

**EXPLORING THE NATURE AND ANTECEDENTS OF
EMPLOYEE GREEN BEHAVIOURS IN A SUPPLY
CHAIN CONTEXT**

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Submitted in accordance with the requirements for the degree of
Doctor of Philosophy

The University of Leeds
Leeds University Business School

December 2019

Declaration of originality

The candidate confirms that the work submitted is her own and that appropriate credit has been given where reference has been made to the work of others.

Parts of the thesis appeared in the following proceedings:

Verma, S., Wong, C. and Unsworth, K. (2016). Unravelling employee engagement for environmentally sustainable supply chain: A stakeholder perspective. *In proceedings of 3rd European Operations Management Association Sustainability Forum EurOMA 2016. April 10th-12th, 2016. Lancaster, UK.*

Verma, S., Wong, C. and Unsworth, K. (2016). Unravelling employee engagement for environmentally sustainable supply chain: A stakeholder perspective. *In proceedings of 30th British academy of Management Conference BAM 2016, September 6th-8th, 2016, Newcastle, UK.*

Verma, S., Wong, C. and Unsworth, K. (2017). What makes supply chain employees engage in environmental behaviours? A multi-level theoretic review. *In proceedings of 24th European Operations Management Association conference, EurOMA 2017. July 1st-5th, 2017. Edinburgh, UK.*

Verma, S., Wong, C. and Unsworth, K. (2018). Behavioural Drivers of Employee Engagement Towards Environmental Sustainability: A Case of UK Public Sector Organisation. *In proceedings of 29th Production and Operations Management Society Conference POMS 2018. May 4th-7th, 2018. Texas.*

Verma, S., Wong, C. and Unsworth, K. (2019). Motivational Orientations of Supply Chain Employees Towards Pro-Environmental Behavioral Engagement. *In proceedings of Production and Operations Management Society International Conference POMS 2019. December 13th- 14th, 2019. Mumbai, India*

Verma, S., and Wong, C. (2020). Are We Moving Beyond Voluntary EGB? Exploring the nature of EGBs in a SC context from Case Studies. *In proceedings of 27th European Operations Management Association conference, EurOMA 2020. June 26th- July 1st, 2020. Warwick, UK.*

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Acknowledgements

First of all, all I thank God, for the countless blessings and guidance that are more than I could have ever imagined.

My deepest gratitude goes to all of those who have accompanied me on this learning journey, shared their wisdom, inspired me, supported me and, made my PhD journey worthwhile. In particular, I wish to thank:

The Commonwealth Scholarship Commission for funding this PhD and making it possible for me to realise this dream.

Professor Chee Yew Wong for your unlimited support and constructive feedback during all these years. Our many thought-provoking discussions have always been an inspiration and enhanced my confidence in this work. I feel privileged to have been mentored by you.

Professor Kerrie Unsworth for your continuous encouragement and guidance have enabled me to achieve this work. A huge thanks goes to Dr. Luisa for your friendly advice and caring support.

The research participants who participated in this study, gave their time and valuable views.

Thesis assessment committee, including Dr Nicky Shaw and Professor Peter Ball for their constructive comments and feedback during the viva.

My friends and colleagues that have paved this path, inside and outside the office, in the UK, India or else, I wish to thank you for what you have done. Especially Gautam, for your kind and generous support when I needed it the most. Arinze, Rafidah and Maraim, thank you for your encouragement and advice through this challenging journey.

My dear friend Kautsar, for being such an important part of this journey and making it memorable. Together we have met every obstacle and savoured every little success to keep us going.

My mother for her love and support. A big thanks go to my brother for his faith and encouragement. Thank you to my in laws and my whole family for the endless blessings. I am very fortunate to have your support in everything that I do.

Most importantly, a very special appreciation goes to my husband for always believing in me; for your unwavering loving support; for being my biggest critic and for bringing out the best in me. I feel blessed to have you in my life.

Dedication

Dedicated to my lovely husband Ajay for his love and support. For always being my source of strength and inspiration.

And to my wonderful mom for believing in me. Thank you for your unconditional love, support and continuous prayers throughout this journey.

Abstract

Environmental supply chain management (ESCM) is an evolving discipline. Supply chain employees, when motivated, can help implement sustainability at every stage of the supply chain (SC). It is impossible for organisations to reach environmental sustainability objectives without an active engagement of SC employees. Literature has pointed out a need to understand the motivations of employees towards sustainability implementation, particularly in a SC context. Employees may differ in their green behaviours across different settings and contexts. Therefore, this research explores the nature and antecedents of employees' green behaviours (EGBs) at an individual level in a SC context. The novelty of this research lies in contributing to theoretical understanding and explaining the nature of EGBs and antecedents that promote engagement in sustainability among SC employees.

An inductive case study methodology is employed, and interview data from practising SC employees from different functions and levels is collected to study their perceptions and engagement in sustainability. Three theoretical lenses (Role theory, Expectancy theory and Self-efficacy theory) are applied to build a theoretical framework from the findings. The findings indicate that SC employees engage in varying levels of proactiveness towards sustainability ranging from compliance to proactive green behaviours.

A rich view of antecedents relevant to SC employees is developed, which reflects the different ways in which SC employees align their internal and external felt responsibility leading to their engagement in EGBs. SC employees' internal motivations and their perceived capability to engage in the presence of external influences that increases their role breadth perceptions are harnessed to result in proactive engagement in sustainability. This thesis will potentially help researchers and practitioners to better understand the antecedents related to SC EGBs and subsequently support the implementation of corporate environmental sustainability objectives.

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List of Abbreviations

AMO	Ability motivation opportunity
CSR	Corporate social responsibility
CGB	Compliance green behaviour
EMS	Environmental management system
ESCM	Environmental supply chain management
GHRM	Green human resource management
EGB	Employee green behaviour
GHG	Greenhouse gas
GFT	Goal framing theory
KPI	Key performance indicator
KRA	Key result area
OCB	Organisation citizenship behaviour
OCB-E	Organisation citizenship behaviour towards environment
OST	Organisational support theory
PGB	Proactive green behaviour
POS-E	Perceived organisational support towards environment
RBSE	Role breadth self-efficacy
RGB	Required green behaviour
SCM	Supply chain management
SDT	Self-determination theory
SET	Social exchange theory
TPB	Theory of planned behaviour
VGB	Voluntary green behaviour
VRM	Vendor risk management
WCM	World class manufacturing

Chapter One: Introduction

"It's not a priority for the company unless you make it a priority for individuals."

- Michael Neuwirth, Dannon

1.1 Introduction

This chapter outlines the motivation and rationale for conducting this research by outlining the limited understanding in existing research as well as the gaps (section 1.2). The chapter then presents the research aims, approach and contribution (section 1.3). Finally, the structure of the thesis is presented in section 1.4.

1.2 Research motivation and gaps

Sustainability in business generally addresses two main categories: the effect of business on the environment and on society (Spiliakos, 2018). Due to the ever-increasing levels of global warming and climate change, sustainability of the natural environment has become an urgent agenda today. The 2,500 largest global corporations account for more than 20% of global GHG (greenhouse gas emissions), yet emissions resulting from corporate operations are typically exceeded by those associated with their supply chains (Carbon Disclosure Project, 2011). As a result, the ‘sustainability agenda’, which refers to the *“inter-relationship between industrial activities in supply chain and climate change”* (Halldórsson and Kovács, 2010), has become a top priority for both academicians and practitioners. Over the last few years, leading companies from diverse sectors have realised the risks and opportunities imposed by climate change and they are taking action towards implementing more robust climate change agendas (Dasaklis and Pappis, 2013). This combination of managing risks and pursuing opportunities has led many managers to try to better understand SCM in conjunction with climate change (Jira and Toffel, 2013).

However, despite the growing interest of managers and policy makers in addressing climate change and an emerging awareness of the potential role of SCM, there is a lack of research that examines the conditions under which suppliers and buyers are motivated to coordinate efforts to address climate change (Jira and Toffel, 2013). This provides an impetus to assess the involvement of SC employees towards environmental management by exploring how they perceive and interpret environmental issues on account of their supply chain activities. Therefore, this research attempts to understand the attitudes and perceptions of SC employees¹ that shape their environmental/greening behaviours within supply chain functions. Employee green behaviour (EGB) is a relatively new concept in the environmental supply chain management (ESCM) area, therefore an investigation of how employees engage towards diminishing the environmental issues and contribute to enhancing their organisation's sustainability is worth exploring.

While many SC employees still shy away from the implementation of green measures in their operations due to the fear of related high financial cost, others have recognised the potential of green actions for achieving a competitive advantage. Jira and Toffel (2013) have identified that organisations are gathering information from suppliers about their climate change vulnerabilities and green-house gas (GHG) emissions to benchmark and identify cost- and risk-reduction opportunities. Since, there is academic recognition that organisations have made progress within the environmental performance dimension of sustainable supply chain management (Krause et al., 2009; Sarkis et al., 2010), and there exist a wide range of environmentally responsible operational practices, the role of individuals (e.g., SC employees) in advancing environmental initiatives is also essential for the research community to understand and has been significantly underexplored (Gattiker et al., 2014; Swaim et al., 2016).

In today's global economy, encouraging employees to become engaged in sustainability has emerged as an important topic (Murphy, et al., 2019). Yet there is a lack of theoretical development and conceptual understanding around EGBs and the processes that lead to engagement of SC employees in sustainability. For example, Cantor et al.

¹ Supply chain managers from different levels of organisational hierarchy are referred to as supply chain employees throughout the thesis for the sake of defining context and maintaining consistency.

(2012) have emphasised the need for increased theoretical elaboration and measurement of what influences employee's environmentally responsible behaviours. Also, there has been little work to explain the factors at the individual level that influence an employee's participation in various types of EGBs in supply chain functions (Swaim et al., 2016).

Therefore, this research seeks to unravel employee-level perceptions as the antecedents to behaviours towards sustainability within organisation and the broader domains of SCM (functional roles). Therefore, this research responds to calls in the literature to incorporate organisational behaviour concepts in supply chain research (Bendoly et al., 2006; Gino and Pisano, 2008; Tokar, 2010) and investigate the influence of employee perceptions of their role in supply chain towards sustainability.

1.3 Research aims, approach and contributions

This research aims to develop new theories by building a theoretical framework that highlights the required conditions for SC employees to act proactively, with an objective of extending existing theories in a way that allows us to understand the processes in which supply chain employees are motivated towards EGBs. By identifying SC employees' greening behaviours and its mechanisms through developing a deeper understanding of its antecedents, the research aims to advance (green) behavioural theories relevant to employees. To achieve the above aims, the research will address the following research questions.

- 1. How do SC employees engage in environmental or greening behaviours?*
- 2. Why do SC employees engage or do not engage in environmental behaviours?*
- 3. How do individual and organisational factors drive and inhibit SC employees' greening behaviours within supply chain management?*

Multiple case studies were conducted to answer these research questions. Each case study represents SC employees from different functions along with a sustainability

manager engaged in different projects with sustainability integrated into them. Recognising that the diversity at individual level EGBs may differ across national cultures and industries, case companies from different sectors have been purposefully selected from different locations (India and UK). Therefore, the study departs from traditional case study research and uses the SC employees as the unit of analysis, allowing the researcher to examine their environmental behaviours in the context of the supply chain role to which they belong. Inductive theory building through thematic analysis was used to build a theoretical framework of SC employees' environmental behaviours.

This thesis goes beyond current literature and extends sustainable supply chain research to develop conceptual understanding of environmental behaviours among SC employees in different functions. It contributes to the supply chain discipline by extending the existing behavioural theories by exploring a contemporary SCM phenomenon. This research integrates theory from the organisation behaviour and social psychology literatures such as expectancy and role theory, to develop a model that provides insights into how SC employees are influenced by individual and organisational factors concurrently to engage in EGBs. Therefore, it also contributes to behavioural literature, and more specifically to EGBs in the workplace literature, by including 'felt responsibility' as a new mechanism that can serve as a motivation among SC employees to engage proactively. It generates a theoretical framework that can be examined in future research. It also helps to fill a gap in the research on supply chain and environmental behaviours in general, and specifically at employee-level, which receives less attention in the supply chain literature. It is hoped that this research will help to draw new strategies and plans for the future as well as for organisations wishing to engage employees in sustainability and provide a direction for future supply chain research within the sustainability literature.

1.4 Thesis outline

This thesis is structured into seven chapters, as depicted in Fig. 1.1. Following the introduction chapter, chapter two presents through a thorough review of literature in the current stand of knowledge regarding the major aspects relating to the research topic. This illustration entails the concept of environmental sustainability as well as the rise of EGBs

in ESCM as a growing subject of academic and business interest. The theoretical frameworks on which the idea of EGB is based are explained. In the same context, the thematic complexes of EGBs, antecedents of employees' engagement and theoretical basis are discussed. The relation of individual and organisational factors as well as behavioural aspects related to the implementation and practice of EGBs within supply chain functions are examined. The existing theories regarding the explanation of EGBs in the workplace with some reference to the supply chain roles are looked at. Chapter three introduces the study's research framework and discusses the use of inductive qualitative case studies to address the research questions. A synthesis of the case studies is offered in Chapter four, and the results of the cross-case analyses are presented in Chapter five. Chapter six discusses how the study's findings address each individual research question and how they relate to prior literature. Key contributions are outlined in the form of theoretical framework and insights. Chapter seven concludes by outlining the implications of the study's findings for theory and practice as well as its limitations and draws from these two to offer suggestions for future research.

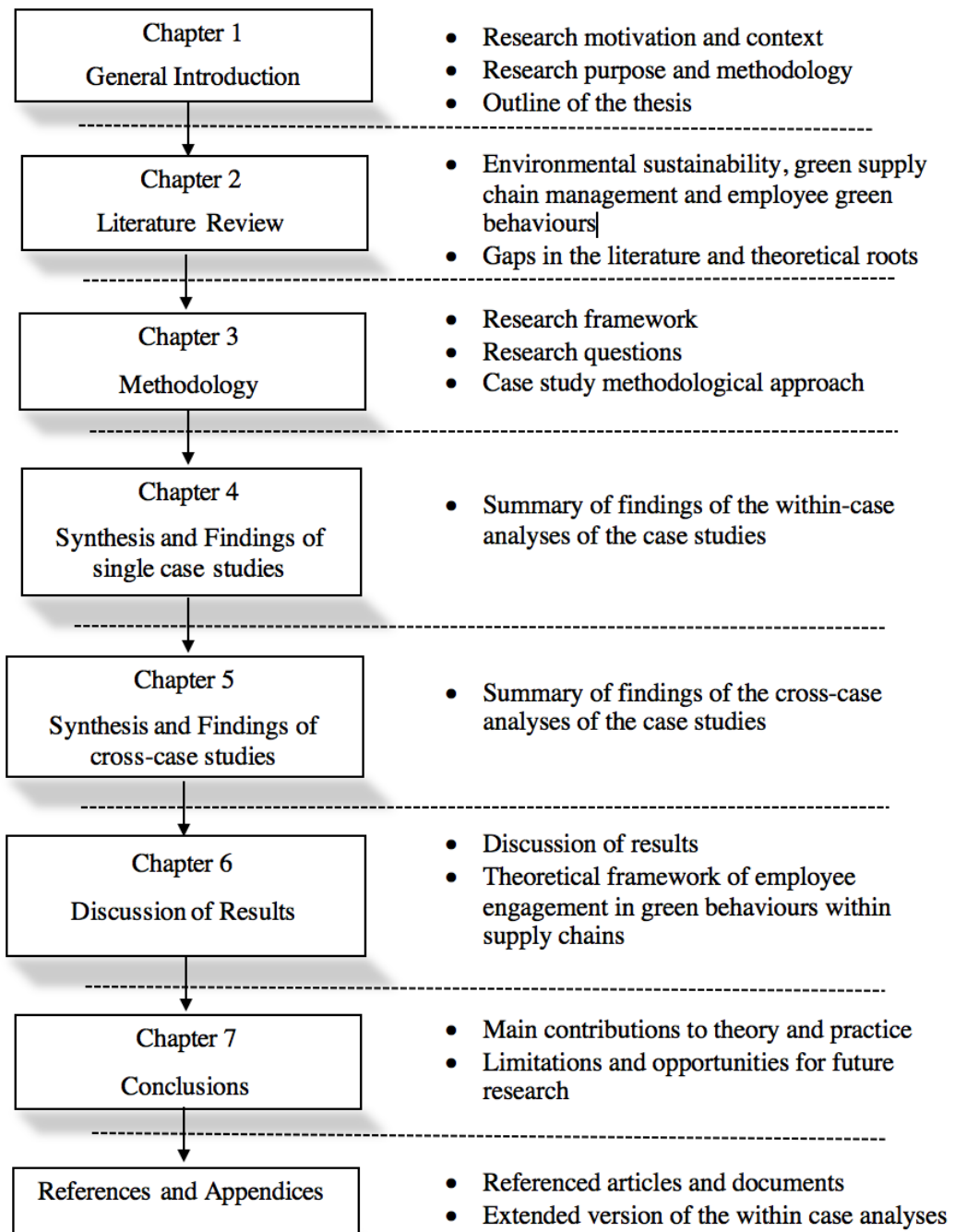


Figure 1.1 Outline of the thesis.

Chapter Two: Literature Review

2.1 Introduction

This chapter begins with a brief introduction to the literature strategy, and then reviews the literature on employee greening behaviours (EGBs) and its significance towards environmental supply chain management (ESCM), followed by a review of the broader literature on EGBs. This literature review is not aimed at just finding gaps; it is focused on taking stock of the existing knowledge of EGB and its implementation, thereby applying the knowledge into this research (definition, conceptualisation, theorisation, develop a framework) to explain how and why SC employees engage in green behaviour.

