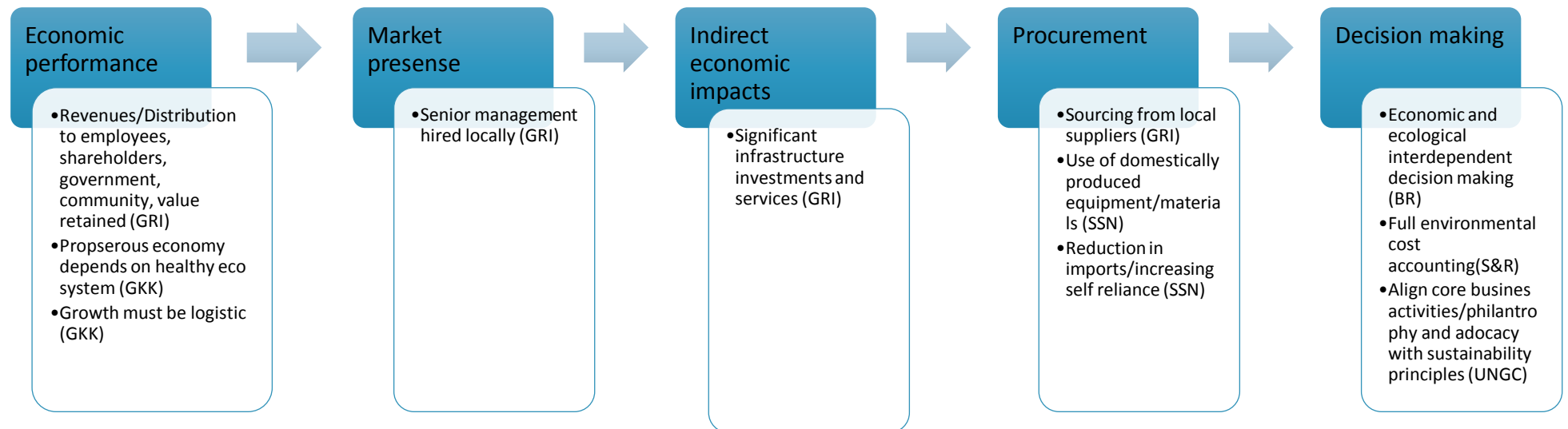
¹ For the purposes of this table, palm oil (PO) related industries include companies involved in palm oil and another industry such as property, timber, etc. However, as the main business is palm oil, project included under PO industry.

Appendix L: Literature used in developing the QCARI

| Source | Literature | SD focus |
|--|---|--|
| Business | Global Reporting Initiative – G4 Sustainability Reporting Guidelines (2013) | The ‘ <i>business case</i> ’ for SD |
| Academia | Gladwin, Kennelly and Krause (1995) Gladwin, Krause and Kennelly (1995) Gladwin and Krause (1996) | ‘ <i>Sustaincentrism</i> ’ – supports SD through inclusiveness, connectivity, equity, prudence and security (culminates in the ‘social sustainable enterprise’ and the ecologically sustainable enterprise’) |
| | Starik and Rands (1995) | ‘Ecologically sustainable organisation’ through ecological modernisation |
| Supranational organisations (United Nations) | Brundtland Report (1987) | Original definition of SD -anthropocentric - needs –v- wants - inter generational equity (eco and social justice) - intra generational equity (eco and social justice) -Eco-efficiency |
| | United Nations Global Compact (2016) | “Responsible citizenship” Attempt to influence and shape organizational behaviour on areas such as human rights, corruption and the environment (Bebbington and Larrinaga, 2014) |
| Non-Profit Organisation – SouthSouthNorth | CDM Matrix Toolkit (SSN, 2004) | Environmental and social justice – - Poverty alleviation - Environmental quality - Distributional equity - Access to services - Human and institutional capacity - Technological self-reliance |

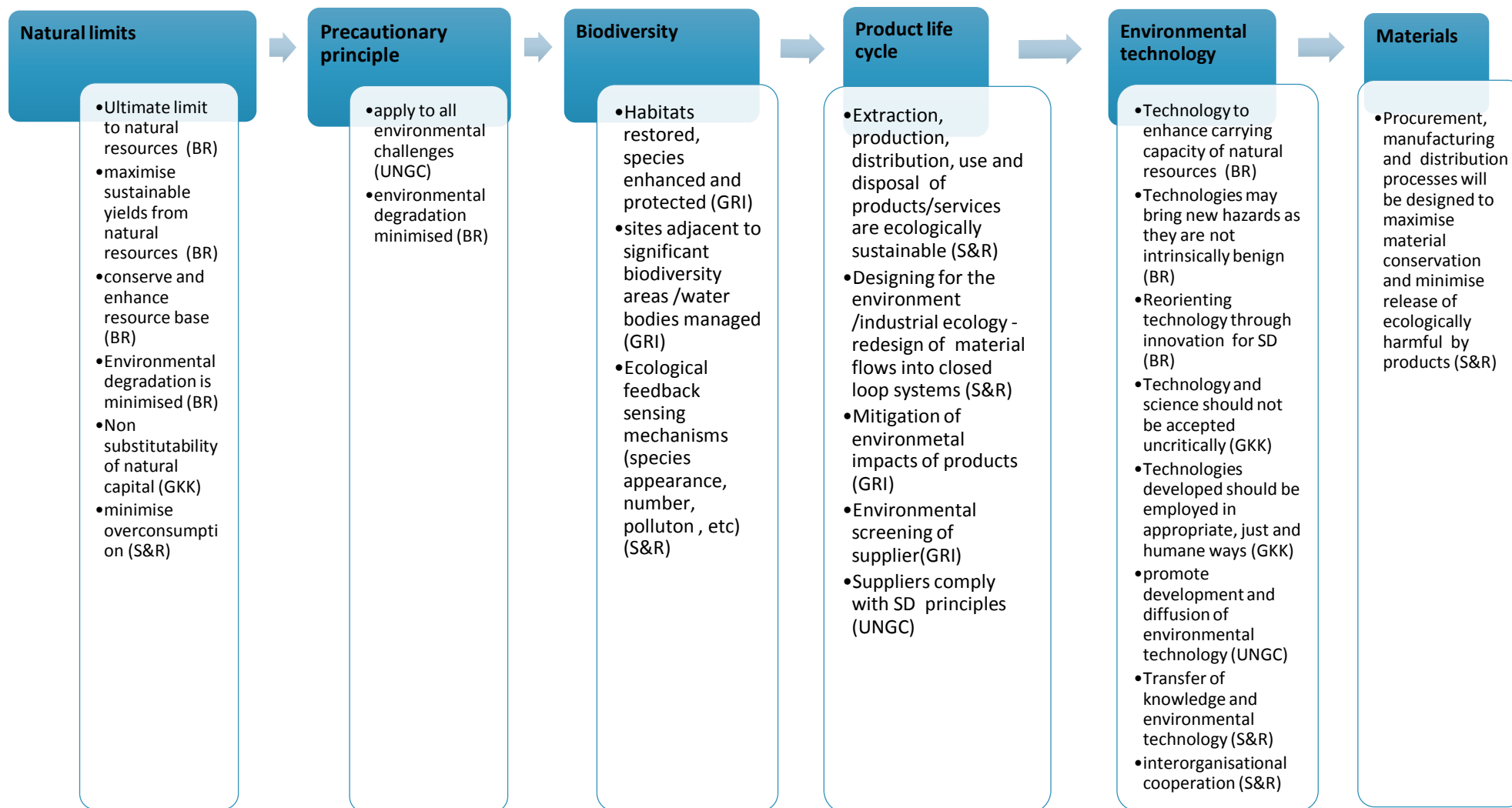
Appendix M: Descriptors of sustainable development/sustainability

ECONOMIC



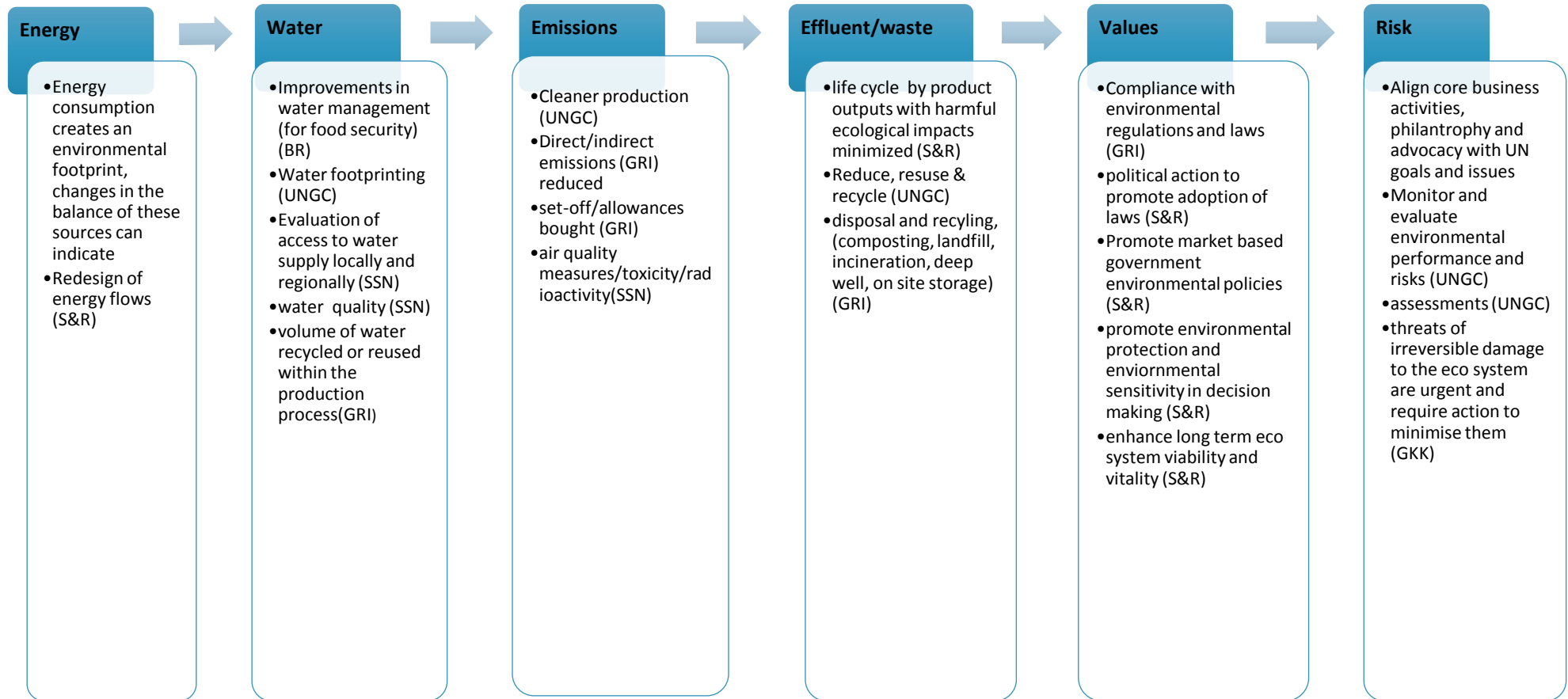
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ENVIRONMENT



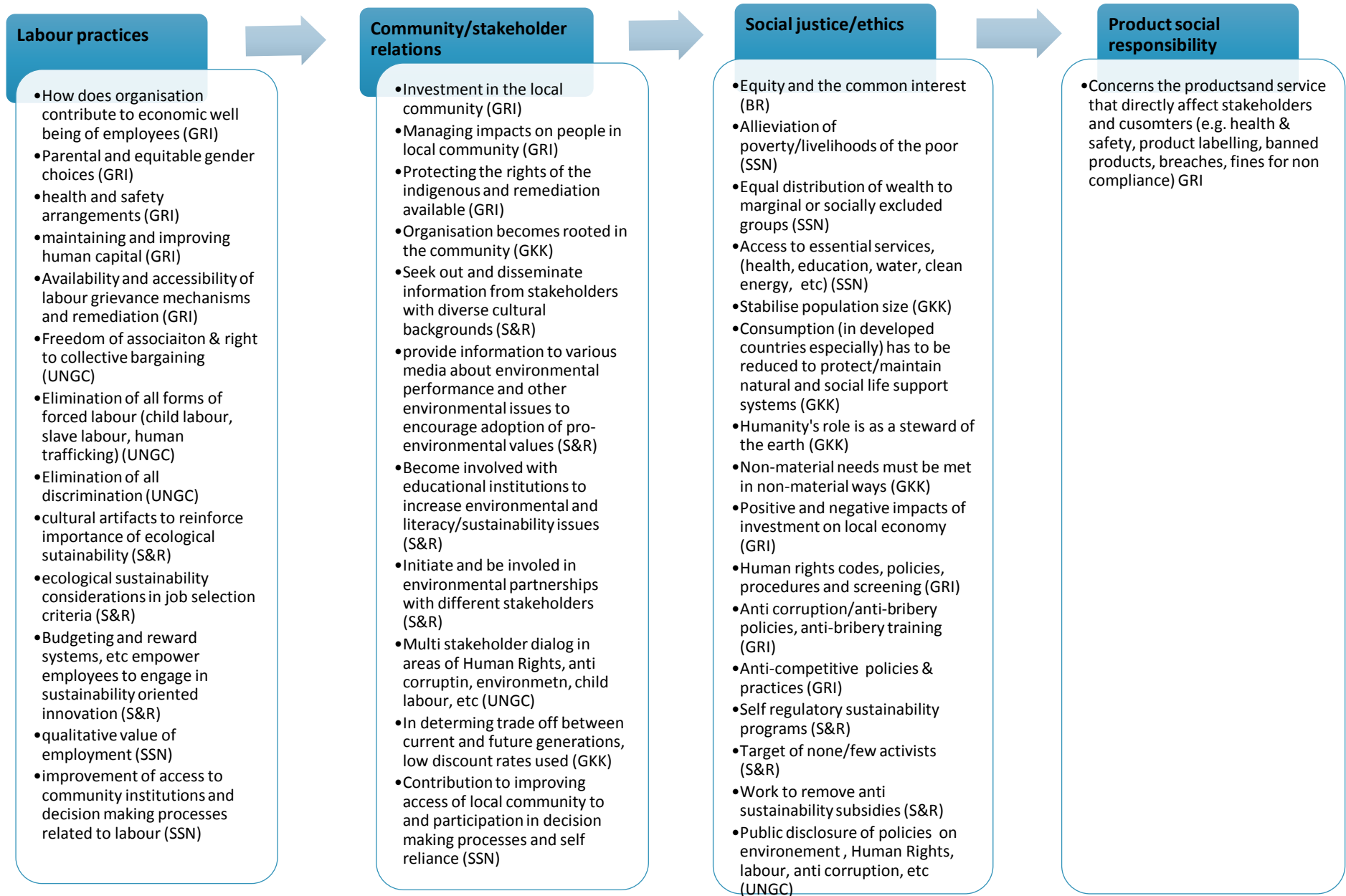
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ENVIRONMENT



(cont.:)

SOCIAL



Appendix N: Decision tool for content analysis/coding frame of PDDs (QCARI)

| Category | Source | Researcher description and/or examples | Decision rules –reference words |
|--|--------|--|--|
| Economic | | | |
| Economic performance– | GRI | Make profit to ensure various stakeholders are paid their wages, dividends, taxes and to retain profits for growth in the future | Economic performance Profits Distribution of profits in form of wages, dividends, taxes or retained profits |
| A prosperous economy depends on a healthy eco system (green economy) | GKK | Ecological and social externalities must be internalized. Markets should efficiently allocate resources but other policy instruments and incentives are needed to ensure that the pursuit of purely economic objectives is not at the expense of the environment or people. Policies should promote labour intensity versus capital intensity, savings versus consumption, poverty reduction, etc. | Markets Externalities included via carbon credits Re- structure of economy ‘People before profits’ ‘Small is beautiful’ Free markets are not a total solution Green products “Greening” |
| Growth must be in accordance with the carrying capacity of eco systems (logistic growth) | GKK | A balance between socioeconomic and environmental wellbeing must be maintained | ‘Sufficiency’ as opposed to ‘maximization’ stability ‘plateau’ reasonable earnings growth bounded by ecological limits i.e. finite quality –v- quantity of growth north-v- south |
| | | | |
| <i>Market presence</i> | | | |
| Senior management hired locally | GRI | Has a presence in the locality by hiring senior decision makers from the area | Hiring practices for senior management Provides local employment at higher management levels |

| | | | |
|--|------|---|--|
| <i>Indirect economic impacts</i> significant infrastructure investments and services | GRI | Changes productivity in the organisation/locality/economy | Productivity changes Increased/decreased services Pro bono or commercial investments/services Business opportunities investments Increase exports |
| <i>Procurement</i> | GRI | Source from local suppliers and use domestically produced products/materials. | Source local/domestically produced materials or products & services Local suppliers Gross domestic product Balance of payments |
| Reduction in imports to increase self-reliance | SSN | Reduce imports | Reduce imports Expatriate labour |
| <i>Decision making</i> Economic and ecological interdependent decision making | BR | The economy and ecology must be considered in decision making | Economic and ecological factors in decision making |
| Encouragement and development of full cost accounting mechanisms by national and international governmental bodies | S&R | Full cost accounting should consider externalities of economic activities Governments should include environmental externalities in their national income accounts | Full cost accounting Environmental accounting Governmental national income accounts Green accounting |
| Align core business activities, philanthropy and advocacy with sustainability principles | UNGC | Embed sustainability principles and do business in a principled way in areas of human rights, labour, environment and anti-corruption and community are considered | Sustainability principles Helping society Advocacy for sustainability leadership to sustainability issues Transparency and reporting on non-financial and sustainability impacts Corporate mission Corporate vision |

| | | | |
|--|-----|---|--|
| | | | |
| Environmental | | | |
| <i>Natural resources</i> | | | |
| There is an ultimate natural limit to natural resources | BR | There is a natural limit to eco systems, so they must be conserved and enhanced. Overconsumption minimized and sustainable yields maximised | Natural limits to natural resources (air, water, forests, seas, etc.). Finite eco system Scarce resources emissions limits Deforestation limits Biodiversity loss Overfishing, etc. Regeneration limits |
| Conserve and enhance resource base | BR | Natural resources should be conserved and enhanced | Natural resource conservation Preservation Natural resource protection Natural resource remediation |
| Non-substitutability of natural capital | GKK | Natural capital stock cannot always be substituted with man-made alternatives therefore must be preserved e.g. ozone layer, biodiverse species | Non-substitution Critical natural capital |
| Minimise overconsumption of natural resources by using inputs at sustainable rates (i.e. no faster than either (1) rates of renewal, (2) rates of recycling or (3) rates at which ecosystems regenerate barring technological advances | S&R | Natural resources should be used sustainably ensuring they are used no faster than they can be renewed, recycled or regenerated | Consuming natural resources Eco effectiveness Eco system regeneration Closed systems Renewable resources |
| Maximise sustainable yields from natural resources | BR | Ensure that the most output is achieved from the least input of natural resources | Eco-efficiency Exploitation rates Renewable resources Sustainable resources |

| | | | |
|--|------|---|---|
| | | | Economies of scale Intensive industry e.g. agriculture |
| Support a precautionary principle approach to all environmental challenges | UNGC | Where there is a possibility of harm/adverse impacts to people or the environment must take a proactive approach to mitigate these impacts | Environmental harm Least harm Precautionary principle Scientific uncertainty |
| Environmental degradation is minimised | BR | The degradation of the resource base should be minimized to ensure sustainable use for the future | Resource use Benchmarks for resource use Clear environmental goals |
| <i>Biodiversity</i> | | | |
| Habitats restored, enhanced and protected | GRI | All ecological habitats/animal life are protected, restored when damaged and enhanced | Protected /critically endangered species Flora /fauna Restoration Remediation Vulnerable habitats Reduction of species Habitat conversion Introduction of invasive species (e.g. beetles) pollution |
| Sites adjacent to significant biodiversity areas/water bodies managed for impacts | GRI | Protect biodiversity from potential impacts of industrial/corporate activities | Mining/construction/transportation remediation Subsurface/underground land Protection status Pollution Soil erosion |
| Design and utilise mechanisms that sense, accurately interpret and promote corrective action upon negative/pro-sustainability feedback from nature | S&R | Ecological feedback mechanisms are in place to ensure negative feedback results in corrective action and positive feedback results in continued practices e.g. employee health, species loss, | Species loss Conservation Protection Deforestation/replanting Marine eco system health Employee health statistics Impact/changes made due to ecological feedback |