A search of the existing literature, later informed by the analysis of the data, suggested the areas of literature to be considered in this review. In particular, a broad survey of literature on ESCM and EGBs is conducted to build knowledge of the field from both SC and Non-SC disciplines. Then, a more focused search was undertaken such as studies of organisation behavioural theories that explain EGBs or pro-environmental behaviours of employees in the general workplace. A gap in the literature about the knowledge around EGBs in supply chain functions was detected, resulting in a more focused search. The understanding of how supply chain managers interpret environmental issues facing their firm as well as their attitudes and perceptions towards supply chain sustainability is an important step in attempting to understand the development of supply chain EGBs. The age of the relevant literature focusing on green behaviours is considerably different for SC and non-SC discipline. The studies of EGBs in non-SC discipline started to emerge around 1981 while sustainability was introduced much later in 1995 by scholars including Shrivastava, (1995), Hart, (1995) in the SC discipline. Besides, the emphasis on individual or employee level EGBs in SC discipline is very recent and has been found to rise since 2012 after the study by Cantor et al., 2012.

This chapter accordingly organises the literature into relevant areas of the research. It starts by introducing environmental sustainability followed by positioning environmental sustainability in SCM (i.e., section 2.3). Then, it reviews the research related to the changing roles of employees in the current scenario (2.4), followed by green behaviours

of employees in supply chain functions (i.e., section 2.5). The next section of the chapter begins by reviewing some of the existing studies exploring environmental behaviours in a supply chain context, thereby highlighting the knowledge gaps centred on green behaviours that could not be explained in supply chain literature (i.e., section 2.6). The following section (section 2.7) reviews the definitions and terms used to describe the concept of EGBs. This is followed by a review of how it has been measured or conceptualised in previous studies in other disciplines. Based on the review, the definition and terms adopted by the present study are then introduced. The following section looks at some of the major attributes which characterise the concept of EGBs in the SC. Next, the chapter looks at the similarities and differences between EGB and other related constructs such as organisation citizenship behaviours towards environment (OCB-E), proactive behaviours, etc., that have been frequently linked to it. In particular, comparisons were made between employee green behaviours, citizenship behaviours and proactive behaviours. The remaining sections of this chapter (i.e., section 2.9 onwards) set the context for the present study, comprising of prevalent theoretical framework to explain EGB. Then, the scope of the review is broadened by looking at the antecedents of EGBs. Finally, this chapter concludes with a brief summary about the current state of knowledge in this area of research.

2.2 Environmental sustainability

This section does not aim to review the thousands of articles concerning sustainability; rather, it clarifies the meaning of environmental sustainability and its significance at a supply chain level (Linton et al., 2007). In the formalised work of WCED published in the 1987 Brundtland Report “Our Common Future”, sustainability was defined as *“development which meets the needs of the present without compromising the ability of future generations to meet their own needs”* (WCED, 1987, p.43). Sustainability has been broadly considered as a multi-dimensional concept which integrates social, economic and environmental aspects to make development sustainable (Giovannoni and Fabietti, 2013). These three pillars of sustainability are especially relevant in the context of business and management and serve as the so-called triple bottom line, which essentially means the balance between people and society, the planet and the environment, and profit and the economy (Elkington, 2004).

The pressure of attaining economic growth, environmental regulation and stewardship, and a push for social justice and equity, has led to the evolution of corporate sustainability (Christofi et al., 2012). The concept of environmental sustainability becomes relevant to businesses as a result of insufficient supply of natural resources, pressure from various stakeholder groups (e.g., regulators, investors, employees and consumers), and the move towards public disclosure of corporate environmental performance (DuBois and Dubois, 2012), thereby making environmental management an important consideration in business decision-making. The environmental dimension of sustainability has also received substantial attention in the sustainability literature (Carter and Rogers, 2008; Ashby et al., 2012; Moxham and Kauppi, 2014) partly due to the fear that continuous environmental degradation will ultimately lead to irreversible climate change (Goodland, 1995). Past research also uses the terms ‘sustainability’ and ‘environment’ interchangeably (Carter and Easton, 2011), indicating the seriousness of the environmental dimension.

Industrial activities including production of goods and services are increasingly responsible for the rise in atmospheric greenhouse gas emissions that contribute to global warming. A large direct source of environmental damage is transport and logistics activities within the supply chain, and their impacts on the natural environment have been severely negative (Abbasi, 2012). Some of the negative impact worth mentioning include pollution, emissions, noise, congestion, waste disposal, etc. (World Business Council for Sustainable Development, 2004). Therefore, environmental sustainability can only be achieved by addressing the complex cross-border, inter-organisational and intra-organisational environmental issues. Handfield et al. (1997) suggested that, in order to be successful, environmental management strategies must be integrated into all stages of the value chain, including all the processes spanning product design, procurement, manufacturing and assembly, packaging, logistics and distribution. This calls for a need to include all key stakeholders including internal employees, supply chain partners like suppliers, and consumers into a comprehensive framework of integrated green or environmental SCM (Wong et al., 2015). Increasingly, many government and private organisations are trying to develop appropriate environmental policies and strategies in

the form of interventions to mitigate the impact and maintain the well-being of the environment (Osbaldiston and Schott, 2012).

2.3 Environmental supply chain management (ESCM)

According to the textbook on supply chain management (SCM) by Handfield and Nichols (1999), “the supply chain encompasses all activities associated with the flow and transformation of goods from raw materials (extraction), through to the end user, as well as associated information flows. Material and information flow both up and down the supply chain.” (p.2). Green or environmental supply chain management is nothing but adding an “ecosystem” thinking (Shrivastava, 1995) to the SCM. ESCM can thus be defined as the integration of environmental issues into the inter-organisational practices of SCM by including reverse logistics, green purchasing, green manufacturing, and greener distribution of products, etc. (Hervani et al., 2005; Sarkis et al., 2011). Therefore, SC EGBs are nothing but the behaviours that contribute to improve the effectiveness of green or ESCM practices of their organisations.

Given the escalating deterioration of the environment, e.g., diminishing raw material resources, overflowing waste and increasing pollution due to operations and logistics activities, ESCM is gaining increasing interest among researchers and practitioners of SCM (Kumar and Chandrakar, 2012). Examples of ESCM practices include reducing packaging and waste, assessing vendors on their environmental performance, developing more eco-friendly products and reducing carbon emissions associated with the transport of goods (Walker et al., 2008).

Due to increasing external pressure and the drive for self-improvement, companies have sought ways to improve their environmental performance, leading to the emergence of environmentally sustainable supply chains (Srivastava, 2007). Vachon and Klassen (2006) affirm that ESCM aims to improve environmental management through environmental collaboration or through the resolution of mutual problems that reduce the environmental risks in supply chains. This demonstrates that the growing importance of

environmental protection has become an important consideration in decision-making within businesses over the past two decades (Carter and Easton, 2011). ESCM is often conceptualised as a firm-level capability (Zhu et al., 2008), which overlooks the role of employee-level capability, although employee-level green behaviours are fundamental (as they build up their environmental knowledge) to the development of firm-level capabilities and implementation of firm-level environmental management (Rothenberg, 2003). As Hanna et al. (2000) argue, employee involvement programmes are one of the most readily available mechanisms by which environmentally responsive firms can develop several firm-level capabilities identified by Sharma and Vredenburg (1998) and Hart (1995). While there are ample studies on the motivations for firms to adopt beyond-compliance environmental strategies, there are not many at the individual level (Sharma, 2000). Therefore, to fully understand the way sustainability issues are perceived and assessed and management decisions are made, the human variables need to be considered (Bendoly et al., 2006; Gattiker et al., 2014).

The prior SCM literature has been emphasizing on organisational sustainability compliance which has largely been driven by external pressures (e.g., government regulations and supplier/customer appeals) (Carter and Carter, 1998; Min and Galle, 2001; Kirchoff et al., 2011; Paulraj, 2011). However, several studies have found that overcoming internal organisational resistance is of paramount importance to the success of a firm's environmental management initiatives (Drumwright, 1994; Handfield et al., 1997; Crane, 2000; Carter and Jennings, 2002; Pagell and Gobeli, 2009; Gattiker and Carter, 2010). Recent studies demonstrate the importance of employee perceptions in advancing employee-level involvement in environmental behaviours (Cantor et al., 2012). Moreover, researchers increasingly call for organisational behaviour concepts to be incorporated into supply chain research (Bendoly et al., 2006; Gino and Pisano, 2008; Tokar, 2010) and for attention to shift to individual behaviour towards environmental sustainability. Therefore, it is necessary to bring human aspects to the forefront, which are currently under-researched in ESCM (Cantor et al., 2012). Overall, the human factor is a key success factor in organisations' environmental activities (del Brío et al., 2007).

More efforts to conserve natural resources and minimise waste, pollution and other negative forms of human impact could be made by promoting global environmental and

ecological awareness (Devi et al., 2012). Today, many public and private organisations are trying to develop appropriate environmental policies and strategies in the form of interventions to mitigate the impact on and maintain the well-being of the environment (Osbaldiston and Schott, 2012). Specifically, the escalating climate crisis has led many managers to try to better understand SCM in conjunction with climate change (Jira and Toffel, 2013). This justifies the need to increase the involvement of employees in workplace environmental behaviours (Unsworth et al., 2013). Similarly, engagement of SC employees in environmental management is readily apparent and rapidly increasing (Kolk and Extercatte, 2005; Solomon, 2007).

2.4 Changing roles of employees in today's environment

Amidst ongoing deterioration of the global ecosystem (IPCC, 2015), organisations are increasingly concerned with ensuring that their operations contribute to, or at least do not detract from, environmental sustainability (Jabbour and Santos, 2006). While assessment of environmental performance at the organisational level is critical, it is important to recognise that organisational performance is a function of individual employees within the organisation acting in ways that contribute to or avoid detraction from environmental sustainability.

Involving employees in environmental management has been reported to improve the key outcomes of environmental management system (EMS), including efficient use of resources (Florida and Davison, 2001); reducing waste (May and Flannery, 1995); and reducing pollution from the workplace (Denton, 1999; Kitazawa and Sarkis, 2000). A Belgian study of high-level polluters (as measured by environmental taxes paid) also finds a significant relationship between firms identifying themselves as practising environmental leadership and attaching a high importance to their employee stakeholders (Buysse and Verbeke, 2003). Renwick et al. (2013) argues that controlling environmental impact these days is seen by organisations as being a responsibility for all their employees. Consequently, employees are starting to assume centre-stage for the successful implementation of environmental strategies irrespective of the particular context in which the organisations operate (Alt et al., 2015).

There is an increased pressure on supply chain managers to improve internal sustainability practices and to demand the same from their suppliers (Jira and Toffel, 2013). Thus, employees in SCM functions have a critical role to play in creating and implementing sustainable business strategies throughout the organisation (Gattiker and Carter, 2010). Specially, employees can take their tacit knowledge into account in environmental management to identify sources of pollution, manage emergency situations, and develop preventative solutions (Boiral, 2002). It has also been established in previous research, including Cantor et al. (2012) and Gattiker and Carter (2010), that the behaviour of supply managers does make a difference and covers certain individual behaviours such as influencing others, use of influence tactics, etc., that are important to implement environmental initiatives by gaining commitment from others.

While it is suggested that supply managers must champion organisational sustainability objectives, existing research reveals limited supply manager support for sustainability (Swaim et al., 2016). Moreover, extant literature generally reveals low levels of supply manager support for corporate environmental initiatives (Carter and Carter, 1998; Carter and Dresner, 2001; Gattiker and Carter, 2010). This represents a potential conflict between the strategic objectives of the organisation towards sustainability and its implementation by supply managers at operational level (Swaim et al., 2016). This calls for a rethink of research design, considering behavioural perspectives, and asking different questions (e.g., perceptions, motivation, etc.) to uncover the reasons for such disconnect among SC employees.

Therefore, there is a need for new empirical studies, which may offer insights into employees' perceptions towards EGBs in SCM functions and what leads to their engagement with environmental management, since differences in perceptions may exist among the employees in terms of SCM functions that affect how they respond to environmental issues, and therefore affect their EGBs (Pagell and Gobeli, 2009). However, organisations often overlook the need to assess whether existing organisational practices produce the desired knowledge and change in attitude (Perron et al., 2006). This also implies that there is an urgent need for organisations to introduce new environmental initiatives to involve the wider workforce including procurement and supply managers (Renwick et al., 2013).

2.5 Role of SC employees towards environmental sustainability

The roles and responsibilities of purchasing and supply management staff in the successful alignment and integration of green activities according to the strategic aims of the organisation need to be understood (Swaim et al., 2016). Research has begun to explore employee engagement concepts in supply chain functions, acknowledging that green behaviours among managers to drive and implement sustainability exist (Cantor et al., 2012). It has been suggested that engaging with employees in addressing environmental concerns is one of the most significant challenges facing organisations today and in the future, (Frank et al., 2004). This might explain why employee involvement in the area of environmental management is well researched and grounded in theory (Renwick et al., 2013).

Not all functions have major expectations from employees in terms of engagement in environmental management; however, supply chain functions have a direct impact on the natural environment and involve multiple stakeholders and different sets of stakeholder demands for any organisation. For example, it is conceivable that in an organisation all employees are engaged in simpler sustainability practices that demand their cooperation in recycling efforts, energy saving, etc., whereas supply chain managers who interact with several functional groups within the organisation are not only exposed to the aforementioned efforts but also have to undertake several other sustainability practices (elaborated in the next section) like life cycle assessment, green purchasing, reduce scope 3 emissions, monitor suppliers – in other words, assess the impact at all stages of product development e.g., (Sarkis, 2001; Graves et al., 2019). They are also required to influence other individuals within and outside the organisation and gain their commitment to implement environmental strategy (Gattiker and Carter, 2010; Gattiker et al., 2014). However, these behaviours may or may not be mandated and therefore typically rely on less formal mechanisms to influence others (Drumwright, 1994; Carter and Dresner, 2001; Carter and Rogers, 2008).

It is evident that decisions are never made by a supply chain; they are made by people within the supply chain. Operations management is people intensive (i.e., it involves senior management, managers, employees and suppliers) (Bendoly et al., 2006; Croson et al., 2013). That is why we need a behavioural approach to study employees and their engagement in ESCM. The individual behind the chain being more important than the chain itself provides an impetus to develop a better understanding about the cognitive mechanisms of SC employees to unravel their motivation towards engaging in green behaviours. Being in SC roles, employees possess the power to influence and create legitimacy and urgency around sustainability goals by probably making a business case (at macro-level), gaining others' commitment (at meso-level) and aligning their values with the task (at micro-level). Decisions related to environmental management in a supply chain often involve making judgements about choosing the right material and suppliers as well as mode of distribution (Gattiker et al., 2014), which have a direct impact on the natural environment.

Recently, in a pollution map database 1,702 automobile-related environmental compliance violations were found during the production of steel, glass, tyres and batteries in the automobile industry supply chains that caused tremendous environmental impact (Rohde and Muller, 2015). In a Greenpeace (2011) report, it was highlighted that famous clothing retailers like Zara, Abercrombie & Fitch, Adidas, Calvin Klein, Converse, H&M, Lacoste, Li Ning, Nike, Phillips-Van Heusen Corporation (PVH Corp) and Puma had suppliers and suppliers' suppliers discharging hazardous chemicals into major rivers in China. While recognising that their supply chain processes impact the environment, these companies argue that they do not have direct control over their suppliers. Further investigation revealed that none of these brands have comprehensive chemicals management policies in place (Greenpeace, 2011).

Helping other players understand the importance of resolving environmental and social problems and supporting them in their improvement initiatives is a vital role played by each member of the supply chain (Koplin et al., 2007). As organisations expand their scopes to include international operations, supply chain sustainability becomes an increasing concern for businesses (Dey et al., 2011). It becomes important to understand

how pressures from external stakeholders such as regulators and environmental bodies are perceived by decision-makers in supply chain functions.

Employee engagement in green behaviours in supply chain functions has the potential to change existing ways of working within organisations and their supply chain partners, as they are important agents of change in this process (Aguilera et al., 2007). Jira and Toffel (2013) argue that buyers can compel their suppliers to share information about their vulnerability to climate change and their strategies to reduce GHG. In several firms, supply chain managers have helped develop and implement environmental management strategies (Cetinkaya, 2010). Thus, an understanding of how supply chain managers interpret environmental issues facing their firm and their attitudes and perceptions towards them is an important step towards understanding their engagement in greening behaviours (Marshall et al., 2005). This is because personal environmental motivations can have a huge influence on a supply manager's environmental behaviour in the workplace (Swaim et al., 2016).

Changing the role of employees in the workplace from passive to active provides an impetus for EGBs to increasingly becoming part of the job. Employee involvement in environmental management has three foci: first, through tapping employees' tacit knowledge gained through their close links to the production process (Boiral, 2002); second, through engaging and empowering employees to make suggestions for environmental improvements (Govindarajulu and Daily, 2004); and, third, through developing a culture in the workplace which supports environmental improvement efforts. This makes it important to unravel how SC employees' greening behaviours are different from or similar to traditional workplace pro-environmental behaviours.

2.6 Green behaviours among SC employees

Steg and Vlek (2009) define the broad construct of pro-environmental or "green" behaviour as an individual activity that minimises harm to or benefits the natural environment (i.e., general green behaviour). There are various types of environmentally significant behaviours, e.g., environmental activism, environmental citizenship, domestic environmentalism, etc. Different types of behaviours are determined by different

combinations of factors (Stern, 2000). EGBs are highly relevant in a supply chain context. This level of analysis is required because many environmental initiatives are championed by individuals at different levels of the organisational hierarchy (Graves et al., 2019), although supply managers are recognised as critical for environmental sustainability within the organisation, as they both embed environmental sustainability criteria in sourcing decisions and work to assure suppliers' environmental compliance (Carter and Rogers, 2008; Krause et al., 2009).