| | | | |
|--|------|---|--|
| | | water quality, pollution, etc. | |
| | | | |
| <i>Product life cycle</i> | | | |
| Procurement, manufacturing and distribution processes will be designed to maximize material and energy conservation and to minimize release of by product outputs that will have harmful ecological impacts. | S&R | The extraction, production, distribution, use and disposal of products/services must be ecologically sustainable | Energy conservation Life cycle assessment/management Energy flows Energy efficiency |
| | | | |
| Environmental impact mitigation related to products and services | GRI | Actions undertaken to reduce or eliminate the environmental impacts of products and services | Environmental impacts Mitigation Consumption patterns Reclaimed packaging Reclaimed products Environmental consequences |
| | | | |
| Environmental screening of suppliers | GRI | Suppliers in supply chain assessed for environmental/social efficacy | Supplier screening Supplier environmental impacts Environmental impact assessments Ethical sourcing |
| | | | |
| Expect suppliers to adhere to sustainability principles | UNGC | Suppliers in supply chain comply with sustainability principles | Documented expectations of suppliers Supply chain due diligence Supplier training and assistance Supplier audit Supplier self-verification |
| | | | |
| Research and development and administrative processes will facilitate the development and/or redesign of goods and services that will have sustainable use and disposal/recycling characteristics. | S&R | Business organisations redesign production and distribution processes to mimic natural eco systems using industrial ecology | Material flows Energy flows Industrial design Mimic natural eco systems Closed loop systems Industrial ecology Eco-labelling |
| | | | |

| | | | |
|--|------|---|---|
| <i>Environmental technology</i> | | | |
| Accumulation of knowledge and the development of technology can enhance the carrying capacity of the resource base | BR | Innovative technology which enhances carrying capacity of natural resources or increases eco-efficiency | Constrained resources Environmental technology Eco-efficiency Transfer of environmental technological know-how Co-operation on environmental technology/industry partners |
| Many technologies will also bring new hazards. New technologies are not all intrinsically benign, nor will they have only positive impacts on the environment. | BR | Technology will also increase risk of additional hazards to health, food cultivation, environment, etc. | Hazards of technology Negative aspects of technology |
| Reorienting technology through innovation | BR | Changing existing technology to pay greater attention to the environment | Anti-pollution Technology transfer Innovation in product processes Adaption “first of its kind technology” Biotechnology |
| Technology and science should not be accepted uncritically | GKK | Absolute faith in technology and science is not a complete solution to sustainable development | Technology cannot reverse all ecological impacts Anti - techno centric |
| Technologies developed should be employed in appropriate, just and humane ways | GKK | New technologies should be assessed to ensure they are ecologically, socially and economically feasible | Assessment of new technology for ecological, social and economic feasibility |
| Encourage the development and diffusion of environmentally friendly technology | UNGC | Policies and practices should encourage development and the spread of environmentally friendly technologies | Policies encouraging innovation Financial support for innovation Proliferation of environmental technology Promotion of environmental technology showcase |
| | | | |

| | | | |
|---|-----|---|---|
| Devote extensive administrative resources to developing and implementing sustainability strategies involving inter-organizational cooperation | S&R | Cooperate with other organisations to develop and implement sustainability strategies across industries and sectors both private and public | Inter organizational cooperation Waste transfers Waste exchange programs Industry organisations |
| | | | |
| <i>Materials</i> | | | |
| Procurement, manufacturing and distribution processes will be designed to maximize material and energy conservation and minimize the release of by product outputs that will have harmful ecological impacts | S&R | Material usage must be efficient and ecological impacts reduced by recycling and reducing usage | Recycling materials Reduction in weight/volume of inputs for same output Waste output used as input Composting |
| | | | |
| <i>Energy</i> | | | |
| Energy consumption has a direct effect on operational costs and can increase exposure to fluctuations in energy supply and prices. The environmental footprint of an organization is shaped in part by its choice of energy sources. Changes in the balance of these sources can indicate the organization's efforts to minimize its environmental impacts. | GRI | Energy consumption redesigned and reduced. Dependence on fossil fuel minimized with replacement by renewable energy | Reduced energy consumption Dependence on fossil fuel Reduction in fossil fuels usage Use of renewable energy Redesigned energy flows Energy consumption for heating, cooling, electric, fuels Green energy Alternative energy sources Security of energy supply |
| Redesign of materials and energy flows into essentially closed-loop systems that mimic natural ecosystems | S&R | Energy flows derived from self-sustaining process e.g. biomass | Energy from biomass Energy from biogas Downstream No wastage Energy from methane |
| | | | |

| | | | |
|--|------|--|---|
| <i>Water</i> | | | |
| Improvements in water management are essential (for food security) to raise agricultural productivity and reduce land degradation and water pollution | BR | Water resources (groundwater, underground water, water bodies) protected and managed for quality and usage to ensure food security | Water management Water usage Water bodies protected Ground water Rivers Seas Aquifers Underground water Water pollution |
| Water foot printing assessing all forms of freshwater use (consumption and pollution) that contribute to the production of goods and services consumed (operations) or indirectly (supply chain) to produce the product. | UNGC | Identifying water usage and pollution associated with life cycle of product/services | Volume of water usage Groundwater Surface water Municipal water |
| Evaluation of access to water supply for people locally and regionally | SSN | Do people have access to clean and safe water for use and sanitation purposes | Clean water Access to safe and clean water Livelihoods affected |
| Evaluation of water quality based on the concentration of main pollutants or effluents in the water | SSN | Is the water free from pollutants or effluents? Is it suitable for fauna to survive | Pollution Effluent Water quality |
| Water recycled or water reused within the production process | GRI | How much of the original water withdrawn has been reused or recycled in the production activities | Water recycled Water reused Rainwater Waste water |
| <i>Emissions</i> | | | |
| Cleaner and safer production | UNGC | Production is made cleaner to improve air quality and reduce/eliminate pollution, emissions and toxicity | Clean production methods Production methods are safe Pollution prevention odour |
| Reduction of direct and indirect emissions (GHG/ozone depleting gases) from operations inside and outside the | GRI | GHG/ozone depleting gases are reduced whether they come from inside the organisation or are from | Emissions Carbon dioxide GHG Ozone depleting Set – offs |

| | | | |
|---|------|--|--|
| organisation including upstream and downstream emissions | | further up or down the value chain | Carbon allowances Certified emissions reductions European ETS CDM |
| Evaluate air quality by comparing the concentration of most relevant air pollutants (e.g.: SOx, NOx, particulate matters etc.) generated. | SSN | Air quality measures to ascertain toxicity, radioactivity, quality for human health | Air particles Health Air quality Air pollutants |
| <i>Effluent/waste</i> Procurement, manufacturing, and distribution processes in will be designed to maximize material and energy conservation and to minimize the release of by-product outputs that will have harmful ecological impacts. | S&R | All types of waste are recycled/treated to be ecologically neutral or disposed of appropriately. | Effluent quality/treatment Disposal methods |
| Reduce, reuse and recycle | UNGC | Waste should be reduced, reused or recycled back into the production activities | Reduce Reuse Recycle waste |
| Waste disposal destination reveals the extent to which an organization has managed the balance between disposal options and uneven environmental impacts. For example, land filling and recycling create very different Types of environmental impacts and residual effects. | GRI | Waste disposal options have different environmental consequences | Waste/effluent destination Spillages Hazardous waste |
| | | | |

| | | | |
|---|-----|---|---|
| <i>Values</i> Compliance with environmental laws and regulations | GRI | Comply with all relevant environmental regulations and laws, declarations, conventions | Regulations Laws Fines Sanctions Legal cases Non-compliance |
| Take political action to promote the adoption of laws and regulations that "raise the floor" of environmental performance. | S&R | Lobby to promote and increase adoption of environmental regulations to improve the industry environmental performance | Promoting the environmental law Support of government initiatives "lobbying" |
| Promote market-based governmental environmental-policy approaches over traditional command-and-control approaches. | S&R | Promote the inclusion of environmental costs by using market based mechanisms | Carbon taxes Tradeable permits Emission taxes Cap and trade Market based mechanisms Market based instruments |
| Promote the value of environmental protection and sustainable organizational performance, instill norms for environmental sensitivity in all decisions, and develop role-specific expectations for environmental performance. | S&R | Values of environmental protection, sustainability, environmental improvement, and environmental education inculcated throughout the organisation via written communication, training and activities. | Integrating environmental/sustainability decision making Environmental impacts questioned Environmental expectations Environmental training and employee engagement |
| Consider all the principles, policies, and practices from the standpoint of long-term ecosystem viability and vitality and develop and implement strategies so that they act in ecologically sustainable ways. | S&R | Develop sustainability oriented missions and objectives and ecologically sensitive strategies and plans for implementing ecologically sound activities | Environmental objectives/plans/strategies Sustainability objectives/plans/strategies Longer term strategies for sustainability e.g. reducing consumption Industry specific policies, e.g. chemical, palm oil, etc. |
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| <i>Risk</i> Align core business activities, philanthropy and advocacy campaigns with UN goals and issues. Collaboration is essential. Provide a collective voice and share risks in tackling major challenges that no single player can overcome, such as corruption, climate change and discrimination. | UNGC | Consider environmental risks as part of core business activities as well as other risks of corruption and discrimination | Specific environmental risks Mitigation actions taken Environmental risk |
| Assessing risks is a crucial to implementing corporate sustainability successfully, decrease the exposure to various risks and avoid costly damages | UNGC | Risk assessments to be performed to ensure all risks exposure identified and avoided | Risk assessment/measurement Risk exposure Risk reduction |
| Threats of irreversible damage to the eco system are grave and urgent, requiring action to minimize them | GKK | Action must be taken now to ensure that irreversible damage is minimized or stopped | Significant threats Severe consequences of inaction Urgent Grave threats |
| | | | |
| Social | | | |
| <i>Labour practices</i> | | | |
| Demonstrate how the organization contributes to the economic wellbeing of employees in significant locations of operation. | GRI | Pays fair wages to employees. Minimum wage legislation is enforced. | Fair wage Fair remuneration Minimum wage Entry level wage Economic assistance New jobs New employment opportunities |
| Both parental leave and equitable gender choices for parental leave are available | GRI | Are genders treated equally when it comes to parental leave for | Parental leave Child rearing Career breaks Retention rates |

| | | | |
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| | | emergencies, maternity, child rearing etc. | |
| Formal arrangements for Health and Safety are in place including H&S programs, compliance with H&S legislation | GRI | Health and safety programs are in place to ensure the health and safety of the workforce | Occupational health and safety Injuries in the workplace Health of employees Employee grievance process Accident rates noise Healthy work environment |
| Maintaining and improving human capital, particularly through training that expands the knowledge base of employees, as a key element in organizational development. | GRI | Investment in training and development carried out to improve skills and employability as well as enable continuing progress | Training and development (in HR, ethics, health & safety, etc.) Update skills Lifelong learning Access to training and development |
| The availability and accessibility of grievance mechanisms and remediation processes for impacts on labour practices, including along the organization's supply chain, and the involvement of stakeholders in monitoring their effectiveness. | GRI | Employees have access to a grievance mechanism and remediation procedures | Labour disputes Labour grievances Grievance filings remediation resolution |
| Uphold the freedom of association and the effective recognition of the right to collective bargaining | UNGC | Employees should have the freedom to join organisations' of their own choice and carry out the promotion and defence of their occupational interests as well as voluntarily participate in any activities to discuss and negotiate with employers | Trade unions Non-discrimination Worker participation Workers' rights Employers rights |
| The elimination of all forms of forced labour including the abolition of child labour as | UNGC | Employee's time should be freely given and employees should be free to leave according | Forced labour Debt bondage Bonded labour Keeping of deposits |

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| defined by international conventions (ILO) | | to established rules. Child labour should be abolished where it involves unacceptable work for a child | Child labour |
| Elimination of discrimination in respect of employment and occupation | UNGC | Employees should not be treated differently or less favourably because of race, colour, sex, religion, political opinion, nationality, social origin, HIV/AIDS status, age, disability, or sexual orientation. | Discrimination in work processes (recruitment, selection, H&S etc.) Equality Diversity Indirect discrimination Local versus foreign workers |
| Numerous cultural artifacts such as slogans, symbols, rituals and stories which serve to articulate and reinforce for their members the importance of ecologically sustainable performance. | S&R | A deep commitment to ecological sustainability among employees is developed by shared environmental values reinforced by strong norms for pro-sustainability behaviour | Sustainability values communicated to employees Mission Symbols/slogans Employee giving Environmental competitions |
| Include ecological sustainability considerations and criteria in job design, recruitment and selection, and training and development systems. | S&R | Human resources management systems include ecological sustainability criteria for human resources inputs | In house, environmental/sustainability training programs Environmental literacy Sustainability qualifications |
| Design budgeting and reward systems, communication systems, organizational structures, and decision-making systems to empower individuals to engage in sustainability-oriented innovation. | S&R | The HR systems in place will motivate and empower individual employees to be ecologically innovative. | Green innovation Employee ideas for sustainability Employee innovation for sustainability “Green” ideas |
| Evaluate the qualitative value of employment, | SSN | Offer quality jobs, requiring high or low | Permanent Temporary |

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|--|-----|--|--|
| such as whether the jobs are highly or poorly qualified, temporary or permanent. What are the job-related health and safety impacts of the jobs? | | qualifications and temporary or permanent positions provide jobs? How does H&S impacts feature in the jobs? | Unskilled Semi-skilled skilled |
| Contribution to improving the access of local people to and their participation in community institutions and decision-making processes | SSN | Does employment of locals enable them to participate in decision making for the local community? | Local community Town hall meetings Empowerment Community decision making |
| <i>Community/stakeholder relations</i> | | | |
| Investment in the community, including arts and educational events). | GRI | The actual investments in community related activities, charities, NGOs, research, infrastructure and social programs. | Value of investment in community activities |
| Managing impacts on people in local communities is assessed. Voluntary donations and investment of funds in the broader community where the target beneficiaries are external to the organization. These include contributions to charities, NGOs and research institutes | GRI | Identify and manage the impacts on local communities of activities and consider needs of the local community. | Community engagement Gender impact Environmental impact Improving environment for community Community development programs Community consultation Community committees Vulnerable groups Noise, disturbance, health, odour |

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| (unrelated to the organization's commercial R&D), funds to support community infrastructure (such as recreational facilities) and direct costs of social programs, (including arts and educational events). | | | |
| Managing impacts on people in local communities including assessment and planning to understand the actual and potential impacts. Strong engagement with local communities to understand their expectations and needs. | GRI | Identify and manage the impacts on local communities of activities and consider needs of the local community. | Community engagement Gender impact Environmental impact Improving environment for community Community development programs Community consultation Community committees Vulnerable groups Noise, disturbance, health, odour |
| Protecting the rights of the indigenous and remediation available to indigenous | GRI | The rights of indigenous near the operations and the types of remediation actions available | Indigenous Remediation Tribal |
| Organisations become rooted in the community | GKK | Trade is restructured so that globalization and capital mobility doesn't undermine local environmental, labour, health & safety, human rights standards | Local trade Local employment Anti-globalization International trade Multinationals Transnationals |
| Seek out and disseminate information from stakeholders with diverse cultural backgrounds. | S&R | Seeking and providing environmental and sustainability information from different cultural and ethnically diverse stakeholders | Ethnic perspectives Cultural perspectives |
| Provide information to various media about their own environmental performance and other environmental issues to encourage people to | S&R | Provision of information on environmental performance and sustainability issues to educate and support environmental values | Environmental values Environmental values Sustainability performance |

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| adopt pro-environmental values | | | |
| Becoming involved with educational institutions in activities designed to increase "environmental literacy." | S&R | Promote environmental and sustainability literacy through universities, colleges and schools | Environmental literacy Environmental education Sustainability education with universities, colleges or schools |
| Initiate and be involved in numerous environmental partnerships of different forms, which will involve different issues and various external stakeholder organizations. | S&R | Environmental partnerships such as technical assistance, supplier-customer agreements, NGOs, government bodies, etc. to solve environmental and sustainability issues | Environmental partnerships/agreements Assistance Collaboration Supplier-customer agreements Sustainability solutions Sustainability organisations Technical experts Technical assistance |
| | | | |
| Multi stakeholder dialogue in areas of Human Rights, anti-corruption, environment and child labour | UNGC | Multi stakeholder dialogue enables business organisations to assess and improve their impacts in these areas | Stakeholder dialogue Engaging stakeholders Discussion |
| | | | |
| SD is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: | BR | The needs of future generations should be considered in SD. This includes use of non-renewable resources, health and wellbeing, a viable natural environment, | Future generations Future needs Intergenerational Intragenerational Interspecies |
| In determining the trade-off between current and future generations, low or zero discount rates should be used | GKK | Social rates of time preference are the most fitting way of doing intergenerational analysis. However, discount rates should be kept to low or zero to ensure that future | Discounting Discount rates |

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| | | generations are not worse off | |
| Contribution to improving the access of local people to and their participation in community institutions and decision-making processes. | SSN | How do the processes contribute to local community participation in decision making | Local community Participation in decision making |
| | | | |
| <i>Social justice/ethics</i> | | | |
| | | | |
| Equity and promotion of the common interest | BR | Equality in terms of use of resources, land, food availability, education, health, institutional capacity. This applies to current generations as well as future generations | Food availability Resource use Land use Education Health Institutional capacity Current and future generations Inter-generational equity |
| Contribution to poverty alleviation. Poverty alleviation will be evaluated by calculating the change in number of people living above income poverty line compared to previously | SSN | Contribution to people changing their income from below to above the poverty line | Poverty Poverty line The poor |
| Contribution to equitable distribution of wealth and opportunity, gender and marginal or excluded social groups. | SSN | Equitable distribution of wealth and opportunity to those disadvantaged in the community | Equitable distribution of wealth Disadvantaged groups Socially excluded Marginalized |
| Access to essential services (water, health, education, energy facilities as an indicator of social sustainability, measured by the number of additional people gaining access | SSN | Enabling the poorer rural areas to have greater access to essential services such as clean water, energy, education, and healthcare? | Essential services to rural poor Access to services |

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| <p>in comparison with before.</p> <p>Access to affordable clean energy services and improve the coverage of reliable and affordable clean energy services, especially to the poor and in rural areas.</p> | | | |
| Population size should be stabilized | GKK | Population growth puts added burden on ecological resources | Population size |
| Consumption, especially in developed countries should be reduced to protect and maintain natural and social life support systems | GKK | Over consumption leads to the destruction of ecological and social life support systems | Over consumption Exploitation North versus south Rich versus poor |
| Humanity's role is as steward of the earth for the good of human and non-human nature | GKK | Humanity and other species are valuable parts of the biosphere, although humanity is above the biosphere intellectually and therefore has the stewardship role | Human-v-non-human Stewardship role |
| Humanity must learn to satisfy non-material needs in non-material ways and appreciate the aesthetic, economic and values residing in nature | GKK | Quality of life cannot be measured fully by pursuit of material things. Humanity must learn this | Quality of life Materialism Values of nature |
| Positive and negative impacts of investment on local economy | GRI | Impact on poverty, social or environmental conditions, availability of products & services to low income groups; enhancing of skills & knowledge. | Increase or decrease in jobs Improvement or decline in social& environmental conditions Additional services to the low-income groups Increasing skills and knowledge within locality or economy |
| The extent to which processes have been implemented, incidents of human rights violations recorded, and any changes in stakeholders' ability to | GRI | Honoring human rights in all its forms (gender equality, freedom of association, collective bargaining, child labor, forced or compulsory labor, and indigenous | Human rights Violations Human rights incident Human rights policies Human rights procedures Human rights screening |