Individual actions are said to be a large direct source of environmental problems (Stern and Gardner, 1981), thereby providing an impetus to promote EGBs among SC employees especially to gain their commitment for several reasons. Firstly, employees push organisations to adopt environmentally responsible behaviour, thereby acting as agents for social change (Rupp et al., 2006). Secondly, to secure effective environmental programmes and policies, SC employees' support is a must as their decisions directly impact the environment. Also, as argued by Handfield et al. (1997), employees may develop a certain degree of improved morale from knowing that they are doing what is 'right' for stakeholders (i.e., the community, customers, employees and shareholders).

Lastly, SC employees act as stakeholders within their organisations that perceive, evaluate, judge and react to environmental programmes and actions carried out by their organisations (Rowley and Berman, 2000; Rupp et al., 2006). Organisational strategies are often influenced by stakeholders who are important, primary (Clarkson, 1995; Freeman et al., 2004; Cantor et al., 2012), or considered salient by managers in terms of their power, legitimacy and urgency (Mitchell et al., 1997). Since purchasing and supply managers have the positional power to mandate others' cooperation (Cantor et al., 2013), they play a significant role in implementing sustainable practices as part of the following functions:

2.6.1 Buyer

The buyers play an important role (e.g., sourcing green) in supporting the values of their companies, forming an integral part of the organisational culture that not only contributes

to environmental performance but also helps attract and retain dedicated employees and suppliers. The following observations have been made about the buyers' role:

- Buyers help maintain green relationships with suppliers (Sarkis, 2012)
- Buyers make decisions like sourcing materials that are either recyclable or reusable, using renewable sources of energy such as bio-fuel (Caniëls et al., 2013)
- Buyers select suppliers that meet environmental criteria (Sarkis, 2003; Vachon and Klassen, 2008; Hassini et al., 2012)
- Buyers monitor suppliers' environmental practices (Rao, 2002; Vachon and Klassen, 2008; Zhu et al., 2008)
- Buyers assist suppliers to become sustainable (Rao, 2002; Wong et al., 2012)
- Buyers collaborate with suppliers and customers (Vachon and Klassen, 2008; Zhu et al., 2008; Krause et al., 2009; Thun and Müller, 2010; Lee et al., 2012)

2.6.2 Manufacturer

There are widely recognised manufacturing strategies that require green thinking to be incorporated within a supply chain for it to become environmentally sustainable (Srivastava, 2007). Many of the following activities are correspondent to environmental behaviours by managers and subordinates (Sarkis, 2001) in supply chain functions such as:

- *Life cycle assessment (LCA)*: LCA requires the establishment of a company culture and working conditions supportive of sustainability, enhancing awareness related to sustainability among suppliers and customers, responding to their requirements and measures, and engaging the community to promote sustainability (Rosen and Kishawy, 2012)
- *Carbon footprint estimation*: Requires employees to share quantitative and qualitative information, and requires their expertise in technical methodologies to make judgements (Hanna et al., 2000)
- *Design for the environment*: Requires employees to take sustainability issues into account while decision-making effectively from early research to process design

and further during commercialisation. This enables them to cooperate with suppliers, vendors and customers (Matos and Hall, 2007) to bring in environmentally sound technological and process innovations (Sarkis, 2003)

- *Product stewardship*: Requires a sustainability-oriented culture within the organisation and needs its holistic incorporation in the development process (Hart, 1995)
- *Lean manufacturing*: The human element of lean manufacturing includes active participation in training programmes, self-directed work teams, problem-solving groups and autonomous problem solving (Shah and Ward, 2003; 2007). It also includes reducing the inefficient use of material as well as human resources (Golicic and Smith, 2013)
- *Pollution prevention*: Reducing the use of hazardous material, decreasing the use and waste of solvents or other chemicals through partnerships (Markley and Davis, 2007), lower greenhouse emissions by green innovations (e.g., eco-friendly design of equipment, through reduced total shipments by increasing carriage size (Hart and Ahuja, 1996), eco-efficiency (through better material handling), thus reducing, reusing, recycling, and disposing alternatives (Sarkis, 2003)

2.6.3 Distribution and reverse logistics

This function demands employees take several decisions in consideration of the natural environment including:

- Decisions related to distribution outlet locations, mode of transportation, and control systems to implement just-in-time policies, influencing the forward as well as reverse logistics network (Sarkis, 2001)
- Managers need to take environmental costs and benefits into consideration while planning for distribution (Hassini et al., 2012)
- Logistics managers need to evaluate environmental impact from a total systems view (Carter and Dresner, 2001)

- Incorporating environmental management principles into the everyday decision-making process such as trade-offs between environmental impact and optimal supply chain efficiency (Handfield et al., 2005)
- Taking into consideration the demands of “green consumers” for more environmentally-friendly products and eco-friendly packaging (Wu and Dunn, 1995)

Given the leverage exercised by SC employees to make strategic decisions, and implement them, on organisations’ products, processes and social/environmental impacts, there is an impetus to develop a taxonomy of SC EGBs that spans the full range of employees’ environmental behaviours to guide conceptualisation, measurement and intervention in the future.

2.7 Employee greening behaviours (EGBs) in the workplace: conceptualisation and theoretical background

Individuals’ engagement in environmentally significant behaviours has long been studied and explored in a general household context and the personal sphere (Stern, 2000), and has provided enough impetus to increase greening behaviours in other contexts such as the workplace or corporate sphere (Ones and Dilchert, 2012). Therefore, encouraging employees to become engaged in greening behaviours within organisations has become an important issue in today’s global economy (Renwick et al., 2013; Yu et al., 2020). Research on green behaviour in the workplace (Ramus and Steger, 2000; Paillé and Boiral, 2013) and at home, Steg and Vlek (2009) has typically conceptualised it as voluntary behaviour. However, organisational psychologists recognise that not all EGB is discretionary (Ones and Dilchert, 2012). Therefore, one group of literature considers EGBs as prosocial or extra-role behaviours and often classify them as organisation citizenship behaviours (OCBs) (Ramus and Killmer, 2007; Boiral, 2009; Paillé et al., 2014); the second group classifies EGBs as an expected part of employees’ work role (Katz and Kahn, 1978), as well as appropriate or typical in their workplace (Norton et al., 2015); while the third group argues that EGBs can fall under the rubrics of both task performance and OCBs (Viswesvaran and Ones, 2000; Ones and Dilchert, 2012),

depending on the context. All the reviewed definitions of environmental behaviours among employees from the literature are presented in Appendix 1.

2.7.1 Conceptualisations of employee greening behaviours (EGBs)

EGBs in the workplace exhibit several characteristics that render them unusual and hence somewhat challenging with respect to their conceptual treatment (Ramus and Kilmer, 2007). Norton et al. (2015) conceptualise EGBs as required EGBs (or RGBs) – required green behaviours which are prescribed by the organisation. The RGBs are also referred to as task-related EGBs (Bissing-Olson et al., 2013) or in-role greening behaviours, such that they can be undertaken as core tasks that employees perform to meet their job duties in organisationally sanctioned role (Ones and Dilchert, 2012). Examples of these required EGBs include adhering to organisation policies, changing methods of work, creating sustainable products and processes, choosing responsible alternatives, etc.

On the other hand, voluntary EGBs (VGBs) are said to be performed at the employees' discretion and are referred to as extra-role behaviours (Norton et al., 2015). The VGBs are depicted as the employees going beyond what is required by the organisation with regard to environmental behaviour (Norton et al., 2015). These behaviours are close to the notions of contextual performance or organisational citizenship behaviours (OCBs) in that a member of the organisation performs them with the intent to promote the welfare of the individual, group or organisation towards which they are directed (Brief and Motowidlo, 1986). Examples of these behaviours have been said to include prioritising environmental interests, initiating environmental programmes and policies, lobbying and activism (Boiral et al., 2009), although these can also be RGBs, depending on the context in which they occur (Ones and Dilchert, 2012). Considering EGBs to be extra-role behaviours has been the dominant take for EGBs until recently (Norton et al., 2015).

Ones and Dilchert (2012) have provided one of the most comprehensive taxonomies for understanding EGBs in organisational settings. They defined green behaviours as *“scalable actions and behaviours that employees engage in that are linked with and contribute to or detract from environmental sustainability”* (p. 87). Based on an analysis of more than 2000 activities obtained from a large spectrum of jobs, organisations and

industries in the United States and Europe, Ones and Dilchert (2012) proposed that employees' actions may impact the natural environment through five main behaviours: avoiding harm (e.g., preventing pollution); conserving (i.e., reducing use, reusing, repurposing and recycling); working sustainably (changing how work is done, choosing responsible alternatives, creating sustainable products and processes, embracing innovation for sustainability); influencing others (e.g., encouraging and supporting others); and taking the initiative (e.g., initiating programmes and policies) (see Appendix 1 for other definitions of greening behaviours).

Out of these, conserving, working sustainably and avoiding harm are direct EGBs, and influencing others and taking the initiative are indirect EGBs. This is because some behaviours have a direct consequence on environmental sustainability while others have an indirect consequence. For example, environmental citizenship behaviours such as signing petitions on environmental issues, joining environmental bodies, etc., have an indirect effect on the environment whilst, in contrast, behaviours like waste disposal, green consumerism, and considering the environmental impact in production processes, in purchasing practices, logistics and other activities in a supply chain have a direct impact on the environment (Stern et al., 1993). While some of these behaviours in this taxonomy are more proactive than others, as per Parker et al. (2006), the extant literature on extra-role behaviours does not take that into account. Morrison and Phelps (1999) emphasise that the proactive component of extra-role behaviour has been underemphasised. Evidently, extra-role behaviour research has focused on OCB, and particularly on what Organ (1988) referred to as modest and even trivial behaviours that sustain the status quo.

Ones and Dilchert (2012) argue that, despite the importance of understanding and managing EGBs, organisational practice, lay conceptualisations and even scholarly research in this area often think too narrowly about the nature of these behaviours. For many individuals, pro-environmental behaviours begin and end with the “3 Rs” – reduce, reuse, recycle (Ones et al., 2018). As a result, their taxonomy implicitly accepts the presence of required as well as voluntary behaviour such that the categories themselves are not mutually exclusive, thus allowing for a behaviour to belong to more than one group. Thus, even though some EGBs are indicative of organisational citizenship, they

cannot be entirely subsumed under the rubric of extra-role behaviours. For example, this applies to green industries (e.g., renewable energy generation or green construction), as their EGBs constitute a large proportion of the task performance domain which contributes to the core business goals of the organisation.

Even traditional jobs can and increasingly do incorporate tasks that contribute to the environmental sustainability goals of the organisation (Ones and Dilchert, 2012). For example, managers might use remote technologies (web conferencing) to limit environmental impact through corporate travel, digitizing to limit paper use, etc. There exists scant literature which takes into account the proactive dimension of EGBs, as found by Bissing-Olson et al's (2013) study that classifies EGBs in the workplace as daily task-related pro-environmental behaviour (i.e., the extent to which employees complete required work tasks in environmentally-friendly ways), and daily proactive pro-environmental behaviour (i.e., the extent to which employees show personal initiative when acting in environmentally-friendly ways at work). Their research showed that daily positive affect (individuals' positive emotional experiences) predicted proactive environmental behaviours, whereas negative affect (individuals' negative emotional experiences) did not, similar to previous literature on OCBs (Lee et al., 2012).

It appears relevant to examine EGBs from the perspective of proactiveness and not just a narrow and rigid lens of whether they are in-role or extra-role, because employees may not be aware of these boundaries when they engage in green behaviours. This is because the engagement of employees may vary between passive and proactive, depending upon what the employees value, what would make them feel 'whole' at work, what they are passionate about and what gives them meaning (Wrzesniewski, 2004; Glavas, 2012). This points towards the role perceptions of employees in the workplace which may have an influence on their engagement in greening behaviours as it may be affected by how narrow or broad, they view their jobs as being (McAllister et al., 2007). This concept is closely related to role orientation, albeit narrower in focus, and is called as perceived job breadth (Morrison, 1994; Tepper and Taylor, 2003), which refers to how many citizenship behaviours an individual defines as 'in-role' (Parker, 2007).

Employee engagement in greening behaviours has been identified as being heterogeneous in nature for several reasons in the literature (Lee et al., 2012; Larson et al., 2015). The first reason is because engagement in EGB has varying levels, depending upon the social and structural factors (Larson et al., 2015). Employees may display higher engagement when they need to carry out green recycling or reusing; however, they might have lower engagement in proposing green solutions. Secondly, engagement in EGBs may be influenced by different types of goals, which may vary for every employee between hedonic, gain or normative goal frames (Steg et al., 2014). The different goal frames have an influence on the way an employee may choose to engage and way they assess their actions and consequences. Thirdly, engagement in environmental behaviours varies depending on the type of impact, which could either be direct or indirect, and on the scope, which could be short term or long term (Oreg and Katz-Gerro, 2006). Therefore, the existing disparity in the way EGBs are examined makes it difficult to evaluate what may drive or inhibit greening behaviours among SC employees, and requires in-depth exploration.

EGBs as organisation citizenship behaviours

OCBs find their application towards EGB in the form of OCB towards the environment (OCB-Es) (Tosti-Kharas et al., 2017). OCBs are the most heavily-researched form of extra-role behaviour and have been a topic of significant study within both the psychology and management literatures (Podsakoff et al., 2000; Bachrach et al., 2001; LePine et al., 2002). OCB-E has been defined as “*individual and discretionary social behaviours that are not explicitly recognised by the formal reward system and that contribute to a more effective environmental management by organisations*” (Boiral, 2009, p. 223).

Similarly, Daily et al., (2009) define OCB-E as “*environmental efforts that are discretionary acts, within the organisational setting, not rewarded or required from the organisation*” (p.243). They argue that OCB-Es are completely discretionary because they cannot be rewarded as environmental rewards are hard to define, the opportunities to perform them are difficult to predict, and their scope is too broad (Daily et al., 2009). These definitions may be futile for EGBs that are integrated with the functional roles of the employees, as in the case of SC employees, since SC employees may not find them

discretionary as they may link them to their KPIs, so may be rewarded for them and may even be accountable for them indirectly.

In seeking to explore the nature and scope of OCB-Es, Boiral (2009) used the six main categories of OCBs proposed by Organ et al. (2005): (1) helping; (2) sportsmanship; (3) organisational loyalty; (4) organisational compliance; (5) individual initiative; and (6) self-development, as presented in Table 2.1 below. All categories of OCBs can be directed towards environmental considerations, benefiting not only organisations and their employees, but also society in general and the preservation of ecosystems. Examples of such behaviours include different types of initiatives, such as sharing knowledge to prevent pollution in the workplace, suggesting solutions aimed at reducing waste, representing the organisation at an environmental conference and collaborating with the environmental department to implement green technology, etc.

Ones and Dilchert (2012) argued that EGBs may fall into the category of an organisation's citizenship behaviours towards the environment (OCB-E) when employees work for organisations in a traditional industry. In contrast, when employees work in a green industry, EGB should be conceived as an RGB, as it is a formal task-related to the job they hold. This is a key difference that might allow a better understanding of how a theoretical framework is more appropriate for modelling the determinants leading employees to adopt greening behaviours in a SC context. Further, Boiral (2009) suggests that, despite OCB being somewhat removed from prescribed tasks and formal reward systems, it can still be encouraged indirectly by management such as through green leadership.

Table 2.1 Environmental application of the main categories of OCBs

Main dimensions of OCBs (Organ et al., 2006)	Main current applications of OCBs	Possible environmental applications
Helping	Altruism at the workplace; voluntary actions aimed at helping others employees, supporting or encouraging other persons; efforts to avoid inter-personal conflicts; promotion of cooperation among employees; helping others in case of absence or work overload; technical support to coworkers or clients; etc.	Altruism with regard to the environment and future generations; behaviors aimed at encouraging other employees to consider these concerns; efforts to avoid conflicts with stakeholders; collaboration to promote environmental initiatives; helping environmental departments accomplish certain tasks; etc.
Sportsmanship	Tolerance of organizational difficulties, inconveniences, and co-worker behaviors; accepting work-related problems without complaining excessively; positive attitude; etc.	Acceptance and positive attitude toward the inconveniences and additional work that can result from environmental practices: waste segregation and recycling, implementation of environmental procedures, etc.
Organizational loyalty	Support for organizational objectives; defense of the corporate image to stakeholders; positive representation of the company to various communities; efforts to improve corporate reputation.	Adherence to pro-environmental policies and objectives; promotion of the organization's environmental concerns among stakeholders; representation of the company at pro-environmental events (roundtables, debates, public hearings); etc.
Organizational compliance	Respect for explicit and implicit organizational rules; respect for deadlines, punctuality; adherence to the values of the organization; etc.	Compliance with environmental values, policies, and procedures; application of environmental standards and regulations that apply to the organization (e.g., ISO 14001, Responsive Care program); etc.
Individual initiative	Internal involvement; sharing ideas and opinions; making constructive suggestions; sharing information and knowledge to improve practices; open questioning of the status quo and inefficient management habits; etc.	Participation in environmental activities; sharing knowledge, information and suggestions on pollution prevention; launching new ecological projects; open questioning of practices likely to damage the environment; etc.
Self-development	Voluntary behaviors to develop personal knowledge, skills, and abilities that could contribute to organizational functioning.	Acquisition of personal knowledge, skills, and values aimed at gaining a better understanding and integration of environmental concerns; participation in programs of education for sustainable development; acquisition of environmental information that could be useful to the organization: green technologies, sociopolitical trends, etc.

(Source: Boiral, 2009, p. 224)

Even though there exists a separation between behaviours based on the degree to which organisational behaviours are mandatory or rewarded, it has been suggested (Organ, 1997; Organ et al., 2005) that they should not be viewed in an exclusive or monolithic manner, but rather as a continuum (Boiral, 2009). This diffusion of the boundary between the behaviours by not seeing them as whether they are prescribed or not is much better conceptually, especially when these EGBs are performed to improve environmental sustainability (directly or indirectly), because organisations do not necessarily reward such behaviours, and employees may not even be driven to engage in these behaviours

for rewards. Therefore, it is precarious to put these behaviours in a box; instead, it is better to focus on their characteristics in terms of their proactiveness or the impact they have towards improving engagement.