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| enjoy and exercise their human rights. | | rights) and have the necessary codes, policies and procedures in place? | |
| The extent to which anti-corruption processes are in place, the incidents of corruption, how corruption is identified and managed and the training and awareness building necessary to combat corruption | GRI | Combat corruption by implementing policies and procedures | Anti-corruption Bribery Donations Sponsorships Gifts Entertainment |
| Processes and policies are in place to ensure that the actions of the organization or employees that may result in collusion with potential competitors to fix prices; coordinate bids; create market or output restrictions; impose geographic quotas; or allocate customers, suppliers, geographic areas, and product lines, with the purpose of limiting the effects of market competition are identified and dealt with | GRI | Policies and practices in place to ensure there are no anti-competitive actions undertaken by employees or management | Anti-competitive Anti-trust Monopoly Collusion |
| Create sustainability oriented self-regulatory programs within their respective organisations | S&R | Business organisations should create and adhere to high standards of sustainability practice based on public concerns rather than regulation necessarily | Standards of care for sustainability Self-regulatory compliance Collective industry responses |
| Be the target of few, if any, protests by environmental activists. | S&R | Ensure there are none or few protests by environmental activists | Activists Protests |

| | | | |
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| Work to remove anti-sustainability subsidies, and/or to institute pro-sustainability subsidies | S&R | Lobby government to remove anti sustainability subsidies and promote pro sustainability subsidies | Subsidies Lobbying government in these areas |
| Public disclosure of policies and practices related to the environment, labour, anti-corruption, human rights. | UNGC | Public disclosure to stakeholders including society on all areas related to the environment, labour, anti-corruption, human rights | Public disclosure of policies and practices |
| <i>Product social responsibility</i> | | | |
| Product Responsibility concerns the products and services that directly affect stakeholders and customers. | GRI | Products/services should not negatively impact on those who deliver or use the product/service. This includes the health and safety impacts. Product labelling is important as well as recording breaches/complaints/fines, etc. | Consumer health Consumer safety Product labelling for sources of materials, impacts on environment, etc. Customer satisfaction Banned products, substances, harmful chemicals, etc. Complaints Fines Regulation breaches |

Appendix O: Summary of SEA empirical research using different forms of discourse analysis

| Publication | Research objects | Discourse analytic approach | Analysis process |
|------------------------------------|--|------------------------------|---|
| Livesey, S. (2002) | Royal Dutch Shell's first annual report to society | Foucauldian discourse theory | <p>Three levels of coding:</p> <ol style="list-style-type: none"> 1. Coding salient themes, metaphors, modes of expression, argument structures. Changes over time (Wetherall & Potter 1992). 2. Evaluation of formal features of the report, i.e. patterns of language, rhetorical schema, discursive resources ways of constructing the ecological dilemma and green capitalism that related to the discourse of SD. Formal conventions such as choice of reporting genre, symbolic positioning of the report as dialogue and reference to other text for authorial and interpretative stances such as knowledge and power. 3. Discourse of SD from the Brundtland report. <p>Interdiscursivity orders of economics, environmentalism, social ethics, cognitive commitments, rules practices and institutional structures.</p> |
| Livesey, S. and Kearins, K. (2002) | The Body Shop International's "the Values Report – 1997 and the Royal Dutch/Shell's first annual social report 1998. | Foucauldian discourse theory | <p>Three level method of linking texts to macro level discourse. This included examining</p> <ol style="list-style-type: none"> 1. Formal features of the texts 2. Conditions the texts are produced, distributed and consumed 3. Social practices |
| Prasad, A. and Mir, R. (2002). | CEO letters in oil company annual reports | Critical hermeneutics | <p>A four-stage process examining:</p> <ol style="list-style-type: none"> 1. Choosing and 'reading' the text including focus on themes and metaphors 2. Laying out the context: the social, cultural, historical and industry context 3. Closing the hermeneutic circle by making visible relationships of the texts to the contextual story or demonstrating the mutual implication of text and context 4. Effects of the texts on receivers of the communication therein |
| | | | (Cont:) |

| Publication | Research objects | Discourse analytic approach | Analysis process |
|---|--|---|---|
| Laine, M. (2005) | Listed Finnish companies' annual reports and other standalone corporate disclosure reports for 2001 and 2002 | Foucauldian discourse theory loosely following Fairclough | A three-step process <ol style="list-style-type: none"> 1. An analysis of the discourse practice, particularly the conditions under which the texts are produced, distributed and consumed 2. An analysis of the formal features of the texts (concepts of SD, similarities, dissimilarities, omissions, argument structures, themes) 3. Analysis of social practice of which the discourse is part |
| Tregidga, H. and Milne, M.J. (2006) | Annual environmental and sustainability reports of Watercare Services 1993-2003 | Interpretive structuralist approach | A three-step process <ol style="list-style-type: none"> 1. Careful reading of all texts (significant features and differences between them) 2. Closer reading of all texts (extracts taken on how concepts of SD and relationship of company to society) 3. Identification of contextual influences to map evolution of reporting on SD |
| Laine, M. (2009) | Environmental disclosures in a Finnish chemical company's annual reports from 1972-2005 | Interpretive textual analysis | A three-step process <ol style="list-style-type: none"> 1. Reading all reports to identify all passages which could be considered social or environmental disclosures 2. Second reading to collect marked passages from first step into a separate file. Notes made as to where in the report the passage came from and the context of the passage. A time line developed highlighting how company changed the way it expressed itself. This included introduction of new concepts for SD 3. This stage considered dominant themes, similarities, dissimilarities, metaphors and symbols used. (Augmented by another researcher going through a similar process including physical appearance of reports). |
| Milne, M.J., Tregidga, H. and Walton, S. (2009) | New Zealand business' triple | Thompson's (1990) | Text analysis included: <ol style="list-style-type: none"> 1. Analysis of NZBCSD materials and the way the NZBCSD discussed the concept |

| Publication | Research objects | Discourse analytic approach | Analysis process |
|--|--|--|---|
| | bottom line reports | framework on modes and strategies of ideology | <p>of SD, themes were identified from this analysis (<i>continued</i>)</p> <ol style="list-style-type: none"> 2. TBL reports analysed individually by researchers to come up with manually coded themes which were then compared 3. Stages one and two were compared for similarities in the languages and any differences |
| Laine, M. (2010) | 15 annual reports and 7 other stand-alone reports of 3 major Finnish companies | Interpretive textual analysis | <p>Three stages</p> <ol style="list-style-type: none"> 1. Read through of all the reports and with a mark-up of all those passages containing any reference to social or environmental issues 2. Another reading round to identify sustainability related concepts 3. Organisation and scrutiny of selected passages which had been extracted in stage one and two 4. Focus to identify patterns, exceptions, similarities, omissions. Questions asked, ‘What is sustainable development?’, ‘How is it defined?’, ‘How is it achieved?’, ‘Are there problems?’ and ‘Why does the company bother with it?’ |
| Merkel-Davies, D.M. and Koller, V.(2012) | Chairman’s Statement for major defence firm | Critical discourse analysis | <p>Three levels of analysis</p> <ol style="list-style-type: none"> 1. Micro level of the text itself – linguistic features of the text with emphasis on two i.e. impersonalisation and evaluation 2. Meso level analysis – the production, distribution, reception and possible adaption of the text 3. Macro level analysis – takes wider social formation in relation to the text, such as the actors involved and changes in the social formation |
| Tregidga, H., Kearins, K. and Milne, M. (2013) | 197 publicly available corporate reports in NZ | Discourse analysis (using Phillips and Hardy 2002) | <p>The research process involved:</p> <ol style="list-style-type: none"> 1. Multiple readings to ‘know the data’ by first author, extracts of concepts of SD and notes made to compare with other authors. 2. General comments and observations made and noted at this point but not all text was coded necessarily 3. Coding of the extracts collected was then made to identify key themes, deciding on key themes was an iterative process, some codes were merged. Contradictory codes saved under one theme (<i>continued</i>) 4. Application of DA to the themes, these included power/knowledge, claims to truth, power imbalances, hierarchical relations, authoritative knowledge, definitiveness, self-evident “truth,” or instances of uncertainty, absences and |

| Publication | Research objects | Discourse analytic approach | Analysis process |
|--|---|--------------------------------------|---|
| | | | silences. Taken for granted assumptions were highlighted. |
| Amernic, J. and Craig, R. (2013) | News Corporation's Chairman and CEO's 2010 Annual Report Letter to Stockholders | Close reading | <p>Analysis involved:</p> <ol style="list-style-type: none"> 1. Understanding the context by reading literature related to the company and the Chairman/CEO 2. Multiple close readings (usually three) by both authors with a search for implicit assumptions, ideology, silences, techniques of argumentation and metaphor. Notes were made during these readings 3. The authors exchanged notes and produced a consensus analysis |
| | | | |
| Tregidga, H., Milne, M. and Kearins, K. (2014) | 365 publicly available standalone and annual corporate reports 1992-2010 | Laclau and Mouffe's discourse theory | <p>Analysis involved:</p> <ol style="list-style-type: none"> 1. Initial readings and the reduction of volume of text to specific extracts to a 'report analysis worksheet' to record areas of interest and what it means to be sustainable with knowledge/truth claims and 'taken for granted' statements were recorded. Omissions were considered and differences in themes of the organisation compared within wider discourses of SD. 2. Manual coding of extracts from stage one to identify themes to identify construction of meaning. 3. Themes identified were assessed to see when they appeared chronologically and became prominent or less prominent |

Appendix P: Information for Interviewees

Information for potential interviewees

About the researcher

Ann Marie Sidhu is a lecturer in Accounting and Finance with Heriot Watt University, Malaysia. She has also worked in Sunway University, HELP University and Newcastle University, UK. She currently lectures in Financial and Corporate Reporting and Auditing at undergraduate level and has also lectured at graduate level. She graduated from Queens University Belfast with a BSc (Hons) degree in 1987 and a postgraduate diploma in accounting in 1988 and trained as a chartered accountant with Coopers and Lybrand and qualified as an ACA in 1990 with the Institute of Chartered Accountants in Ireland (currently an FCA). In 2004 she earned a Masters in Environmental and Business Management from Newcastle University, Australia. She is currently working towards a PhD on a part time basis with Newcastle University, UK. Details of her research are detailed below. She can be contacted on a.m.moohan-sidhu@newcastle.ac.uk or ammoohan@yahoo.co.uk

Research

The research undertaken as part of the PhD with Newcastle University considers the objectives of the Clean Development Mechanism in relation to organisations in Malaysia. The two-fold objectives are to enable sustainable development and introduce clean technologies to host countries. The research specifically considers the sustainable development objective. A form of discourse analysis is used to study the language used in the Project Design Documents for 30 selected CDM projects. This analysis attempts to examine the meaning of sustainable development within the Clean Development Mechanism and identify the key themes and linguistic signifiers used in the discourse.