It is seen that the OCB literature encompasses a variety of behaviours, with two types of behaviours anchoring this ‘behavioural continuum’: on one side are those behaviours that contribute to performance effectiveness by adhering to environmental norms (i.e., organisational behaviours); on the other side, those that challenge the status quo and take steps to improve the existing environmental performance, such as take charge behaviours, which are inherently more proactive (Chiaburu and Baker, 2006). Despite the existing distinction in OCBs made by different researchers, meta-analysis by LePine et al. (2002) on the nature and dimensionality of OCB reveals that the citizenship behaviours are highly inter-correlated.

Parker et al. (2006) regard behaviours that focus on adhering to well-established rules and procedures (which have little need to adapt to change and are unlikely to require an open and positive change orientation) as “*generalised compliance*”.

Table 2.2 Typology of extra-role behaviours by Morrison and Phelps (1999)

Promotive behaviours are proactive; they promote, encourage, or cause things to happen <i>Proactive</i>		Prohibitive behaviours are protective and preventative; they include interceding to protect those with less power as well as speaking out to stop inappropriate or unethical behaviour <i>Protective Preventative</i>	
Challenging behaviour emphasises ideas and issues. It is change oriented and can damage relationships		Affiliative behaviour is interpersonal and cooperative. It strengthens relationships and is other oriented	
Affiliative promotive: E.g. Helping	Challenging promotive: E.g. Voice; Take charge	Affiliative prohibitive: E.g. Stewardship	Challenging prohibitive E.g. Whistle blowing

Morrison and Phelps (1999) identified taking charge behaviours as a challenging form of OCB. However, Chiaburu and Baker (2006) found support for the distinctiveness of

taking charge behaviours as a type of OCB that challenges the status quo, from traditional extra-role behaviours. According to Morrison and Phelps (1999 p.403),

“Take charge behaviours, are discretionary and spontaneous form of committed behaviour that entail constructive efforts, by individual employees, to effect organisationally functional change with respect to how work is executed within the context of their jobs, work units, or organisations”.

Therefore, they differentiate OCBs from taking charge behaviours by calling them affiliative behaviours and challenging behaviours respectively (Morrison and Phelps, 1999) (see Table 2.2 above for definitions). This suggests that it is dependent on the role perception of the employees. While OCBs are considered as extra-role (discretionary), taking charge requires responsibility and accountability on the possible consequences of the actions taken (Van Dyne and LePine, 1998; McAllister et al., 2007). Employees may often have to take charge of a situation, such as getting rid of a polluting supplier, to make their supply chain more environmentally responsible; this type of EGB may be a form of taking charge behaviour. Authors including (Van Dyne et al., 1995; Morrison and Phelps, 1999) provided preliminary support for the distinctiveness of the construct of take charge. They used both individual level and contextual predictors to demonstrate that taking charge behaviours are a function of employees' felt responsibility for changing the workplace, their belief in their capacity to perform, and their perception of support for change provided by top management.

Morrison (1994) argued that some employees view their jobs more broadly than others do and that this has relevance for understanding EGBs. Further, Parker (1998) defined *“the employee's perceived capability of carrying out a broader and more proactive set of work tasks that extend beyond prescribed technical requirements”* as role breadth self-efficacy (RBSE). RBSE has been found to have a strong relation with proactive behaviours, as the definition also suggests (Crant, 2000). However, RBSE is not a stable factor and is expected to change as environmental conditions and employees' organisational experiences change (Parker, 1998).

Later, McAllister et al. (2007) in their paper on disentangling role perception explained that, since taking charge is a challenging form of OCB, employees may be reluctant to

engage in them if they do not perceive it in-role. When employees view taking charge as within the bounds of their roles (i.e., perceived role breadth is high), they are likely to perceive it as less risky. Therefore, they should be more likely to perform taking charge in exchange for fair treatment (McAllister et al., 2007). Parker et al. (2010) argue that taking charge is basically a kind of proactive behaviour that involves thinking ahead and taking charge of a situation and bringing about a change in that situation.

EGBs as required or voluntary

As discussed previously, employees' environmental behaviours are often considered to be voluntary EGBs in the organisation behaviour literature (Boiral and Paillé, 2012). The majority of the theories and models that explain EGBs consider them to be voluntary behaviours. Norton et al. (2015) classified EGBs in two categories, required EGB and voluntary EGB, to allow for the distinction between workplace green behaviour and private sphere green behaviour. However, this classification is still narrow, as they conceptualise EGB as a specific type of job performance that aligns with environmental sustainability. This makes it too rigid and restricted to be applied to an SC context, because any green behaviour that has an environmental outcome and is performed within the functional role will be considered to be required EGB, even if it is not solely in-role. An example would be a purchasing employee voluntarily influencing other colleagues to consider whole life cost instead of unit cost when sourcing equipment, since the practice of considering whole life cost and life cycle assessment when sourcing the equipment may be a required EGB for employees in his/her organisation. However, the purchasing employee choosing to go beyond the prescribed behaviour by influencing others to use that costing method is completely discretionary.

The other limitation with the Norton et al. (2015) classification is when EGBs are depicted in the boundaries of functional role yet can be perceived to be discretionary. This is possible when employees define their jobs as narrow and believe engaging in sustainability aspects of the organisation is an act of organisational citizenship. In the event of lack of role clarity, an employee may view environmental behaviour such as reducing emissions as “*not my job*” but still see little choice in whether to perform it (e.g., if there are strong social pressures to perform such behaviour). This is because SC

employees are faced with competing priorities, due to which they may view sustainability as conflicting with economic objectives (e.g., cost) and as such retain weak personal environmental intentions (Schneider et al., 2003). This may make SC employees significantly undervalue organisational environmental objectives in supply chain decisions, making them view engagement in EGBs as extra-role. With an ambiguity about whether EGBs are mandatory or not, many employees may consider environmental aspects in their decision-making based on their role perception. Therefore, the existing definition of EGBs for general employees creates too much uncertainty for it to be used in the context of supply chain EGBs.

EGBs as proactive employee engagement in sustainability

There is no single definition, theory, or measure driving this body of work; rather, researchers have adopted a number of different approaches towards identifying the antecedents and consequences of proactive behaviour, and they have examined them in a number of seemingly disconnected literatures (Crant, 2000). Organisation behaviour literature has defined proactive behaviours as “*taking initiative in improving current circumstances or creating new ones; it involves challenging the status quo rather than passively adapting to present conditions*” (Crant, 2000, p.436), largely classified as extra-role behaviours. Crant (2000) has identified four general constructs to broadly capture elements of proactive behaviour (proactive personality, personal initiative, role breadth self-efficacy, and taking charge). For example, EGBs may involve proactive environmental behaviours (in terms of proactive green idea implementation and proactive problem solving towards green issues, both of which involve individuals taking charge).

Crant (2000) argues that citizenship behaviours are actually rooted in proactive behaviours. While some studies consider proactivity to be a special type of citizenship or extra-role behaviour, others have argued that proactive behaviour is by definition ‘extra-role’ since in-role activities are non-discretionary and hence not self-directed (Van Dyne and LePine, 1998). However, classifications of in-role and extra-role are unclear and depend on how employees construe the boundary of their role (Morrison, 1994).

Grant and Ashford (2008) were the first to offer an integrative definition and set of dimensions of proactive behaviour. They not only defined proactive behaviour but discussed how proactivity operates as a behavioural process that can occur either in-role or extra-role, such that employees can perform in-role tasks in a proactive manner (e.g. Crant, 2000; Frese and Fay, 2001). For example, employees can complete tasks ahead of schedule or marshal additional resources to carry out these tasks. This is in extension to Parker's (1997) argument that employees need to embody a broader and more proactive approach to their roles in which they own or feel responsible for, work beyond their immediate operational tasks (an aspect of role orientation that they refer to as "*production ownership*"). Grant and Ashford (2008) place particular emphasis on examining whether different situational and dispositional antecedents cultivate different styles of, tactics for and approaches to proactivity. Although their conceptualisation of proactive behaviours is broad, it seems applicable to different contexts and situations such as that of proactive environmental behaviours among employees in SCM.

Bissing-Olson et al. (2013) were the first to introduce the concept of proactive pro-environmental behaviour, which describes the extent to which employees take the initiative to engage in environmentally friendly behaviours that move beyond the realm of their required work tasks. However, there is a difference in how they define proactive environmental behaviours in terms of the emphasis of their study on the "*personal initiative*" aspect of the core work task itself in which employees engage in. While all the other research on EGBs in OCB, such as RGB and VGB research, has looked at these behaviours in terms of boundaries of job requirements, Bissing-Olson et al. (2013) widen the focus by examining the proactive component of environmental behaviours in which employees engaged while carrying out their core tasks, which adds a layer of complexity through broaden-and-build theory. Additionally, they found that employees not only differ from each other in their average or typical levels of EGB (i.e., between-persons variation) but also that individual employees' engagement in EGB can vary substantially over time, for instance, across workdays (i.e., within-person variation).

This variation could be explained by RBSE as it positively affects proactive behaviours and is bound to change with change in environmental conditions and changes in employees' organisational experiences (Parker, 1998). For example, an employee may

feel greater RBSE for assuming environmental responsibilities when they feel their management trusts them or allows them to work autonomously.

In contrast to older studies that have only considered affective experiences that are closely tied to individuals' general pro-environmental attitudes (Petty et al., 2003) to have an effect on employees' environmental behaviours, Bissing-Olson et al. (2013) found that certain affective experiences unrelated to environmental issues were associated with such behaviours by distinguishing those affects as activated and unactivated positive affect. Daily unactivated positive affect includes feelings of contentment, being at rest and feeling relaxed, whereas daily activated positive affect involves feeling excited, euphoric and enthusiastic (Amabile, 2005).

This provides an impetus to explore mechanisms of EGBs among SC employees from a broader perspective since they can be depicted irrespective of the in-role or extra-role aspect of behaviours. As EGBs performed by procurement and supply managers may not fall into one particular category, therefore they need to be examined without prejudice or pre-categorisation. This suggests examining the environmental behaviours of SC employees in the SCM context based on individual variation.

2.7.2 Envisaging supply chain employees' EGBs

Deriving from the conceptualisations put forward by the authors above, supply chain EGBs in this study can be conceptualised as: *'behaviours performed by purchasing and supply managers that may or may not be explicitly described in their formal job description but contribute to improve the effectiveness of the environmental management of the organisation and its supply chain'*. Therefore, there is a tendency for variation in terms of their engagement in EGBs in their given situations based on their role perceptions and/or expectations.

Supply chain EGBs encompass a wide range of activities and are broader than a handful of green supply chain practices such as environmental purchasing (Min and Galle, 2001) or even other citizenship behaviours such as recycling, etc. One may

characterise general pro-environmental behaviours or OCB-E in the workplace as purely voluntary endeavours which may differ from SC EGBs, since the latter involve the intersection of one's feelings about sustainability in general as well as one's obligations towards the supply chain role, besides other situational factors such as green buy targets or cost-saving targets, budget, etc.

The means through which perceptions associated with their roles are unravelled has a potential to elucidate supply chain EGBs, since these behaviours can be interpreted through the lens of employees' perceptions about their roles, for example, taking control of organisational situations rather than simply adapting to them. Examining the proactive dimension of these behaviours can be useful to reduce the ambiguity related to the conceptualisation of their greening behaviours and seems highly relevant in a supply chain context.

2.8 Existing theoretical frameworks applied to examine EGBs in SCM

The topic of EGB has received little consideration in ESCM literature; the present body of literature reports various arguments on understanding employee motivations to engage in EGBs. There are several challenges that employees face while executing environmental practices in the supply chain. Hassini et al. (2012), in a literature review, found that within as well as across many functions in a supply chain there are competing priorities, and managers are faced with the challenge of conflicting objectives while executing the green practices. The definition of ESCM also implies similar challenges to supply chain managers: dealing with multiple decision-makers and assessing the environmental impacts and social benefits in a multi-party supply chain (Wu and Pagell, 2011). Most studies have examined how organisations balance competing priorities in their decision-making processes; however, limited research exists on employee-level decision-making and engagement in environmental behaviours (Gattiker and Carter, 2010).

There is conflict faced by SC employees between economic and environmental goals; (Hassini et al., 2012) as well as between individual and organisational goals. In greening, SC employees (e.g., buyers, manufacturers, logistics managers, etc.) have to pay more

attention to environmental criteria regarding the material, equipment, transport and logistics services they purchase, alongside the more traditional trade-off between cost and customer service (Aronsson and Hult Brodin, 2006; Kohn et al., 2008). Other studies found that managers may be inhibited by factors such as unclear environmental standards and regulations, costs of switching suppliers and risks of publicly supporting environmental sustainability initiatives (Bansal and Taylor, 2002; Conraud-Koellner and Rivas-Tovar, 2009), to name a few barriers.

A recent structured literature review on theories applied in the SC discipline (Touboulic and Walker, 2015) suggested the need to borrow theories from disciplines like organisational behaviour and psychology to investigate the human aspects of ESCM. Literatures from both environmental psychology and environmental management have been found important in identifying the role of individuals in initiating pro-environmental action (Stern et al., 1993; Ramus and Steger, 2000; Bansal and Hunter, 2003; Andersson et al., 2005). Researchers who examined individual level phenomena within the environmental management literature, such as Marshall et al. (2005), Ramus and Killmer (2007), etc., employed cognitive theories as a basis for their studies of EGBs. Similarly, some of these theories have been applied to the SC discipline as well, theory of planned behaviour (TPB) being the most prominent one.

Studies by Gattiker and Carter (2010) and Cantor et al. (2012) are perhaps among the first such efforts to apply organisation behaviour theories to examine the EGBs among SC employees published in SC and operations management journals; examples of these studies include: 1) organisation support theory (OST) (Cantor et al., 2012; Cantor et al., 2013), (2) intra-organisational influence theory (Gattiker and Carter, 2010; Gattiker et al., 2014), (3) theory of planned behaviour (TPB) (Swaim et al., 2016), (4) ability motivation opportunity theory (AMO) and (5) expectancy theory (ET) (Chinander, 2001). These different models have served as stepping-stones to each other. These studies investigating the EGBs in the SC context using organisational theory are seminal to ESCM literature and act as a valuable source of theoretical underpinnings for investigating and furthering research on EGBs in ESCM. However, significant questions still exist that require investigation, one being, “*how are EGBs approached by SC employees as there appears*

to be an ambiguity regarding whether they are perceived to be required or voluntary?”
Or *“how do the SC employees engage in those behaviours?”*

2.8.1 Organisation support theory (OST)

OST asserts that *“employee perceptions regarding the extent to which organisations demonstrate care and value for their contributions to the organisation have a great deal to do with the behaviour that employees exhibit”* (Eisenberger et al., 1986). Based on OST and a survey, Cantor et al. (2012) showed that perceived organisational support (POS) for environmental behaviours explained 38% of affective employee commitment to environmental behaviours, which then explained 45% of one of the three (i.e., frequency of involvement) employee engagement in environmental behaviours. However, very low explanation power was found for the other two engagement behaviours – innovation and promotion of environmental initiative. It can be argued that environmental behaviours examined in the form of ‘frequency of involvement’ are not the same as innovation and promotion of environmental initiatives since the latter represent more proactive behaviours.

Cantor et al. (2012) could not see a strong effect of affective commitment on more proactive engagement behaviours. Earlier, in a general workplace behaviour context, Parker et al. (2006) argued that a high level of positive affect towards the organisation does not necessarily mean an individual will engage in proactive behaviour. Indeed, Frese and Fay (2001) argued that it is often negative affect, such as dissatisfaction, that stimulates proactive behaviour. Parker et al. (2006) also argued that, although commitment is often operationalised in terms of a desire to “put in extra effort”, the direction (such as indicated by one’s role orientation) is what can make the employee engage proactively. This presents the need to identify factors other than POS to develop a holistic understanding around what makes SC employees engage more proactively. (Parker et al., 2006) also make the suggestion that, to understand proactive behaviours, the assessment of motivation needs to go beyond the traditional focus on assessing intensity of motivation (i.e., how much effort one is prepared to put in) to also assess the likely direction of that motivated effort, such as would be indicated by one’s role orientation.

Secondly, even though Cantor et al. (2012) argued that employee engagement in environmental behaviours entails a broader range of behaviours, such as involvement in specific environmental practices, thinking about environmental improvements and offering suggestions to be more environmentally-friendly, they did not include any supply chain-specific greening behaviours, such as supplier development, green efficiency, sustainable procurement, etc. Lastly, Cantor et al. (2012) found low support for rewards to signal SC employees' affective commitment (that the organisation was supportive of environmental activities). This result implies that environmental behaviours may not be perceived to be voluntary by SC employees, meaning an employee is motivated towards engaging in EGB if they derive personal satisfaction from doing it, because rewards generally work for those with controlled motivation (Deci and Ryan, 2000). This suggests the need to understand "*how SC employees view/perceive environmental responsibility*" to know more about their engagement.

2.8.2 Theory of planned behaviour

TPB allows us to predict behaviours over which people do not have complete volitional control (Ajzen and Fishbein, 2005). TPB achieves this by including an additional predictor of behavioural intention and behaviour that is called perceived behavioural control. As businesses today emphasise integrating sustainability into strategic and operational decision-making within organisations, Swaim et al., (2016) argue that it is better to integrate employees' pro-environmental thinking with perceived ability to carry out the green behaviours to have a better sense of their actions towards ESCM. For example, the authors found that supply manager personal attitudes are critical to generating desired levels of environmental sustainability intention. However, although the research examines SC employees' attitudes and behaviours towards environmental management, it does not consider the influence of external factors such as government regulation or pressures faced by their organisation, etc., concurrently.

As Jira and Toffel (2013) highlight, the buyer's green behaviours, such as requesting that suppliers share the information regarding their GHG emissions, can depend on the buyer's commitment to use that information, or when suppliers belong to more profitable

industries, and when suppliers are located in countries with greenhouse gas regulations, etc. This problem calls for more multi-level studies (Carter et al., 2015) to explain how firm and individual levels are related as well as to unravel the mechanisms that facilitate such greening behaviours among SC employees. While replication studies have added a great deal to this understanding, it may be worthwhile to explore alternate theoretical models and antecedents.

Moreover, the study by Swaim et al., (2016) lacked clarity in terms of capturing environmentally responsible behaviours similarly Cantor et al. (2012) in their study did not examine the effect of antecedents on each of the environmental behaviours. Cantor et al. (2012) explained this omission as the lack of previous research on this topic, and so there is a lack of guidance on how to operationalise employee environmental behaviours. Therefore, in addition to the motivational factors that influence employees' environmental behaviours, a review of the conceptualisation of employees' environmental behaviours from an ESCM context could be fruitful.

2.8.3 Expectancy theory

Chinander (2001) applied the Vroom's expectancy theory (ET) framework to the environmental context by studying the employees' perception of: (1) the link between their actions and environmental performance, (2) the environmental performance factors evaluated, and (3) rewards and punishment for a given environmental performance. This theory predicts that individuals make decisions based on the outcomes that they anticipate will result from their actions, i.e., their expectancy (Vroom, 1964). According to Vroom, (1964) individuals' judgements are based on the perceived reward or punishment for the results that will occur from their actions, known as instrumentality. Although the research on EGBs in the OCB-E domain has offered scepticism about the effect of rewards to motivate employees towards environmental behaviours (Daily et al., 2009). Chinander (2001) study emphasised that, when a firm implements an environmental strategy, it becomes important to also revisit the set of performance measures, responsibilities and rewards for environmental consequences, and determine whether the policies they intended to be implemented and communicated are actually in place. This is extremely relevant for SC employees, who often have environmental targets associated with their

job performance, for example, green buy targets for purchasing staff. An important contribution made by Chinander (2001) study is that it adds another stage to the existing ET model by considering how a person/employee evaluates his/her actions or outcomes in terms of being monitored by the organisation. This is done by adding a learning stage following their previous actions, consequences and rewards.

The learning stage captures the importance of feedback as employees update their perceptions of the link between actions and environmental consequences, which is important given the uncertainty that may exist between actions and long-term consequences. Chinander (2001) suggests that communication and accountability for environmental performance are critical factors in determining a firm's level of environmental excellence. This is because there is a need for consistency between the perception of what top management believes they are holding subordinates accountable for and what the subordinates believe they are accountable for Chinander (2001), to ensure the success of the organisation's environmental management practices. It is therefore important to minimise this 'gap' (if it exists) in the perception of accountability, or other areas critical for motivation. With the use of an individual motivational model, this study succeeds at providing evidence that there may be a gap between management values, or espoused theories, and the employees' perceptions of what management actually implements in practice. This can also help explain the internalisation process for SC employees in terms of aligning the external communications and strategies by the organisation, with the accountability to work towards environmental performance. Hence, Chinander's research lays the foundation for researchers interested in exploring the mechanisms of SC EGBs and what may foster them.

2.8.4 GHRM-ESCM link to understand EGB

The exploration of human resource management aspects in environmental management has led to the emergence of green human resource management (GHRM) (Jabbour and de Sousa Jabbour, 2016). Similarly, integration of environmental management in the supply chain has led to ESCM, which has gained traction ever since Sarkis et al. (2010) recognised the role of environmental training for employees for firms to succeed in proactive environmental practices such as eco-design, source reduction practices and

managerial process management practices. A growing body of literature in the SC discipline suggests taking GHRM aspects into consideration to move towards more advanced ESCM because behavioural aspects are important for environmental management (Unnikrishnan and Hegde, 2007; Graves et al., 2013; Wagner, 2013; Teixeira et al., 2016). Teixeira et al. (2016) have proposed a synergistic and integrative framework for the GHRM-ESCM relationship. They argue that GHRM and ESCM must be analysed in a connected manner because organisations, and consequently operations management, are people intensive (i.e., they involve senior management, managers, employees and suppliers).

There is a plethora of literature that recognises HRM as well as human critical success factors as increasing employee involvement in eco-innovations towards more sustainable supply chains (Jabbour et al., 2015). Therefore, researchers have increasingly begun to study employees' engagement in greening by addressing GHRM issues (Hanna et al., 2000; Daily et al., 2012; Gattiker et al., 2014; Swaim et al., 2016; Jabbour and de Sousa Jabbour., 2016; Murphy et al., 2019) in the supply chain discipline. Research on sustainable operations has revealed lots of firm-level antecedents, such as environmental training, rewards, teamwork, culture, leadership, supervisor/top management support and GHRM (Benn et al., 2015; Jabbour et al., 2015).

Jabbour et al. (2010) surveyed 94 Brazilian firms with ISO14001 certification and found recruiters preferred candidates with environmental knowledge and motivation (Jabbour et al., 2010). Similarly, Benn et al. (2015) have emphasised the critical role of HRM in environmental management through an empirical study and stressed how important it is to motivate employees to engage in environmental practices. However, literature is scant on identifying and addressing HRM challenges associated with motivating employees to engage in environmental management within supply chains (Fernández et al., 2003; Jabbour and Santos, 2008). In a recent study, Yu et al., (2020) combine HRM factors related to training, development (ability), encouragement (motivation), and the provision of opportunity (opportunity) to provide more clarity in terms of explaining the variation in employee involvement. They argue that the effects of GHRM factors on employee involvement could vary, depending on the types of EM

practices, and whether they are internally or externally focused (De Stefano et al., 2018), and whether they are easier or harder to implement (Green-Demers et al., 1997).

Murphy et al. (2019) examined the role played by soft management factors which are believed to be crucial for bringing about change in terms of employee participation in environmental management in the supply chain context. They examined the influence of firm-level factors including environmental-related training, top management support, information dissemination and communication, resources deployment on employees' participation in environmental activities through its interaction with responsibility. Murphy's et al., (2019) study brings new perspectives to existing theories which largely consider all soft factors as antecedents without considering the intervening variables that play an active role in affecting employees' participation in greening behaviours. Especially, there is a need to gain more understanding about what goes into the decision-making while developing and implementing the environmental initiatives, especially in GSCM (Wu and Pagell, 2011). Their study appears to be a fairly meaningful contribution towards developing understanding around what triggers responsibility towards sustainability among SC employees.

2.8.5 Intra-organisational influence theory

Gattiker et al. (2014) applied intra-organisational influence theory in their study to examine how environmental engineers influence members of the value chain to adopt strategic environmental initiatives when they do not consider the environment as "*part of my job*" (p. 312). Scholars have conceptualised the intra-organisational influence process as consisting of an agent who seeks to influence a target individual in a single or multiple incident influence attempt using one or more influence tactics in order to produce some outcome (Kipnis et al., 1980; Yukl and Falbe, 1990). Gattiker et al. (2014) examined three antecedents of managerial commitment: the influence approach that the project champion employs (such as legitimating, e.g., appealing to rules and policies), the values of the person the champion is trying to influence, and the organisational climate. What they found is that it is important to match the influence approach to the colleague whom you are trying to influence.

However, they did not explore the attitudinal construct of the target (supply chain members), stating the reason to be measurement issues and the ambiguity about the causalities involved. This suggests the need to examine the attitudes of the SC employees towards becoming proactive or owning broader goals which include sustainability considerations, as it may help provide a better understanding about what facilitates SC employees to act more proactively. These studies emphasise that research should consider different types of contextual factors, by especially focusing on the ‘individual-related factors’ such as prior knowledge, role perceptions around responsibility, etc., as they highlighted that individuals within the company might have different perspectives on the company's environmental objectives. This implies that further theorising and research is needed to better understand the mechanisms that facilitate proactive greening behaviours of SC employees, and, ultimately, provide guidance for organisational practice.

In essence, the supply chain literature has identified antecedents for engaging employees in environmental management more at the firm level (Cantor et al., 2012; Gattiker et al., 2014) compared to the individual level, as there is a limited understanding about the factors at individual level regarding what influences employees’, champions’ and leaders’ perceptions to engage in EGB in supply chain functions (Murphy et al., 2019; Chinander, 2001). This is more so because firm-level studies often implicitly assume that employees react to the firm-level actions (Sarkis et al., 2010) universally, neglecting the roles of employee- or individual level antecedents, such as job satisfaction, value, personality traits, affective commitment, self-efficacy, and perceived responsibility (Murphy et al., 2019). This implies that more exploration of the cognitive and affective process that drives SC employees to expend efforts on EGB is needed. For example, if the SC literature focuses more on explaining the motivation process well, and the internalisation process, this ambiguity can be reduced.

There is also ample room for new theories to examine EGBs and their mechanisms that have not seen significant investigations, in the SC employee context. Much of the literature on the applications and uses of theory examining green behaviours in ESCM research has been fairly recent (Cantor et al., 2012; Gattiker et al., 2014; Swaim et al., 2016). This observation means that this area is in the growth stages of ESCM and

organisational theory linkage, providing an impetus for research. It may be that additional and emergent organisational theories can help address unforeseen and nascent challenges of employee engagement in ESCM issues, as there is a clear need to learn from the EGB in the general workplace literature.

Since, there are extant theories and framework that have examined several antecedents relevant to examine EGBs in the non-SC literature. The different organisational, individual and contextual factors that were found to be important in the non-SC literature which may be significant to the SC context are reviewed next.

2.9 Antecedents of EGBs

This section presents the theoretical arguments of various theories and their respective antecedents relevant to EGBs, highlighting how existing studies have combined individual, firm level or both levels in their analyses to examine EGBs in different contexts. It is almost impossible to define the antecedents in clear boundaries of individual and organisational because of their inevitably overlapping nature. Thus, it is preferable to review them as per the framework they are a part of, for the sake of developing better understanding.

Several frameworks applied in both SC and non-SC literature were reviewed to conclude the current state of the literature. The literature suggests that there are different factors that explain different types of EGBs in the workplace comprising required EGBs (perform activities that contribute to the organisation's technical core) and voluntary EGBs (activities that contribute to the social and psychological core of the organisation) (Norton et al., 2015), such as extra-role, etc. (Borman and Motowidlo, 1993; Organ and Ryan, 1995; Meyer et al., 2002), or proactive environmental behaviours (Bissing-Olson et al., 2013). Therefore, a number of prominent models explaining EGBs have been reviewed to develop a better understanding about potential antecedents (for SC EGBs. Since the sustainable supply chain literature has examined several organisational- and individual level factors separately, this section focuses on delineating how various individual, organisational and contextual antecedents affect EGB to provide a more nuanced understanding of EGBs.

The effect of individual influence on employee's behaviour is found to be critical and results from their beliefs, attitudes, awareness as per value, belief, norm (VBN) theory (Stern, 2000) and the theory of planned behaviour (TPB) (Ajzen, 1991). Goal framing theory (GFT) has also offered several insights about how individuals have multiple motivations instead of just one (Lindenberg and Steg, 2007) when engaging in a behaviour. GFT postulates that goals "frame" the way people process information and act upon it. Goal framing can be used to explain changing behaviours as individuals activate certain goals and take actions to implement such goals (Steg & Vlek, 2009) under specific conditions. A mechanism to change behaviours is through rewards, as per the GFT rewards will only be effective if they are successful in making pro-environmental behaviours more attractive than environmentally harmful options. Another research tradition that focuses on motivations in explaining pro-environmental intentions and behaviours is grounded in the self-determination theory (SDT) (Deci and Ryan, 1985; 2000). Different studies have identified different determinants which can be either internal or external that depict the conditions which may drive or inhibit the process of self-determination for individuals to regulate their behaviours. Pelletier et al., (1998) argue that SDT has several implications to explain individual's tendency to internalise environmental behaviours by successfully transforming outer regulation into a more autonomous (self-determined) motivation. In the light of the existing theories, the prominent frameworks, and their antecedents from the existing research on EGBs in the workplace will be discussed here in relation to each of these factors identified as antecedents below.

Attitudes/intentions and positive affect as antecedents from TPB, VBN theory

The VBN theory posits that values relate to an individual's beliefs, which then form intentions to act through norms. The VBN theory provides guidance to the selection of behaviour in order of importance (Schwartz et al., 1990). Values play an important role in shaping the perceptions of individuals towards sustainability (Gattiker et al., 2014). However, in the context of changing behaviours as an intervention in the workplace to increase the green involvement of employees, there was found to be a new revelation about values. Unsworth et al. (2013) argue that having environmental values is not

enough; instead, organisations should give cues to help them activate employees' green goals by changing the workplace environment to include more positive environmentally related cues. They explain this through the concept of self-concordance, which is an individual level difference variable, to help them take into account their goals and not just the values and help them to see the link between value and behaviour. It may well be that contextual factors determine which type of motivations (and thus which goal-frame) most strongly affects behaviour (Lindenberg and Steg, 2007). For example, normative goals may be strongly related to frequency of recycling when facilities are available (Guagnano et al., 1995), while gain or hedonic goals may be prominent if recycling facilities are poor" (Steg and Vlek, 2009). Young et al., (2015) proposed a framework of employee pro-environmental behaviours at workplace that covers individual, group, organizational and contextual factors which have predictive relevance across different behaviours and organizations. Therefore, it seems important to consider the influence of contextual factors along with the individual and firm-level factors that may affect goal frames.

Perceived legitimacy as an attitude has been conceptualised to have an influence on employees' intentions to act pro-environmentally by Thomas and Lamm (2012). As such, pro-environmental attitude has largely been linked positively with environmental behaviours as a facilitator that makes employees view sustainability as important (Cordano and Frieze, 2000). However, similar to values, it has been found to be insufficient to make employees engaged on its own unless there exist supporting conditions to facilitate it such that employees feel supported or empowered to perform greening behaviour (Thomas and Lamm, 2012), as these supporting conditions act as a source of legitimisation for employees to perform environmental behaviours (Thomas and Lamm, 2012). In addition, there is a need to consider various dimensions of attitude (internal and external) and examine their interactions to see an effect on employees' intention to engage in environmental behaviours, since there is a view that, when managers identify more intensely with their companies (higher externally favourable attitude), one may expect external attitudinal components of legitimacy to exert a stronger influence on internal attitudes, resulting in greater consonance between internal and external attitudes over time (Thomas and Lamm, 2012).

Young et al. (2015) process framework suggests environmental attitude and beliefs to have a comparatively weak effect as compared to environmental awareness, feedback and financial incentives on employees' environmental behaviours. This indicates that environmental beliefs and attitudes should be placed in the context of other psychological factors determining behaviours, such as environmental awareness, habits, norms, etc. (Fransson and Gärling, 1999). For example, an employee's environmental awareness is important in terms of being conscious of the organisation's potential impacts and, more importantly, knowing their individual responsibility in helping to reduce this input. This may include knowledge about recycling materials, methods of recycling and disposal processes (Boiral, 2005; Jones et al., 2012) or purchasing green materials (Zhu and Sarkis, 2004). Awareness and knowledge help pave the way for implementation of efficient environmental training programmes (Daily et al., 2007). Chinander (2001) rightly emphasised the existing gap in investigating the relationship between the operational managers' level of awareness about their firm's environmental strategy and its impact on their motivation to improve environmental performance. Therefore, these antecedents and their effects need to be examined in the research on EGBs (Norton et al., 2015).

Feeling of positive affect was found to have a significant influence on employee environmental behaviours but only when supported with green psychological climate since it moderates the relationship between intention and behaviour (Norton et al., 2017). In contrast to older studies that have only considered affective experiences that are closely tied to individuals' general pro-environmental attitudes (Petty, et al., 2003) to have an effect on employees' environmental behaviours, Bissing-Olson et al. (2013) found that certain affective experiences unrelated to environmental issues were associated with employees' pro-environmental behaviours by distinguishing those affects as activated and unactivated positive affect. Daily unactivated positive affect includes feelings of contentment, being at rest and feeling relaxed, whereas daily activated positive affect involves feeling excited, euphoric and enthusiastic (Amabile, 2005).

Based on TPB (Ajzen, 1991) and goal setting theory (Locke and Latham, 1990), Norton et al. (2017) hypothesised a positive within-person relationship between green behavioural intentions and next-day EGB. They argue that employees who set themselves goals to act in environmentally friendly ways should be more likely to engage in EGB the

next day because goal setting increases employees' motivation (i.e., direction, effort, persistence, and use of relevant strategies) (Locke and Latham, 2002). Goal setting theory has the potential to offer insightful perspectives to understand employee pro-environmental behaviours in the sustainable operations context (Swaim et al., 2016) by addressing the effect of hyperbolic discounting or employees' short-term needs and long-term goals on their environmental behaviours. This is because TPB found low support for the hypothesised interaction effect between behavioural intention and hyperbolic discounting on actual environmentally responsible behaviour of SC employees as it had a countervailing effect.

Previously, Bissing-Olson et al. (2013) proposed that daily affect has a significant influence on daily pro-environmental behaviour at work, based on the broaden-and-build theory of positive emotions. This theory suggests that the experience of positive affect has important implications for positive work behaviours (Fredrickson, 2003). Moreover, Bissing-Olson et al. (2013) proposed that employees' affective experiences fluctuate over time and that these affective experiences influence a range of positive work behaviours, including environmental behaviours. Cantor et al. (2012) have also tested the link between affective commitment and employee green behaviours among supply chain members.

Ability & motivation as antecedents from SDT and AMO theory perspective

As per the AMO framework, EGBs can be achieved by increasing employees' ability through attracting and developing high-performing employees, enhancing their motivation and commitment by giving conditional rewards as well as conducting effective performance management, and, lastly, providing an opportunity for them to be involved in knowledge sharing and problem solving (Renwick et al., 2013). It is established that, if employees feel empowered in the workplace, it allows them to take decisions that may lead to substantial improvement of the environment (Yu et al., 2020). Through these ways, organisations can support and develop the employees to encourage their involvement in environmental management. However, their willingness to actually engage in environmental behaviours is still contingent upon autonomous motivation.