The next stage of the research involves interviewing a sample of individuals involved in the CDM process to obtain their perspectives on climate change and sustainable development and the CDM mechanism to deal with the issues of climate change and sustainable development. The interviews will explore what sustainable development, in the context of climate change and the Clean Development Mechanism means to these individuals. The views obtained should provide some means to understand and expand upon the research carried out on the PDD documents as outlined above.

Time commitment

It is envisaged that the interview will take approximately 45-60 minutes per individual.

Confidentiality

Each interview shall be transcribed and a copy extended to the individual interviewee upon request. All data will remain completely confidential. Personal information shall not be included in any research outputs such as the thesis or conference papers as data will be anonymised.

Sample Interview Questions

The interview is semi- structured so questions asked may vary from one interviewee to the next depending on interviewee responses.

Examples

What are your personal perspectives on climate change?

What do you think are the responsibilities (if any) of business organisations for sustainable development?

Would you implement other CDM projects?

To what extent does cleaner technology aid in sustainable development?

Appendix Q: Interview Guide

Semi structured interview guide – outline questions only (*questions asked depend on the course of the interview*)

What are your perspectives on sustainable development and climate change?

- Do companies have any responsibilities for SD and climate change?
- What do you see as their responsibilities specifically?
- Does your company recognize any of these responsibilities?
- How does your company respond to/ deal with these responsibilities?
- How do you share your responses to these responsibilities with stakeholders?

What in your view *motivates* Malaysian business organisations (including your own company) to engage in the CDM?

- How are Malaysian companies exposed to the CDM?
- Are there any social or political pressure(s) to participate in the CDM?
- What role (if any) does the government play? Foreign embassies?
- Would you implement more CDM projects, (e.g. at other mills, landfills, etc.) why or why not?
- Is your company involved in any other climate change initiatives?

What are your views on the Clean Development Mechanism as a way of implementing sustainable development?

- Will cleaner technology adequately address sustainability issues?
- How do you balance the different sustainability aspects of economic, social and environmental in the project(s)?
- Which aspect(s) gets priority (if any) and why?
- What role does the partner company play?

Role of accounting/measurement of carbon emissions

- What role do accountants/accounting department play in the preparation of the PDD and CDM process?
- Who is the major contributor? E.g. engineers, accountants, consultants, etc.
- Are accounting methods adequate for decisions being made in the CDM process? What

in your view is missing (if anything)?

Stakeholders

- Who do you see as your stakeholders?
- What are views on the level of engagement with stakeholders?
- What are your views the use of the PDD as a tool for communicating with stakeholders?

Appendix R: QCARI coding items not addressed in PDDs

| Category | Source (s) | Researcher description and/or examples | Decision rules –references |
|--|------------|---|--|
| Economic | | | |
| <i>Market presence</i> | | | |
| Senior management hired locally | GRI | Has a presence in the locality by hiring senior decision makers from the area | Hiring practices for senior management Provides local employment at higher management levels |
| Encouragement and development of full cost accounting mechanisms by national and international governmental bodies | S&R | Full cost accounting should consider externalities of economic activities Governments should include environmental externalities in their national income accounts | Full cost accounting Environmental accounting Governmental national income accounts Green accounting |
| Environmental | | | |
| <i>Natural resources</i> | | | |
| There is an ultimate natural limit to natural resources | BR | There is a natural limit to eco systems, so they must be conserved and enhanced. Overconsumption minimized and sustainable yields maximised | Natural limits to natural resources (air, water, forests, seas, etc.). Finite eco system Scarce resources emissions limits Deforestation limits Biodiversity loss Overfishing, etc. Regeneration limits |
| Non- substitutability of natural capital | GKK | Natural capital stock cannot always be substituted with man-made alternatives therefore must be preserved e.g. ozone layer, biodiverse species | Non- substitution Critical natural capital |
| <i>Product life cycle</i> | | | |
| Environmental screening of suppliers | GRI | Suppliers in supply chain assessed for environmental/social efficacy | Supplier screening Supplier environmental impacts Environmental impact assessments Ethical sourcing |

| | | | |
|--|------|---|--|
| Expect suppliers to adhere to sustainability principles | UNGC | Suppliers in supply chain comply with sustainability principles | Documented expectations of suppliers Supply chain due diligence Supplier training and assistance Supplier audit Supplier self-verification |
| <i>Environmental technology</i> | | | |
| Many technologies will also bring new hazards. New technologies are not all intrinsically benign, nor will they have only positive impacts on the environment. | BR | Technology will also increase risk of additional hazards to health, food cultivation, environment, etc. | Hazards of technology Negative aspects of technology |
| Technologies developed should be employed in appropriate, just and humane ways | GKK | New technologies should be assessed to ensure they are ecologically, socially and economically feasible | Assessment of new technology for ecological, social and economic feasibility |
| <i>Water</i> | | | |
| Water foot printing assessing all forms of freshwater use (consumption and pollution) that contribute to the production of goods and services consumed (operations) or indirectly (supply chain) to produce the product. | UNGC | Identifying water usage and pollution associated with life cycle of product/services | Volume of water usage Groundwater Surface water Municipal water : |
| Evaluation of access to water supply for people locally and regionally | SSN | Do people have access to clean and safe water for use and sanitation purposes | Clean water Access to safe and clean water Livelihoods affected |
| <i>Values</i> | | | |
| Take political action to promote the adoption of laws and regulations that "raise the floor" of environmental performance. | S&R | Lobby to promote and increase adoption of environmental regulations to improve the industry environmental performance | Promoting the environmental law Support of government initiatives "lobbying" |

| | | | |
|--|-------------|--|---|
| <p><i>Risk</i></p> <p>Align core business activities, philanthropy and advocacy campaigns with UN goals and issues. Collaboration is essential. Provide a collective voice and share risks in tackling major challenges that no single player can overcome, such as corruption, climate change and discrimination.</p> | <p>UNGC</p> | <p>Consider environmental risks as part of core business activities as well as other risks of corruption and discrimination</p> | <p>Specific environmental risks Mitigation actions taken Environmental risk</p> |
| <p>Social</p> | | | |
| <p><i>Labour practices</i></p> | | | |
| <p>Both parental leave and equitable gender choices for parental leave are available</p> | <p>GRI</p> | <p>Are genders treated equally when it comes to parental leave for emergencies, maternity, child rearing etc.</p> | <p>Parental leave Child rearing Career breaks Retention rates</p> |
| <p>The availability and accessibility of grievance mechanisms and remediation processes for impacts on labour practices, including along the organization's supply chain, and the involvement of stakeholders in monitoring their effectiveness.</p> | <p>GRI</p> | <p>Employees have access to a grievance mechanism and remediation procedures</p> | <p>Labour disputes Labour grievances Grievance filings remediation resolution</p> |
| <p>The elimination of all forms of forced labour including the abolition of child labour as defined by international conventions (ILO)</p> | <p>UNGC</p> | <p>Employee's time should be freely given and employees should be free to leave according to established rules. Child labour should be abolished where it involves unacceptable work for a child</p> | <p>Forced labour Debt bondage Bonded labour Keeping of deposits Child labour</p> |

| | | | |
|---|------|--|---|
| Elimination of discrimination in respect of employment and occupation | UNGC | Employees should not be treated differently or less favourably because of race, colour, sex, religion, political opinion, nationality, social origin, HIV/AIDS status, age, disability, or sexual orientation. | Discrimination in work processes (recruitment, selection, H&S etc.) Equality Diversity Indirect discrimination Local versus foreign workers |
| Numerous cultural artifacts such as slogans, symbols, rituals and stories which serve to articulate and reinforce for their members the importance of ecologically sustainable performance. | S&R | A deep commitment to ecological sustainability among employees is developed by shared environmental values reinforced by strong norms for pro-sustainability behaviour | Sustainability values communicated to employees Mission Symbols/slogans Employee giving Environmental competitions |
| Include ecological sustainability considerations and criteria in job design, recruitment and selection, and training and development systems. | S&R | Human resources management systems include ecological sustainability criteria for human resources inputs | In house environmental/sustainability training programs Environmental literacy Sustainability qualifications |
| Design budgeting and reward systems, communication systems, organizational structures, and decision-making systems to empower individuals to engage in sustainability-oriented innovation. | S&R | The HR systems in place will motivate and empower individual employees to be ecologically innovative. | Green innovation Employee ideas for sustainability Employee innovation for sustainability “Green” ideas |
| <i>Community/stakeholder relations</i> | | | |
| Protecting the rights of the indigenous and remediation available to indigenous | GRI | The rights of indigenous near the operations and the types of remediation actions available | Indigenous Remediation Tribal |
| Seek out and disseminate information | S&R | Seeking and providing environmental and | Ethnic perspectives Cultural perspectives |