Alternatively, SDT argues that, when people are motivated more autonomously or are said to be “self-determined”, they experience themselves as initiators of their own behaviour, they select their own desired outcomes and they choose how to achieve them. In contrast, being controlled or having a low level of self-determined motivation is characterised by lacking a true sense of choice. Employees’ autonomous motivation has been found to have a strong influence on their performance of general work behaviours (Gagné and Deci, 2005) as well as on the individual’s environmental behaviours in communities (Pelletier and Sharp, 2008).

Graves et al. (2013) is one of the few studies to examine the role of both internal and external motivation simultaneously on employees’ environmental behaviours in the workplace. Graves et al. (2013) used SDT (Deci and Ryan, 1985; 2000) as a framework for studying employee motivation to engage in pro-environmental behaviours in Chinese organisations and found that environmental transformational leadership was positively related to employees’ autonomous motivation and external motivation to perform pro-environmental behaviours. The authors explain this by arguing that employees may have accepted and internalised environmental values and goals, resulting in an increase in the degree to which environmental activities were personally meaningful to them and leading to an increase in autonomous motivation. Further, environmental transformational leaders may have also engaged in coaching and mentoring to develop employees’ capacity to address environmental issues, thereby increasing employees’ feelings of competence, and ultimately enhancing their level of motivation to engage in pro-environmental behaviours.

Studies published in the sustainable operations literature reported that plant manager’s personal social orientation (Klassen, 2001), top management championing (Lee and Klassen, 2008) and championing by environmental professionals (Gattiker and Carter, 2010) all positively affect environmental orientation at a plant level. This provides a greater impetus to examine the role of the leader (which can be supervisor/immediate manager/top management) and their influence on making the employees internalise the organisational goals and facilitate the motivation held by them internally. Motivational theory has long established the positive link between supervisory support (behavioural and/or through resources) and employee motivation (Kanter, 1984; Conger and Kanungo,

1988). Employees are generally more motivated when they perceive support from their supervisors. Yet, this is particularly pertinent in weak situations, where persons can be readily motivated through a leader's appeal to their "*self-concepts, values, and identities*" (Shamir et al., 1993, p. 589). Similarly, Daily et al. (2009) identified key determinants of OCB-E to be environmental concern, organisational commitment, perceived supervisory support for environmental efforts, and perceived corporate social performance.

It is evident from the literature that attitude and motivation have a similar effect on intentions in the presence of supportive conditions to engage in greening behaviour. Also, attitude and motivation are multi-dimensional (internal and external) in nature and interact with each other to influence EGBs. Moreover, their existence in both dimensions (internal and external) provides a greater possibility for employees to engage in EGBs as compared to just one dimension. Therefore, it is important to examine these constructs based on the different dimensions. The literature has started doing this in the past few years and it must be considered in the current research to broaden and extend theory.

Role perceptions, self-efficacy, outcome expectations from expectancy theory and role theory

McAllister et al. (2007) argue that employees develop efficacy beliefs pertaining to various types of OCB, including interpersonal helping and taking charge. Therefore, role perception related to OCB may help deepen the understanding on what makes employees engage in EGBs more proactively. It is important to note that the concept of RBSE is different from self-efficacy since RBSE is specific to a situation (i.e., the individual's work role) while generalised self-efficacy is a global competence belief (Parker et al., 2006) which may not necessarily result in proactive work performance. RBSE has several implications for EGBs: firstly, RBSE can make employees feel capable of taking on a range of tasks that are proactive, interpersonal and integrative activities, which is vital for employees when engaging in environmental behaviours. This is because EGBs may comprise and benefit from radical, innovative and change-oriented ideas which are supported by the employee's belief that they have the capability to carry out those tasks.

It is equally important to understand what may positively affect RBSE. Parker et al. (2006) identified job autonomy, supervisory support and proactive personality as having a positive effect on RBSE. These feelings of RBSE can also be influenced positively by trust (Clegg, 2002). Either trust in the organisation or a climate for initiative in the organisation or co-worker trust is likely to encourage individuals to try things beyond core tasks and enhance their RBSE (Parker et al., 2006).

Role theory offers a useful approach to describe the full set of work responsibilities in a role and to encompass both organisational context and individual work behaviour (Katz and Kahn, 1966). Parker et al. (1997) argued that job enrichment leads to the development of broader role orientations, suggesting a link between job design and employee role perceptions. Giving employees greater variety, autonomy and so forth may encourage them to view their role responsibilities more broadly and may also enhance perceived OCB role discretion and competence. Role perceptions regarding engagement in EGBs are an important contextual factor that may affect their engagement in EGBs, thereby hindering or promoting their involvement in environmental initiatives. Therefore, there is a need to look at behaviours from the perspective of employees, their context and the potential impact instead of whether they are prescribed as part of the job or not, because the motivation to engage in them and the perception to view them as a part of the job or separate from the job may vary from person to person (Mc Allister et al., 1997).

2.10 Chapter summary

This chapter synthesises the comprehensive knowledge about environmental sustainability in general, environmentally sustainable supply chains, EGBs in SC and non-supply chain literature, and multi-level antecedents contributing to EGBs. Although the literature review revealed the positive impact and the benefits of environmental management within supply chains, it found diverse yet limited research about employee engagement mechanisms of EGBs in ESCM. The available theoretical frameworks expect social media to have a positive impact in supply chains. Empirical papers looked at the impact on EGBs in different contexts: some found a positive impact of organisation level factors and others found a positive impact of individual level factors on EGBs. Moreover,

very few studies looked at SC employees in this regard; most were conducted in non-SC literature.

SC literature, although rich in research and covering many aspects from different theoretical lenses, has paid less attention to employee EGBs, especially from an individual perspective. Literature on EGBs as a part of the job and of a proactive nature in this area is particularly scarce. Engagement in ESCM related to EGBs in the context of SC employees has, to the researcher's knowledge, never been examined from a multi-level perspective in the literature. This research fills these gaps in knowledge and extends SC research to include mechanisms of EGBs in their functional role, as well as extending environmental management research to include unconventional behaviours in ESCM depicted by SC employees. The interdisciplinary theories will be referred to in order to allow a full exploration of this complex topic.

The next chapter covers the methodology of this research.

Chapter Three: Methodology

3.1 Introduction

The focus of supply chain or operations management research has substantially shifted away from technical aspects to behavioural and human aspects; therefore, the significance of qualitative research methods has increased (Myers, 1997; Myers and Avison, 2002; Bendoly et al., 2006). This is a case study-based qualitative research work that pursues systematic procedures with the purpose of utilising the guidelines of the qualitative research in SCM (Saunders et al 2011). The aim of this research is to investigate the environmental/ green behaviours of employees in supply chain functions by considering their roles and perceptions towards sustainability as well as their interaction with internal and external factors.

This chapter serves a threefold purpose. First, it addresses the ontological and epistemological foundations of the multiple case study approach. Second, it explains the decisions and reasons behind the method I have used in conducting this research. Third, it describes and explains the steps of the research process, viz. the design of the study, the setting in which the empirical research was done, the methods used to collect and analyse data, and on the procedures adopted to counteract threats to reliability and validity.

3.2 Aims and nature of the thesis

The research sought to add new understanding of employee greening behaviours within supply chains and progress knowledge on the ways through which these behaviours are implemented in order to discover the mechanisms of such behaviours. The use of inductive research attempts to shed light on the potential impact of SC employees' perceptions towards their engagement in environmental behaviours.

Stake (1995) qualitative case study design is used to examine the environmental behaviours of SC employees towards environmental sustainability. Stories of

participants' experiences in respective projects are analysed using Stake's phases of data analysis (i.e., categorical aggregation and direct interpretation). The justification for and details of this methodological approach are now discussed.

3.3 Research design

3.3.1 Philosophical foundations of intensive research

Every piece of research is anchored to a paradigm as per Patton (1990, p. 68) it is defined as – “*a world view, a general perspective and a way of breaking down the complexity of the real world*”. Before the formulation of any research approach, it is first necessary to consider ontological and epistemological concerns in relation to the specifics of the research. In terms of the nature of social entities and social reality, an ontological distinction can be made between objectivism and subjectivism. Objectivism suggests that social phenomena exist in separation from the social actors perceiving them, while subjectivism suggests that social phenomena and their derived meaning continually react to the presence of social actors, that they are derived through social interaction and are in a continuous state of change (Bryman and Bell, 2003).

A positivist approach is based on realist ontology and holds a view that it is possible to measure social behaviour independent of context and that social phenomena are ‘things’ that can be viewed objectively (Hughes and Martin, 1997). In contrast, interpretivism tends to view the world in quite a different manner, interpretivists take the view that the subject matter of the social sciences – people and their institutions – is fundamentally different from that of the natural sciences. The study of the social world therefore requires a different logic of research procedure (Bell and Bryman, 2007, p. 17).

Qualitative-oriented enquiry encompasses the interpretative point of view (Elliott and Timulak, 2005). Qualitative researchers are interested in understanding what those interpretations are at a particular point in time and in a particular context. Learning how individuals experience and interact with their social world, the meaning it has for them, is considered an interpretive qualitative approach (Merriam, 1988).

“Interpretivism is based on a life-world ontology that argues all observation is both theory- and value-laden and investigation of the social world is not, and cannot be, the pursuit of a detached objective truth (Leitch et al., 2010, p. 69)”.

The requirements of this research make a positivist philosophy and a deductive research approach weak in addressing the key aims of the thesis, while the questions could not be effectively answered by attempting to quantify the phenomena of interest into variable measures. A purely relativist position would be unsuitable for a different reason: because, in treating the subject of research as socially constructed, a neglect of structures which may be external to the constructed entity and its associated agents would be problematic and limit the level of understanding required by the questions (Edwards, 2005).

Given that in this research the gaps uncovered in the literature review have led to the development of the questions that require exploration and the questions posed are concerned with “how” and “why”, rather than “how many” or “how often” (Yin, 2009). Due to the exploratory nature of these questions, combined with the need to consider the relationships between employees as human agents and an environmental SCM as a social structure, an inductive approach to the research is most suited. Such an approach seeks to understand the experienced reality of SC employees towards sustainability, the environment in which they operate, interact and the relationships between employees involved with it and subject to it. The above discussion is not to render quantitative approaches useless for research into employee green behaviours; rather, it is to argue that it is unsuited to answering the questions posed by this thesis in the level of depth required.

This different logic within an interpretivist stance prompts a researcher to use inductive theory construction, reversing the deductive process by using data to generate theory. Therefore, researcher observes aspects of the social world and seeks to discover patterns that could be used to explain wider principles (Babbie, 2005). In addition, it is seen that there is no one reality, rather reality is based on an individual’s perceptions and experiences (Robson, 2002). Linked to this position is the argument that the facets of the real world that are distinctly human are lost when they are analysed and “*reduced to the interaction of variables*” (Hughes and Martin, 1997, p.102). For this reason, the role of

the researcher should be to analyse the various interpretations that actors related to a particular phenomenon give to their experiences (Easterby-Smith and Thorpe, 2002).

3.3.2 Qualitative case study approach

Based on the philosophy (interpretivism) underpinning this research, the choice of research method is qualitative. In many ways this interpretivist position is based on a belief that a qualitative approach to the research aim set out in Chapter 1 is one that will best provide insight. It is felt that qualitative research methodology provides the variety and depth of data required to understand the phenomena under study. A qualitative approach allows the exploration of the role of perceptions on environmental behaviours in the given context. As, behaviours are based mainly on individual aspects, it is more sensible to explore them in depth from the perspective of the actors themselves, rather than quantify them and lose the rich insights behind them. As Yin (2011, p. 78) states, qualitative research provides an “*ability to study events within their real-world context including the relevant culture of the people, organisation or group being studied*”. Many qualitative studies start with an inductive approach, where the data drives the theory.

Case based research aims for in-depth, multi-faceted explorations of complex issues in their real-life setting (Crowe and Sheppard, 2011). Thus, this research uses a multiple case study approach to explore the phenomenon of employees’ green behaviours in supply chain context. The focus of case studies is to dig out the characteristics of a particular entity and its key distinguishable attributes (Njie and Asimiran, 2014). The research process involves inductively extracting knowledge and multiple case studies are suitable as they provide a robust base for theory building (Yin, 2003).

Case studies have been conducted from positivist (Yin, 1994) as well as from interpretive epistemological perspectives (Stake, 2006). Yin (1994) is a strong proponent of the deductive use of case research driven by a positivist philosophy. Yin’s case research methodology starts with the construction of specific theoretical propositions derived from a theoretical model. During data collection, information is gathered on the individual variables indicated by the model. At the analysis stage, the factual conditions

and relationships are compared to the theoretical one. Using the principles of analytical generalisation, the early model is tested and may be modified according to case findings.

On the contrary, Stake (2005, p. 443) suggests, case study is less of a methodological choice than “*a choice of what is to be studied*” which in this research of SC employees are their green behaviours that need exploration. Therefore, this research follows the latter tradition by using multiple case studies to examine the phenomenon of ‘employee green behaviours’ in supply chain setting. Stake, (2005) suggests case study can focus on describing or explaining process(es), individual or group behaviour in its total setting, and/or the sequence of events in which the behaviour occurs (Stake, 2005). The Stake’s case study approach is more suited as it allows to explain the phenomenon in its totality; by knowing how were supply chain and sustainability employees involved, the processes that occurred, the outcomes of their activities/behaviours, and the context within which these were situated.

Stake (1995), in keeping with an interpretive/constructivist orientation, has directed that researchers can use a conceptual framework to guide the study, but this is not required. It’s debatable whether a conceptual framework as advocated by Yin would constrain the collection and analysis of data and whether Stake’s recommendation of a flexible conceptual framework would be too lacking in structure. Finally, when embarking on a study aimed at theory building one can never know beforehand whether data will generate theory that is confirming, extending, or refuting existing theory but I tried to keep an open mind throughout the research process. Therefore, I did not restrict myself “theory-wise” by using a pre-determined framework and chose to follow an inductive investigative strategy.

As part of the larger ESCM context, the employee greening behaviour was studied using a qualitative instrumental case study design (Stake, 1995). Through case study design, the complexity and interrelationships of the antecedents of greening behaviours were examined within a specific bounded context – employee greening behaviour. This case study approach was defined as instrumental because a case (i.e., case individual’s involvement in a project) was being studied for the purpose of understanding something else (i.e., EGBs of SC employees). Stake (1995) also suggests that researchers should be

willing to put aside as many presumptions as possible to explore the participants' lives and culture. This advice is followed in this research as employees are seen to have varying perceptions and motivations towards sustainability-related activities in their supply chain roles.

Thus, the main benefits of case studies here are to explain how (and why) such motivation and perceptions are formed, and how they affect their behaviours (actions). Therefore, Stake's (1995) case study method is suitable to reveal the complexity and the nature of SC employees' behavioural processes. Specially, case studies are fitting for studying areas in which there is limited previous research (Darke et al., 1998). Case studies can include one case or multiple cases and can also involve many levels (individual, organisational, group, etc.) of analysis (Yin, 2003).

This research includes multiple case studies with a focus on individuals with respect to their organisational context. Yin (2003) suggests conducting more than one case study is better to provide a robust base for theory building. "*Building theory from case studies is a research strategy that involves using one or more cases to create theoretical constructs, propositions or mid-range theory from case-based empirical evidence*" (Eisenhardt and Graebner, 2007, p. 25). This is because a single case study can explain a phenomenon in-depth, but multiple case studies are commonly better for a stronger theory-building base (Yin, 2003). Multiple case studies give more analytical power; for example, five cases have five times the analytical power of one case (Eisenhardt and Graebner, 2007).

Several leading scholars have used the case study method successfully to study exemplar organisations that have made great strides towards becoming more sustainable (e.g., Lawrence and Morell, 1995; DuBose, 2000; Farrow et al., 2000; Goodman, 2000; Pagell and Wu, 2009; Le Roux and Pretorius, 2016). Case studies can be used for several aims; for example, to provide descriptions, to test theory or to generate theory (Eisenhardt, 1989). This research aims to carry out the last one, i.e., generate theory from case studies, as it attempts to provide insight into an issue or refinement of theory such that "*the case is of secondary interest; it plays a supportive role, facilitating our understanding of employee's behaviour towards sustainability*" (Stake, 1994, p. 237).

The benefits of case studies for this particular research are that a targeted multitude of informants can be consulted via in-depth qualitative research methods. For example, Norton et al. (2015) argue that employees' commitment to environmental behaviours may vary depending on whether it is part of the job or not. Therefore, data were collected from informants from a varying range of supply chain and sustainability functions in the organisation to capture the differences in perceptions towards sustainability arising from job roles. As it was intended to expose differences in perception towards sustainability experienced as a possible result of function or department. In addition, it will develop an understanding of the structure and processes of sustainability implementation in the organisation as well as at the SC employee level. For example, sustainability managers may be accountable for implementing certain environmental practices as well as being subject to the organisation level environmental policy, whereas SC employees are only subject to the organisation level policy. It was essential that these differences in perception arising from roles were uncovered, in order to build a deeper understanding of employees' motivations to engage.

Although theories exist on the notions of individual motivations and complementarities with pro-environmental behaviours (Ryan and Deci, 2000), they have not looked at SC employees and their scenarios. The existing theories have focused upon individual environmental behaviours in the domestic sphere or even in a general workplace context, not how they might work or why they might work in the supply chain context. Therefore, this research required a closer understanding of the attitudinal processes of employees in supply chain functions and a flexible, exploratory approach which did not confine the research to pre-determined boundaries (Saunders et al., 2011). Hence, the participants were asked about their perceptions towards sustainability (about responsibility, motivation and actions) and issues related to the project.

It was found that there are several theories covering this study's interdisciplinary questions. Therefore, a set of theories from interdisciplinary and related literature, such as HRM, OB and individual-organisational relationships, were referred to refine concepts that emerged from data analysis. Therefore, *“the theory building process occurs via iterative cycles among case data, emerging theory and later the extant literature”*

(Eisenhardt and Graebner, 2007, p. 25). The following sections explain in detail the steps and process taken to achieve this.

3.4 Sampling, context and access

After adopting the strategy of multiple cases to generate a theory in this research, it is important to clarify the method via which the cases were chosen, as well as the context of the cases and how they were accessed. The cases were chosen from large organisations that already have some degree of experience in environmental management and have acquired environmental certifications. This was done for three reasons: firstly, because of the scale of their activities, large corporations not only have the opportunity to do environmental damage, but also much environmental good. Some large multinationals are taking strides to be among the world's positive forces for environmental sustainability. Secondly, the implementation of sustainability practices is mandatory in large organisations, and, thirdly, they are certified for environmental management standards. The main sampling frame is not organisations though, or where they are located, it is selecting such organisations in which I could find a variety of supply chain and sustainability employees working in a variety of organisational settings (having different journeys in environmental management, and different organisational factors at play), and it is the variety of situations which are of interest in this research. With the above in mind, the case companies in the UK (developed world) were studied because they might be influenced by more regulatory and stakeholder pressures, while lower levels of such pressures are expected in India (developing world).

Therefore, the respective contexts and the differences in the settings of the participants in this research add to the richness of data collected. For example, the Indian government is pushing large organisations to invest in sustainability by making them invest 2% of their annual profits on corporate social responsibility. The UK, being a developed country, has also been one of the more active governments in the construction of a political sustainability framework. They have a provision in the Companies Act 2006 towards the environment which authorizes the director of a company to act in a way that considers the impact of the company's operations on the community and the environment.

The purpose of case study selection here is not to represent a population such as in statistical sampling (Savin-Baden and Major, 2013), and not to represent a typical Indian or British large company, as it is impractical and not in line with the philosophy of this research. As Eisenhardt states, the goal of sampling for inductive case studies is to “*replicate or extend the emergent theory*” (Eisenhardt, 1989, p. 537). This leads on to the justification of the selection of the case companies from different locations for this research. Studies also indicate that environmental adoption is more likely in countries with more stringent regulations, stronger legal institutions, and regulatory requirements to disclose pollution data (Locke et al., 2007; Lee and Klassen, 2008; Delmas and Montiel, 2009). Therefore, the different settings in this research could lead to different organisational, individual and even cultural factors that inform the resultant framework. (Edwards, 2005) suggests that progressive research into employees’ environmental behaviours is likely to build on previous research through the careful selection of cases to research the phenomena of interest.

3.4.1 Selection criteria

Writing about how to select the appropriate case for study, (Hamel et al., 1993) argues that a selected case is not representative on the basis of the observed frequency of which a social issue or phenomenon occurs, but in terms of what makes it the best observation point for the object of investigation. Yin (2009) suggests that a case is analytic where it can be argued that it is the most appropriate vantage point in order to observe the phenomena under investigation. Thus, for the case to be representative, it must be capable of lending itself to the appropriate methodologies necessary for studying the social processes associated with SCM processes, which have been argued to be intensive qualitative methods. Therefore, cases were selected from various sectors, to get a variety of organisational settings (service vs manufacturing) that might differ in the nature of works and sustainability issues allowing identification of different organisational and contextual factors.

Secondly, data on years the different case companies adopted EMS and started sustainability reporting was another reason to shortlist the selection of companies. The other sampling criterion was selecting organisations with different years of experience in

adopting EMS or sustainability reporting. The reason for doing this is because it is suspected that such an experience may have an effect on the integration (internalisation) of extrinsic motivations (Ryan et al., 1985). In other words, this will help identify individual employees at different levels of engagement (green behaviour) and motivations and increase the ability to explain different (green) behaviours.

Access

The case companies can be found in the Chamber of Commerce and other relevant databases, the specific population is unknown (of employees engaged in projects with sustainability outcomes). Multiple strategies were used to find case companies. Some case companies (especially Indian) were found on the GRI (Global Reporting Initiative) database. GRI database was chosen primarily to find individual employees who have the opportunity to contribute to sustainability issues, and they are more likely to be found in companies with GRI. Therefore, a number of companies that were available online were examined through their sustainability reports. Some companies in India are also found to release public tender notices, such as the steel, cement, paper and others which were also explored to find case individuals that may be contacted directly. Some companies in the UK, including the university, Water Company and others, were found on social media platforms such as Facebook and LinkedIn. Companies that are active on social media platforms and mention their sustainability initiatives on Facebook, were also searched for, since they are likely to involve their suppliers and supply chain staff in sustainable practices. Thus, companies were finalised when they met the selection criteria both in terms of the size and the year of EMS adoption. For example, the water company selected was an early adopter and the university had newly acquired EMS and belonged to the service sector. The selected Indian companies, including the farm machinery, cement and steel companies, represented the major manufacturing sectors with different years of EMS adoption ranging from as old as 2004 (steel company) to as new as 2014 (cement company). The farm machinery company acquired EMS in 2007 and is a multinational company, so it was ideal to be included.

Case companies

The research aimed for five case companies, but there was the potential for this number to increase within the available time until theoretical saturation is achieved, where a new case does not add significant insights. Eisenhardt (1989) suggests the maximum number of cases must not be more than ten as it will generate a lot of data that is difficult to control, while less than four is insufficient to generate theory. Therefore, this research aimed for five case companies because there are several case individuals that could be reached within each case company. For example, each case company is comprised of buyers/ senior buyers/ logistics managers/ production managers and the sustainability manager/environmental management/CSR manager. And, the unit of analysis for this research is the case individual. Thus, each of the five companies represents a case company and the individual employees from different supply chain functions and sustainability functions act as the case individuals, as presented in Fig. 3.1. The case individuals fulfil the condition of being involved in a project with a sustainability-related outcome. Important aspects which may differentiate the case individuals (sustainability employees and SC employees) are considered. For example, employees from sustainability functions have sustainability as a core job but the employees from supply chain functions may or may not be asked to address sustainability as part of the core jobs.

All case companies comprised a sustainability manager from the sustainability/CSR/environmental department and there were important reasons for this. Firstly, it was expected that the sustainability manager would be familiar with the company's environmental policy & procedures. Secondly, they would be able to provide their perspective about the involvement of supply chain staff in environmental management practices and share their experience of working with the supply chain staff per se. And this was indeed the case: there was found to be a close working relationship between the supply chain staff and sustainability manager in many cases. Table 3.1 shows all the employees that participated in this research.

It was aimed to study at least four case companies that allow access to a variety of sustainability and SC employees. Although access to such companies was difficult, the research managed to include five case companies, with an aim of studying as many

employees (individual cases) as possible. The number of case individuals within the case companies ranged between four to seven case individuals (Figure 3.1) to obtain a sufficient variety of experiences. Therefore, this research incorporates five case companies, such that there is an average of five case individuals in each case company.

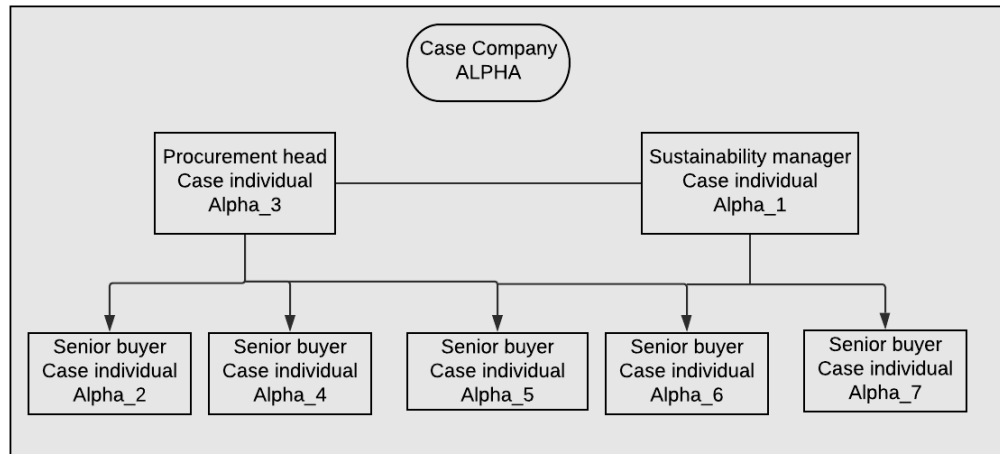


Figure 3.1 Example of organisation chart

Case individuals

The search for the case individuals that were mainly involved in supply chain functions with involvement in sustainability-related projects was not straightforward. The key contacts from the case companies connected me to their sustainability and supply chain staff to complete the interviews. I also requested some employees to call their acquaintances and refer me to them for interviewing. Most contacts agreed to participate; some agreed to be interviewed, but a few seemed they were busy or were not interested in participating, so they stopped replying. In such cases, I returned to the interviewee to ask for other participants they could recommend. Mixing more than one technique and using personal contacts to find participants is common in theory building research (e.g., Barnes, 2010; Fischer and Reuber, 2011).

Supply chain and sustainability managers from the selected companies were contacted by email to introduce the research and ask for participation. A few managers responded,

but when contacted further it appeared that some of them were not involved with implementing sustainability at all. The case individuals were selected to fulfil the required condition for this research, i.e., someone belonging to a supply chain function within the case company who has engaged in a project with a sustainability-related outcome. After finding the case individuals and asking them to participate in the research, I requested to pre-interview them to introduce the idea of the research and make sure that they are involved in initiatives with buyers or suppliers. All participants were pre-interviewed, some over the phone and some face-to-face. When they demonstrated that they were aware of the sustainability practices in their company and engaged towards implementing some environmental practice within their functional role, they were chosen to be part of the sample.

Priority was given to employees looking after upstream and internal activities of the organisation because there is limited research about them in ESCM research (Sarkis, 2012). Moreover, the suppliers were intentionally excluded from the study because they belonged to and represented a different organisation which usually had a different size and level of environmental proactiveness as a company; also, this gives a more focused view and exploration of behaviours of SC employees. The second technique used was snowball sampling; this was used within the five main cases to reach the other participants in the same case company. I requested the respondents to recommend three of their colleagues from supply chain functions if they worked in any way towards sustainability to me.

Most case individuals were cooperative and offered to participate because the study was sponsored by a renowned university in the UK. The research was introduced to the participants in a friendly way and made aware that all information would be secure and confidential. I ensured the participants were comfortable enough to trust me with the information. I understood that managers may feel cautious about sharing sensitive information relating to sustainability disclosure, so it was explained to them that their names and locations and the organisation's name would be kept anonymous in terms of thesis write-up or publications arising from the research.

Table 3.1 Case study companies and informants

Case company & Characteristics	Data source	Case individuals	Chosen project	Date and interview duration in minutes (approx.)
Alpha <i>Country:</i> UK <i>Industry:</i> Education (Service) <i>Year Founded:</i> 1904 <i>Employees:</i> 8000 <i>ISO 14000:</i> 2015	Interviews Office visit Archival data: University sustainable procurement strategy document, Tender questionnaire, Corporate website	Alpha_1: Sustainability manager	Construction project	05/04/2017 (70 mins)
		Alpha_2: Senior buyer	Travel policy update	05/04/2017 (30 mins)
		Alpha_3: Purchasing head	Energy-efficient equipment purchase	07/04/2017 (87 mins)
		Alpha_4: Senior buyer	Updating sustainability criteria in tender document	07/04/2017 (35 mins)
		Alpha_5: Senior buyer	Energy-efficient equipment purchase	11/04/2017 (30 mins)
		Alpha_6: Senior buyer	Setting up the lab, equipment purchase	11/04/2017 (26 mins)
		Alpha_7: Senior buyer	Construction project	25/04/2017 (47 mins)
Beta <i>Country:</i> UK <i>Industry:</i> Utility (Service) <i>Year Founded:</i> 1973 <i>Employees:</i> 2500 <i>ISO 14000:</i> 2004	Interviews Office visit Archival data: Sustainable procurement strategy document, Corporate website, press reports	Beta_1: Sustainability intern	Drafting sustainable procurement policy	25/04/2017 (62 mins)
		Beta_2: Purchasing head	Devising sustainability procurement strategy	01/06/2017 (59 mins)
		Beta_3: Integrated management system Team leader	Waste management service purchase	16/06/2017 (28 mins)
		Beta_4: Purchasing manager	Supplier framework update for chemicals category; running sustainability workshops	31/10/2017 (59 mins)
Gamma <i>Country:</i> India <i>Industry:</i> Agricultural machinery (Manufacturing) <i>Year Founded:</i> 1998 <i>Employees:</i> 1,000 <i>ISO 14001:</i> 2007	Interviews Plant visit Archival data: company sustainability report, internal company presentations, website	Gamma_1: Spare parts manager	Packaging improvement project	23/07/2017 (40 mins)
		Gamma_2: Spare parts head	Packaging improvement project	23/07/2017 (34 mins)
		Gamma_3: Purchasing manager	Packaging and lighting installation project	26/07/2017 (61 mins)

		Gamma_4: Quality and Safety head	Packaging and managing world- class manufacturing module	26/07/2017 (54 mins)
		Gamma_5: Environmental manager	Packaging and managing world- class manufacturing module	26/07/2017 (27 mins)
Omega <i>Country:</i> India <i>Industry:</i> Cement (Manufacturing) <i>Year Founded:</i> 1982 <i>Employees:</i> 10,000 ISO 14000: 2014	Interviews Archival data: sustainability report, Corporate website	Omega_1: Production head	Reducing emissions	20/04/2017 (26 mins)
		Omega_2: Quality and Environment manager	Reducing hazardous waste	21/04/2017 (42 mins)
		Omega_3: Logistics manager	Logistics improvement	21/04/2017 (40 mins)
		Omega_4: Procurement manager	Energy-efficient equipment	15/06/2017 (46 mins)
Delta <i>Country:</i> India <i>Industry:</i> Steel (Manufacturing) <i>Year Founded:</i> 1939 <i>Employee:</i> 32,000 ISO 14000: 2001	Interviews Archival data: sustainability report, Corporate website	Delta_1: Logistics manager	Digitisation project	14/05/2017 (42 mins)
		Delta_2: Purchasing manager	Packaging change project	15/04/2017 (52 mins)
		Delta_3: Purchasing manager	Tackling polluting suppliers	19/04/2017 (33 mins)
		Delta_4: CSR manager	GreenCo rating project	07/09/2018 (28mins)

3.4.2 Semi-structured interviews

Semi-structured interviews were conducted for each case study, to explore ways that employees integrate sustainability aspects into the projects on which they work. This was the favoured interview format because it allowed the interviewer to guide the topics of the interview towards the aims of the study around environmental behaviours, whilst permitting the opportunity for exploration around the concepts leading to data on unforeseen aspects of their behaviours and effects of the SCM context (McCracken, 1990). A set of closed questions on a questionnaire, for example, would not have allowed this freedom to explore the conceptual aims of the research in such depth or detail and would not have enabled the same level of data to be retrieved.

To do this, a persistent line of enquiry was pursued throughout, but the actual stream of questions in the interview was designed to be flexible rather than structured (Rubin

and Rubin, 2005), so that the interviews were presented as flowing conversations rather than structured set questions. I asked the case individuals to reflect on their involvement in a project that they had previously been involved in, to get them to reveal their perceptions, experience and behaviour without influencing them (because the event had already passed).

Semi-structured interviews allow informants to elaborate on their experience and perception throughout the projects by engaging in a conversation instead of a structured interview. It was important that interviews followed a line of enquiry consistent with employees' perceptions of involvement in environmental aspects in their function, but also that the questions were asked in an unbiased manner that served the line of enquiry (Yin, 2009). In order to generate the deep and rich form of data that was required, it was often necessary to ask "why" questions to further prompt the interviewees to reflect on their motivations. However, Becker (1977) comments on the issue of asking questions in a friendly and non-threatening manner, and that asking "why" questions may lead to defensiveness from the interviewee and thus their "holding back" of potentially important data. He therefore suggests that "how" questions are the more fruitful way of addressing "why" questions in the interview situation. For example, it was often necessary to delve into reports of dissatisfaction with policy or tension between colleagues, where asking "why" may have made participants feel uneasy; by asking "how did this come about?", I was able to generate richer data. Therefore, I often asked "how" questions relating to various internal and external factors that affected participants' involvement and how the influence from within and outside the organisation affected their behaviours.

In most case companies, the sustainability manager was responsible for driving sustainability practices within the company and their implementation by different departments. The different case individuals (buyer and sustainability manager) working closely with each other in the company on a common project were interviewed in order to achieve validity when analysing the interviews. In addition, this allowed for comparison of their environmental behaviours and any impact of influence. Since there were found to be initiatives started by procurement staff with help from their colleagues, as well as the sustainability manager; I made sure to ask them similar questions about the project in order to have a full view of the project (wherever possible) and their

involvement in implementing the initiative. This was also to limit potential bias in the interviews, by “*using numerous and highly knowledgeable informants who view the focal phenomenon from diverse perspective*” (Eisenhardt and Graebner, 2007, p.28). This in turn increases the validity of the findings.

3.5 Data collection

Preliminary discussions were undertaken with case individuals, as mentioned before. Since there is no research available in the British and Indian contexts about this topic and there is a lack of research in general about SC employees’ environmental behaviours, this study is considered exploratory. Therefore, before starting to collect the data and proceeding with the research, preliminary exploratory discussions (unstructured interviews) were carried out with a few employees to check the depth and scope of engagement in environmental behaviours among SC employees. These unstructured interviews also helped to shape the “interview guide” to have a good sense of the feasibility of the research instrument.