| | | | |
|---|------|---|---|
| from stakeholders with diverse cultural backgrounds. | | sustainability information from different cultural and ethnically diverse stakeholders | |
| Provide information to various media about their own environmental performance and other environmental issues to encourage people to adopt pro-environmental values | S&R | Provision of information on environmental performance and sustainability issues to educate and support environmental values | Environmental values Environmental values Sustainability performance |
| Becoming involved with educational institutions in activities designed to increase "environmental literacy | S&R | Promote environmental and sustainability literacy through universities, colleges and schools | Environmental literacy Environmental education Sustainability education with universities, colleges or schools |
| | | | |
| Multi stakeholder dialogue in areas of Human Rights, anti-corruption, environment and child labour | UNGC | Multi stakeholder dialogue enables business organisations to assess and improve their impacts in these areas | Stakeholder dialogue Engaging stakeholders Discussion |
| | | | |
| In determining the trade-off between current and future generations, low or zero discount rates should be used | GKK | Social rates of time preference are the most fitting way of doing intergenerational analysis. However, discount rates should be kept to low or zero to ensure that future generations are not worse off | Discounting Discount rates |
| <i>Social justice/ethics</i> | | | |
| Equity and promotion of the common interest | BR | Equality in terms of use of resources, land, food availability, education, health, institutional capacity. This applies to current generations as well as future generations | Food availability Resource use Land use Education Health Institutional capacity Current and future generations Inter-generational equity |

| | | | |
|--|-----|---|---|
| Population size must be stabilized | GKK | Population growth puts added burden on ecological resources | Population size |
| Consumption, especially in developed countries should be reduced to protect and maintain natural and social life support systems | GKK | Over consumption leads to the destruction of ecological and social life support systems | Over consumption Exploitation North versus south Rich versus poor |
| Humanity's role is as steward of the earth for the good of human and non-human nature | GKK | Humanity and other species are valuable parts of the biosphere, although humanity is above the biosphere intellectually and therefore has the stewardship role | Human-v-non- human Stewardship role |
| Humanity must learn to satisfy non-material needs in non-material ways and appreciate the aesthetic, economic and values residing in nature | GKK | Quality of life cannot be measured fully by pursuit of material things. Humanity must learn this | Quality of life Materialism Values of nature |
| The extent to which processes have been implemented, incidents of human rights violations recorded, and any changes in stakeholders' ability to enjoy and exercise their human rights. | GRI | Honoring human rights in all its forms (gender equality, freedom of association, collective bargaining, child labor, forced or compulsory labor, and indigenous rights) and have the necessary codes, policies and procedures in place? | Human rights Violations Human rights incident Human rights policies Human rights procedures Human rights screening |
| The extent to which anti-corruption processes are in place, the incidents of corruption, how corruption is identified and managed and the training and awareness building necessary to combat corruption | GRI | Combat corruption by implementing policies and procedures | Anti-corruption Bribery Donations Sponsorships Gifts Entertainment |
| Processes and policies are in place to ensure that the actions of the organization or employees that may | GRI | Policies and practices in place to ensure there are no anti-competitive actions undertaken by | Anti-competitive Anti-trust Monopoly Collusion |

| | | | |
|--|------|--|---|
| result in collusion with potential competitors to fix prices; coordinate bids; create market or output restrictions; impose geographic quotas; or allocate customers, suppliers, geographic areas, and product lines, with the purpose of limiting the effects of market competition are identified and dealt with | | employees or management | |
| Create sustainability oriented self-regulatory programs within their respective organisations | S&R | Business organisations should create and adhere to high standards of sustainability practice based on public concerns rather than regulation necessarily | Standards of care for sustainability Self-regulatory compliance Collective industry responses |
| Be the target of few, if any, protests by environmental activists. | S&R | Ensure there are none or few protests by environmental activists | Activists Protests |
| Work to remove anti-sustainability subsidies, and/or to institute pro-sustainability subsidies | S&R | Lobby government to remove anti sustainability subsidies and promote pro sustainability subsidies | Subsidies Lobbying government in these areas |
| Public disclosure of policies and practices related to the environment, labour, anti-corruption, human rights. | UNGC | Public disclosure to stakeholders including society on all areas related to the environment, labour, anti-corruption, human rights | Public disclosure of policies and practices |

QCARI coding items not addressed in PDDs

Appendix S: QCARI coding items common to all types of company

| Category | Coding Item | Source |
|----------------------------------|---|--------|
| ECONOMIC | | |
| Economic performance | Prosperous economy depends on healthy eco system | GKK |
| Indirect economic impacts | Significant infrastructure investment and services | GRI |
| Procurement | Reduction in imports to increase self-reliance | SSN |
| ENVIRONMENTAL | | |
| Natural resources | Conserve and enhance resource base | BR |
| | Environmental degradation is minimised | BR |
| | Maximise sustainable yields from natural resources | BR |
| Biodiversity | Habitats restored, enhanced and protected | GRI |
| | Sites adjacent to significant biodiversity areas managed for impacts | GRI |
| Product life cycle | Procurement, manufacturing and distribution processes | S&R |
| Effluent and waste | Reduce, reuse and recycle | UNGC |
| | Waste disposal destination reveals how organisation manages the balance between disposal options and uneven environmental impacts, e.g. landfilling and recycling | GRI |
| Water | Evaluation of water quality based on concentration of main pollutants or effluents in water | SSN |
| | Improvements in water management are essential to raise productivity and reduce land degradation and water pollution | BR |
| Emissions | Cleaner and safer production | UNGC |
| | Evaluate air quality by comparing concentration of air pollutants | SSN |
| | Reduction in direct and indirect emissions | GRI |
| Energy | Energy consumption leaves an environmental footprint | GRI |
| Values | Compliance with environmental laws and regulations | GRI |
| Environmental technology | Accumulation of knowledge and development of technology to enhance resource base | BR |
| | Encourage the development and diffusion of environmentally friendly technology | UNGC |
| | Reorientation of technology through innovation | BR |
| Materials | Procurement, manufacturing and distribution processes maximise material conservation | S&R |
| Risk | Assessing risks is crucial to implementing corporate sustainability successfully, to decrease exposure to various risks and avoid costly damages | UNGC |
| SOCIAL | | |

| | | |
|---|--|-----|
| Labour practices | How the organisation contributes to the economic well-being of employees | GRI |
| | Maintain and improve human capital through training that expands the knowledge base of employees | GRI |
| Community/stakeholders relations | Investment in the community. Voluntary donations and investment of funds in the broader community where target beneficiaries are external to the organisation. | GRI |
| | Managing impacts on people in local communities in assessment and planning to understand the actual and potential impacts | GRI |

Appendix T: Labour coding items not addressed in PDDs

| Categories | Source |
|---|--------|
| Labour practices | |
| Both parental leave and equitable gender choices for parental leave are available | GRI |
| The availability and accessibility of grievance mechanisms and remediation processes for impacts on labour practices, including along the organization's supply chain, and the involvement of stakeholders in monitoring their effectiveness. | GRI |
| Uphold the freedom of association and the effective recognition of the right to collective bargaining | UNGC |
| The elimination of all forms of forced labour including the abolition of child labour as defined by international conventions (ILO) | UNGC |
| Numerous cultural artifacts such as slogans, symbols, rituals and stories which serve to articulate and reinforce for their members the importance of ecologically sustainable performance. | S&R |
| Include ecological sustainability considerations and criteria in job design, recruitment and selection, and training and development systems. | S&R |
| Design budgeting and reward systems, communication systems, organizational structures, and decision-making systems to empower individuals to engage in sustainability-oriented innovation. | S&R |
| Evaluate the qualitative value of employment, such as whether the jobs are highly or poorly qualified, temporary or permanent. What are the job-related health and safety impacts of the jobs? | SSN |
| Contribution to improving the access of local people to and their participation in community institutions and decision-making processes | SSN |

Appendix U: CDM Developer contributions to Malaysia

1. Contribution to the national economy (4611, 6910)
2. Increasing skilled workers to strengthen Malaysian industry (1372)
3. Increasing exports for Malaysia of certain technologies (2132, 2949, 4285, 4516, 6384,
4. Creating dynamic sectors of economic activity in Malaysia (2517, 2542
5. Strengthen Malaysia's regional position in biomass technology market (395, 501, 3198)
6. Eliminate the risks of fluctuating oil prices for the country (1372, 1737,2132,4516, 5983)
7. Enhance national economic development using technology (6488,
8. Contribution to the economy via corporate income tax (3719)
9. Reduce foreign exchange risk (1091, 1153, 2132, 2181,3693, 4735, 4840)
10. Reducing dependence on imported fossil fuel bill (1091, 1153, 2132, 2181,3693, 4735, 4840)
11. Positive impact on the country's Balance of Payments (1198)
12. Reduce imports to Malaysia (247, 2493, 2494, 2495, 2949 3198,
13. Improve energy security (1372, 6938)

(PDD reference numbers in brackets)

Appendix V: Use of linguistic devices in the PDDs

| Linguistic device | Explanation | PDD text examples |
|--|--|---|
| Omissions (what was not being said) | <ol style="list-style-type: none"> 1. The renewable energy projects (palm oil and wood biomass related) and landfill gas projects fail to address the continued supply of biomass which requires more palm oil plantations and an increasing amount of landfill waste. Biomass disposal was a concern identified but the industry's role in indiscriminate dumping was downplayed. 2. The industry activities were normalised and the trade-off of continued growth in wood, palm oil and rubber industries was not addressed as natural limits were not considered at all. 3. Migrant workers were referred to by some business organisations but only in terms of health and safety, provision of sanitary facilities and the spreading of disease. The social justice issues faced by these workers were not addressed. 4. Systems level thinking was absent. Project boundaries were mentioned for the purposes of carbon emissions but the overall eco systems the industries are part of were not mentioned. | <p><i>“The fuelling of spent bleaching earth(SBE) will significantly reduce the amount of industrial waste sent to landfills and alleviate major dumping issues in Lahad Datu where SBE is disposed off indiscriminately in public areas by irresponsible contractors due to lack of landfill areas.”</i> (Green Green Grass Sdn Bhd, 2268, p. 4)</p> <p>A timber processing manufacturer</p> <p><i>“the controlled combustion of biomass residues offers a more environmentally sound method of managing residues by avoiding occurrence of water contamination and indiscriminate disposal of waste on river ways and in landfills in the area.”</i> (Ikutmaju Sdn Bhd, 5801, p.4).</p> <p>Power generation company</p> <p><i>“The project participant should be responsible towards the monitoring of the foreign workers’ activities and social problems that may arise.”</i> (Sarawak Power Generation, 2594, p. 44)</p> |
| Appeals to authority/authoritative sources | <p>Many of the CDM business organisations used literature, professional bodies such as the Board of Engineers, to support their claims regarding the superiority of technology or the IRR rates that should be used. Others appealed to memberships of bodies such as the RSPO or environmental management via ISO standards</p> | <p>A power generation company</p> <p><i>“The baseline emission factor used in this project was based on the report “Study on Grid-connected Electricity Baselines in Malaysia Year 2005 conducted by Pusat Tenaga Malaysia. The data used for the calculations originated from official sources (I.S. Energy Sdn Bhd 4906, p. 12).</i></p> |

| Linguistic device | Explanation | PDD text examples |
|--|---|---|
| | | <p>A palm oil plantations company FPI is a member of the Roundtable on Sustainable Palm Oil (RSPO) and a member of the RSPO Executive Board. <i>Sustainable palm oil production is comprised of legal, economically viable, environmentally appropriate and socially beneficial management and operations. This is delivered through the application of a set of principles and criteria.</i> (FELDA Palm Industries Sdn Bhd, 3916, p. 4)</p> <p>Car parts manufacturer <i>Denso Malaysia acquired ISO14001 Certification in 2000, all activities of this project are controlled by Environmental Management Systems, ISO 14001 from SIRIM</i> (Denso Sdn Bhd, 1372, p. 51)</p> |
| Enhancements (emphasising favourable SD outcomes by the company) | The benefits of small or symbolic investments in climate mitigating projects were enhanced by overemphasising the positive and significant contribution of projects. On the other hand, minimising any negative outcomes. | <p>Transport fuel efficiency project for Nippon fleet of trucks. <i>The project contributes significantly to the sustainable development of Malaysia and brings direct and indirect sustainable development (social, economic and environment benefits to the transport sector and Malaysia as a whole in line with the criteria approved by the Malaysia National Committee on CDM</i> (Nippon Express (Malaysia) Sdn Bhd 7455, p. 3)</p> <p>Reoccurring statements <i>The environmental impact of the project is insignificant and has negligible impact on the</i></p> |

| Linguistic device | Explanation | PDD text examples |
|---|---|---|
| | | <p><i>surrounding environment and community”</i> (LDEO Energy Sdn Bhd, 395, p. 51)</p> <p>A small-scale project involving installation of a biomass incinerator to produce thermal energy at a single palm oil plantation</p> <p><i>“The project activity generates immense environmental benefits. The implementation of the project activity directly reduces the emissions of greenhouse gases by eliminating a source of fossil fuel combustion.”</i> (Green Green Grass Sdn Bhd, 2268 p. 26)</p> |
| Self- presentational ‘good’ organisations | Some business organisations write about how they are ‘committed’ to the environment and sustainability without specifying the actions or practices that support their commitment, or by simply indicating routine management practices. | <p>At stakeholders meeting as recorded in PDD <i>“The Vice chairman of United Plantations Berhad gave a brief history of United Plantations Berhad and its commitment to the environment and sustainable agriculture. He explained about being members of the Roundtable on Sustainable Palm Oil and the various community projects and environment friendly and sustainable agricultural practices and activities undertaken by UP Bhd”</i> (1153, p. 56)</p> <p><i>“Nippon Express Co. Ltd has declared its commitment to preserving the environment and meeting highest international standards in environmental management and is seeking for various ways for disseminating Japan’s knowledge, experience and technologies in the area of logistics services provision.”</i> (Nippon Express (M) Sdn Bhd, 7455, p. 2).</p> |

| Linguistic device | Explanation | PDD text examples |
|--|--|---|
| | | <p><i>“As part of the commitment of the project developer towards environmental stewardship, smoke density emissions will be continuously monitored and quarterly stack emission analysis will be carried out by an external party to ensure no air pollution.”</i> (Green Green Grass Sdn Bhd 2268 p. 26)</p> |
| <p>Rhetorical devices (choice of word used to persuade reader)</p> | <p>Business organisations refer to themselves as ‘pioneers’ leading the way in introducing new technology. Others write about ‘opportunities’ for the industry and community in terms of skill acquisition, employment and increased business. Another recurring choice of expression used by many business organisations related to how projects would improve the ‘quality of life’ for the local community.</p> | <p>Palm Oil Plantations company <i>“This project is a pioneer project for biomass (100% empty fruit bunches) power plan in Malaysia/world.”</i> FELDA Palm Oil Industries</p> <p>Cement manufacturing company <i>“Malaysia cement industry will be a pioneer utilizing such technology and promotes Lafarge Malayan Cement to be a technology leader and a role model to other cement or similar industries in the region.”</i> (Lafarge Malayan Cement Berhad, 247 p. 19)</p> <p>Edible oils processing <i>“The project contributes towards the reduction of the volume of solid waste to be disposed of, which in effect reduces the need to generate new landfills within the area. This contributes to maintaining the quality of life for the residents of Nilai.”</i> (Eco Oils Sdn Bhd, 4663, p.4)</p> |

Appendix W: Ecological modernisation discourse elements (adapted from Dryzek, 2005)

| EM discourse elements/features | Author |
|---|---|
| Entities recognized or constructed | |
| Transnational institutions (using global frameworks, policies and procedures to look at global environmental problems) | Buttel (2003) Huber (2008) |
| Capitalist economy | Pepper (1998) |
| Greening of capitalism | Buttel (2000) |
| The state | Dryzek (2005) |
| Free markets and property rights | Pepper (1998) |
| Northern countries a template for countries in South | Buttel (2000) Huber (2008) |
| Voluntary partnerships between business, government and NGOs, environmentalists and scientists not via command and control regulation but smart regulation | Pepper (1998) Dryzek (2005) Jänicke (2008) |
| Neo-classical free market | Baker (2007) |
| Assumptions about nature | |
| Nature can be managed through a programme of environmental management | Christoff (1996) |
| Nature can be subordinated to the economic system and commodified | Langhelle (2000) Dryzek (2005) |
| Nature is a provider of resources and services | Pepper (1998) |
| It is enough to micro manage pollution, waste etc. rather than macro management of natural resource depletion, climate change etc. | Anderson & Masa (2000) |
| Nature is a 'public' good not free and efficiency involves internalizing costs of nature | Baker (1997) and Pepper (1998) |
| Focus on specific environmental problems by meso level national governments | Langhelle (2000) |

(continued)

| EM discourse element/features | Author |
|---|--|
| Actors and their motives | |
| Government – environment protected to ensure economic growth | Langhelle (2000) |
| Economists – environmental solutions enhance trade | Christoff (1996) |
| Industry – money to be made in environmental protection | Langhelle (2000) Baker (2007) Huber (2002) |
| Experts and science – take central role | Pepper (1998) |
| Key metaphors and other rhetorical devices | |
| Industrial progress | Christoff, (1996) Baker (2007) Dryzek (2005) |
| Efficiency in material and energy usage | Huber (2002) |
| Transformative industry | Buttel (2000) Jänicke (2008) |
| Precautionary principle but with economic benefits | Anderson and Masa (2000) |
| Cost – benefit analysis | Pepper (1998) |
| Polluter pays principle | Pepper (1998) |
| Pollution charges/tradable rights | Pepper (1998) |
| Problems of industrialization, modernisation can be solved through industrialization, modernisation and science | Buttel (2000) and Langhelle (2000) |

Appendix X : Motivations for entering the CDM with sample quotes

| | Motivation | No of interviewees | Quotes |
|----------|---|---------------------------|--|
| 1 | Financial incentives from selling the certified emissions reductions credits (CERs) | 18 | “The financial incentives from the credits. To be very frank I cannot see many business organisations doing this as a goodwill gesture for the environment” (Interview 1) |
| 2 | Changing/improving current production processes with new technology | 4 | “I think most business organisations came into the CDM for the financials. For a few business organisations one of the things they also have been talking about is it is generally a way to get their processes under control to reduce methane emissions and generate energy at the same time.” (Interview 17) |
| 3 | Marketing/pressure from buyers | 4 | “The CDM gave us benefits in terms of marketing and in terms of pressure from our buyers so we would be doing that as well. There would be both an economic benefit and environmental benefit.” (Interview 9) |
| 4 | Consultants giving free advice and financing on success basis | 3 | “During the height of the carbon credits we have a lot of consultants coming over proposing financial modelling, some I would say were too good to be true, whereby they would come in and finance the waste treatment or whatever, In our case the financials and all that they propose it seemed fine, with a few provisos.” (Interview 14). |
| 5 | Value to company CSR/image | 2 | “It would bring value to the company as a responsible corporate citizen, as well as value to our products as well as direct revenue from CERs. So those are the three motivations.” |
| 6 | Pressure from the Department of Environment | 1 | “What happened early on particularly in palm oil mills was that they were building these anaerobic digesters because the DOE was clamping down on them as they had a minimum requirement COD content going into the nearest river. The existing water treatment or lagoon systems would never be able to meet the requirements so they were open to fines.” (Interview 13) |
| 7 | Potential regulation | 1 | “CDM business organisations moved to bio digesters although it is not compulsory under environmental law so the CDM can be an incentive to get business organisations to have cleaner technology. Although in the future digesters are going to be compulsory under the |

| Motivation | No of interviewees | Quotes |
|---|--------------------|---|
| | | <i>law and all palm oil mills will have to put in tank digesters.” (Interview 10)</i> |
| 8 The environment | 1 | <i>“The main motivation would firstly be due to the environment as we are trying to reduce the effects of palm oil milling and secondly due to the pricing because at that time CER prices even reached €40.” (Interview10)</i> |
| 9 Lack of alternatives from the government | 1 | <i>“Most business organisations were attracted by the CER prices. However, there were more reasons for Malaysian business organisations to be interested more than other countries because of the low feed in tariff (FIT) offer from the government and the project would not be feasible without the CDM.” (Interview 12)</i> |
| 10 Directive from foreign parent company | 1 | <i>“The motivation is about the carbon credits. The investment is very high but the reward is now very small. So maybe in the end we failed in this project. The good point is because of this being a directive from our HQ at least we can renew our systems, this will last more than 10 years.” (Interview 7).</i> |

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