In the actual interviews, I reminded each participant of how the interview would go and explained in brief how the data would be kept and treated. Most case individuals were introduced to the topic of the research in the pre-interview meeting/phone conversation in a friendly and comfortable way. I also provided a synopsis of this research in the form of a project information sheet to the potential participants. The project information sheet was provided to help them visualise their involvement in sustainability, to see what their role was, and to recall how they engaged in the project with respect to the sustainability aspects, apart from the other aspects of their functional role. This explanation helped to clarify the focus of the research for the respondent, because, based on the prior unstructured interviews, respondents were not sure about differences between organisation level environmental behaviours, for example, reporting, and employee-level environmental behaviours such as green purchasing, waste reduction, etc. Each interview started in an open-ended way, based on the interview guide. It then shifted based on the interviewee’s responses, to allow the interviewee to provide richer information, by asking them more about new issues they raised or to provide examples of what they are saying. This in turn allowed a deeper picture of the role they played in integrating environmental

consideration within a project. However, I kept the interview in the same structure and in the same boundaries according to the main research questions.

Each of the interviews were based on the shift of responses, mostly around the context of the supply chain and the interviewee's role and perceptions towards sustainability within that. Most interviews were face-to-face (some were conducted through phone calls) on site, in order to give a good first impression that would help to build trust between the interviewee and interviewer, which would in turn lead to in-depth data from the interviewee (Easterby-Smith et al., 2008). The interviews with sustainability managers and supply chain managers resulted in a total of 24 semi-structured interviews (see Table 3.1 for a detailed list). This number does not include other additional conversations, which were not formally arranged. All interviews were conducted in English to allow for free discussion of ideas, since most interviewees, including participants from Indian companies, were comfortable with the English language. Interviews were tape recorded after obtaining permission.

Theory building from case research usually requires more than one data collection method to fill the cases; the most widely used are interviews, observations and archival data. The main data source in this study was semi-structured interviews with multiple actors in each case (e.g., buyers, sustainability managers). Site visits were conducted whenever possible and archival data were collected from company policy, sustainability reports, annual reports, press releases, internal company presentations, sustainable procurement strategy and tender documents. The archival data helped in several ways, such as to understand the organisation's structure, learn more about their commitment towards stakeholders (suppliers, customers, consumers, etc.), and about various programmes and initiatives the case company had in place to manage their sustainable performance. For example, the Gamma case company followed a world-class manufacturing framework which defined their approach to work.

3.5.1 Sustainability manager interviews

Interviews were conducted with five sustainability managers from sustainability/CSR functions (one representative from each of the five cases). They were designated

differently in different companies such as sustainability manager, environment and safety manager or CSR manager (see Table 3.1 for a detailed list of participants and their designation). In this research, they are all referred to as sustainability manager for the sake of consistency. Sustainability managers are responsible for the implementation of environmental strategy at the organisational level as well as several sustainable practices at the supply chain level. Thus, it was essential to learn about the organisation's sustainability practices and environmental journey from them to address the aims of the research. Therefore, the sustainability manager interviews were designed to explore the organisation's sustainability policy and practices around EMS systems and their implementation. They were asked about a project in which they had been involved which had sustainability integrated into it. The questions were also designed to learn more about their interactions with the supply chain staff. This strategy was essential to uncover the varying perceptions of these systems and the complexities and tensions associated with its implementation in the organisation. The interviews lasted between thirty and ninety minutes and were conducted either on site or by phone. Besides the archival data available online, any relevant information about the sustainability strategy and environmental policy implementation was collected to gain subjective knowledge from the case individuals belonging to different functional levels. This strategy was essential to uncover the varying perceptions of these systems and the complexities and tensions associated with sustainability implementation in the organisation. Whenever possible, useful documents such as the organisation's sustainability framework were obtained from the sustainability manager; again, as they felt they had the authority to distribute them and had direct access to them.

3.5.2 Supply chain manager interviews

Interviews with supply chain personnel were conducted either in person or by phone, based on what was most convenient to the informant. Supply chain staff belonged to various functions comprising mostly purchasing, production department, logistics, spare parts division and quality department. Nineteen managers were interviewed in total within the five case companies. These interviews lasted between thirty and ninety minutes. The managers were responsible for delivering the majority of the SCM processes to employees on the shop floor. They are in effect the bridge, or otherwise, between the

rhetoric of ESCM at senior management level and the reality of it as experienced by the general workforce. Therefore, supply chain staff interviews were key to developing an understanding about how ESCM processes and practices are implemented. They were asked about a project in which they had been involved which had a sustainability consideration in it. These interviews were therefore designed to discover each supply chain manager's involvement in sustainability implementation and understanding of how it fits with other operational duties. Finally, the supply chain managers' interviews focussed on enquiring about their perceptions towards sustainability and how it impacts their engagement in sustainability implementation in the form of specific behaviours. Furthermore, supply chain managers perceived the sustainability objectives slightly differently than sustainability managers due to differences in functional priorities. To capture any differences, these interviews were designed to discover their perceptions of sustainability initiatives in order to tease out any significant distinctions between the prescribed rhetoric and the practised reality of the ESCM strategy.

3.5.3 Interview challenges

There were some challenges faced while interviewing the participants, which might have a slight impact on the results of this research. In other words, if these could have been avoided, the data obtained would have been richer. Some employees' first response to their involvement in environmental sustainability activities was to describe various broad-level corporate social responsibility (CSR) practices in which their organisation engaged, which was helpful but not specific to the informant's own experiences and behaviours. For example, many respondents tended to speak for the organisation by referring to themselves as "we" rather than "I", so it was emphasized that they should talk specifically about their own experience and perspectives from time to time. Therefore, encouraging them to focus on themselves and explaining the aims of the research made the objectives of the research clear to them. I tried to remind them each time to focus on themselves and their involvement, but, because the topic is rich and sustainability adds a lot to their business in terms of end customers, they were keen to explain general details. Thus, it was required to listen to them patiently and find the right space available to shift the conversation, which wasted interview time. Therefore, in subsequent interviews, it

was ensured to raise this point at the beginning and after each set of questions, in order to keep the interview on track.

The other issue faced was getting the sustainability manager to discuss the organisation's environmental management strategy; some managers were especially reluctant to talk as companies nowadays are constantly scrutinized for paying lip service to sustainability. In one of the British companies, the sustainability manager recommended to interview their intern working on the same project in his place. However, this turned out to be an advantage, as the intern was very detailed in explaining the issues and gave more in-depth insights relating to that project. Similarly, one sustainability manager from India felt too constrained to say everything about their sustainability initiatives (e.g., elaborating on a specific project) and so responded with general information. This way of responding shifted the analysis to generalities rather than being about specific issues and processes. Some of the supply chain participants refrained from adding more to the point they were talking about. This was mostly noticed from their body language or facial expression, which was understandable, so I respected their boundaries and moved on to the next question.

3.6 Data analysis

As the fieldwork progressed, the interviews were transcribed. The electronic MP3 files were played back and transcribed verbatim. Although resources were available to facilitate transcription, this was not contracted out because it was felt to be an important first stage to become familiar with the data prior to analysis. The transcripts were then read whilst the electronic recordings were replayed in order to become fully aware of the perceptions and experiences recalled by each interview participant (Patton, 1987). In line with most qualitative research, this research follows the inductive approach of qualitative studies. The qualitative data analysis began with a within-case analysis followed by a cross-case analysis (Miles and Huberman, 1994).

The analysis of the cases in this study follows a framework suggested by Creswell (2007). As the study explores case individuals, investigates them, and develops theory through comparing them with each other; Creswell's framework is the most suitable.

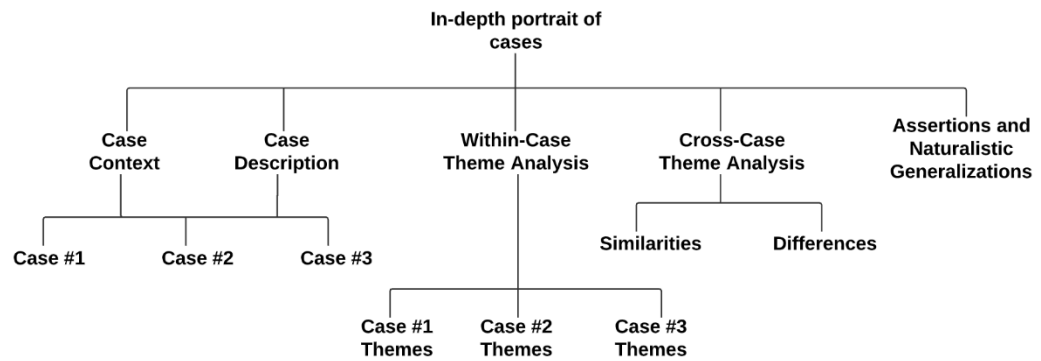


Figure 3.2 Analysis framework for multiple case studies (Source: Creswell, 2007, p. 172)

In this research project, a case is defined as a case individual within the case company. The framework works in several steps. It starts with setting the case into the context of the study and supplying relevant background information. This happens in the case contexts chapter, which provides information about the investigated case companies and case participants. The individual cases are described and set into the context at the within-case analyses in Chapter 4.

Stories of participants' experiences in respective projects were analysed using Stake's phases of data analysis (example depicted in Table 3.2). The following paragraphs explain in detail the process of coding, mapping, theme generating and analysis writing. An iterative process between codes, quotation, the literature and construction of mind maps was used to generate themes and sub-themes to answer the research questions. The choice of themes was based on the richness of the participants' explanations and their relation to literature, but not the number of code repetitions. The data was managed and coded with the help of CAQDAS, specifically NVivo at the beginning. The software (NVivo), handwritten notes and maps were used in this process, which means there was not complete dependence on NVivo to generate the themes (Appendix 5). Later, the themes and codes were manually coded and analysed in table format to allow for better visualisation of data for each case individual. Based on the experiences recalled by the participants, themes were identified within the transcripts, and documents were built up for each of these themes by copying and annotating text from the transcripts. This type of analysis, as mentioned by Bryman and Burgess (1994), needs logical and intuitive thinking because it is not a mechanical process.

Table 3.2 Stake's phases of data analysis

Specific aims: To examine the role and perceptions of employees towards sustainability within supply chain and sustainability functions and employees' greening behaviours (EGBs) to unravel the cognitive processes leading to those behaviours	
Analysis	Analysis activities
Phase 1 – Description: Data were reviewed and a general description of the employees' engagement in greening behaviours during their involvement in a project	<ul style="list-style-type: none"> • Reading and rereading the data in its entirety • Note commonalities and discrepancies between the employees' perceptions and views on sustainability • Compile a general description of the engagement process towards the environmental behaviours
Phase 2 – Categorical aggregation: Data were categorized, and specific behaviours compiled to illuminate the diverse greening behaviours, the employees view on how by taking an initiative, changing existing ways of doing business, putting extra effort, influencing and investing time were carried out during their involvement in the project	<ul style="list-style-type: none"> • Reading and rereading the data in its entirety • Isolating greening behaviours where the employees incorporated sustainability by taking an initiative, changing existing ways of doing business, putting extra effort, influencing and investing time towards integrating sustainability in the supply chain process • Interpreting the meaning of how integrating sustainability by changing, updating, putting extra efforts, and influencing, etc. were carried out in the projects and how it linked to environmental outcomes • Compile behaviours identifying how actively or passively the greening behaviours were executed in the projects
Phase 3 – Establishing patterns: Categories were analysed further to establish patterns or themes and the consistency of those patterns or themes across data. Patterns could be known in advance and served as a template for the analysis. (<i>i.e., Proactive greening behaviours; Compliance green behaviours Felt responsibility internally and externally; Perceived role breath self-efficacy towards sustainability and perceived barriers etc.</i>)	<ul style="list-style-type: none"> • Reading and rereading the data of the characteristics of greening behaviours comparing similarities and differences on examples of integrating sustainability in the supply chain projects • Coding segments of meaningful data representing the greening behaviours into common categories • Recoding the data into common categories and naming the 'patterns' based on emergent concepts and ideas • Writing the thematic description of the employee's greening behaviours depicted by the supply chain and sustainability employee's involvement in the project
Phase 4 – Naturalistic generalisations: Findings were interpreted relative to what was learned from each individual's case analysis and were generalised for the purpose of developing the framework to make recommendations for use by organisations to facilitate EGBs among SC employees.	<ul style="list-style-type: none"> • Review of the findings generated from the two phases and the corresponding transcripts • Interpreting the findings in light of using employee's proactivity and making generalisations regarding that behaviour • Making recommendations for depiction of proactivity characteristics as a component in proactive green behaviours

Each interview was read separately and carefully, starting with the interview of sustainability manager, to get a general idea about and understanding of the

environmental management context of the case company and the setting. I then started to write notes about any thoughts or impressions from the data. For example, the involvement described with regard to the level of proactiveness depicted in behaviours seemed to be more important than its frequency, as most participants did not remember the frequency of a certain type of behaviour (number of times a certain behaviour was depicted). Also, most environmental behaviours were dependent on the scope of environmental integration in a project based on anticipated risks and benefits, which determined their proactiveness. They also shared experiences about the “challenges” associated with the project in terms of getting “co-operation”, or, as some called it, “liaison” with others. After that, I started to code descriptively, based on the key topics. For example, some data refers to the challenges faced, such as when they said “we don’t have enough budget” or “no mandate”; this was coded as lacking conditions. Other topic coding was, for example, the drivers of engagement for environmental behaviours, outcome expectations, and so on. *“The main purpose of topic coding is to allow the researcher to make sense of the rich, complex data collected during fieldwork and create an organized record of all the themes in the data that are considered (potentially) illuminating”* (Sinkovics and Alfoldi, 2012, p. 123). At the same time, I went back to the research questions and coded descriptively based on topics that could answer these questions.

After open (descriptive) and topic coding, I started to examine the data closely to code analytically. Major, superordinate themes such as “employee’s proactive environmental behaviours” were identified, which had limited links between each other, so these became the themes of the highest generality. By utilising Stake’s (1995) categorical aggregation method, similar behaviours were identified with linkages between them (see Table 3.2), which formed the lower-level themes such as “taking charge”, “assuming additional roles”, which were categorized within the overarching superordinate themes such as employees engaging in proactive green behaviours. All of the raw data was compared or contrasted with other data which may have displayed a similar meaning, was either grouped within that theme, or, if there was no other data with a similar meaning, it served to develop a new theme. This intense process of categorical aggregation was continued to further develop the higher-level and lower-level themes so that the data was logically organized (See Appendix 7) to assist with its presentation in the empirical chapters

(Strauss and Corbin, 1990). Following this, the data themes were thoroughly checked and reviewed in order to ensure they carried congruent meaning within their higher-level themes.

Concepts from the literature (such as role breadth perceptions, etc.) were not clearly visible in the data but were discovered after several iterations once all the themes were identified, which needed a close examination of the data. At the same time, notes relating to thoughts, definitions, interpretations and contextual knowledge about green SCM were taken. Each time I read the transcripts and code, more insights and thoughts appeared, which were added to the notes. Many emerging analytical codes appeared beyond the theories, so I went back to the related literature to see where the research fits, find definitions and see what concepts beyond the existing theoretical framework might work for the analysis, given the new codes.

After repeated investigation of the transcripts of the first case study interviews, which was done one by one, I found that no new codes were appearing. At this point, all the codes were organized in a list. The list at first was too long (154 codes) but they were grouped into categories to reduce redundancies and deleted any repetitions (i.e., where different labels had been used for the same idea), and the final version of the list of codes numbered 77 (Appendix 3). This was done after reading the quotations and their labels and making sure nothing was repeated or could be placed under another code. Next, I created mind maps from the code groups to gain a clearer view and develop themes (sample in Appendix 4).

At this point, themes started to appear clearly, and an iterative process between the quotes and the codes in the mind map was conducted to help generate the themes. Once the themes started to appear clearly, I began to write them down in a separate table, and then the quotations were copied and pasted into the table opposite the relevant themes based on the codes attached to them). I then read them carefully to make sure each theme reflected the codes and the quotations (sample in Appendix 3). At this point categories emerged, and some commonalities were observed between them, which indicated some overlap, which was subsequently investigated. This was carried out by reviewing the quotations and the codes again, and then re-labelling or merging some themes until the

final list of themes was more robust. For example, some overlap was found between “liaison between teams” as a form of driver for employees to engage in different environmental behaviours and teamwork as a means to engage in the environmental behaviour. It was found after investigation that, instead of labelling the theme “contextual driver” for employees to engage, “organisational drivers” is better because it is broader and reflects the source for the driver to originate from and external social interactions that lead to environmental behaviours.

It is also important to mention that the literature was re-visited, to make sure that the theme labels matched the findings of previous research (for example, EGBs were called proactive based on the existing definition by Parker et al., 2010). At the end of this iterative process, a more focused mind map of themes was generated (sample in Appendix 4). Here, I constructed an idea about the different themes and sub-themes that covered each research question. I started to write the analysis by structuring each case into an overview of the case study context, which included the organisation overview and the individual informants with an overview of their projects.

Then, the analysis of the cases was conducted by connecting each theme under each research question; for example, the “compliance” and “proactive environmental behaviours” section is connected to the first research question. Similarly, motivations and perceptions of responsibilities were linked to the corresponding behaviours which answered the second research question, and so on. The analysis was written based on the data coded, notes taken while analysing and while collecting the data, and the mind maps. The list of codes and themes was then used to guide the next cases, and special care was taken to carefully examine the transcripts for more emerging codes and themes or context-related matters such as direct interpretation. For example, it was found that perceptions among employees around responsibility towards incorporating sustainability from the same organisation varied a great deal. The case companies and case individuals were mostly similar in terms of the projects on which they worked and “expected outcomes” from them, which is improving operational efficiency and cost-saving priority, because they mostly share a similar context (all belong to supply chain functions). This helped reach – to some extent – a saturation point, where themes are repeated in most cases, and

only a few emergent themes were appearing (which might be related to the context of the case or the way the participants explained issues).

The within-case study chapter (Chapter 4) was written firstly by paying close attention to the personal language and viewpoints of participants as well as the individual case contexts. This is a way to increase the validity of the research report, as indicated by (Johnson, 1997, p. 284), by using many “low inference descriptors” such as direct quotations, which help the reader to experience the interviewee’s language and meaning. Appendix 3 shows the results of the iterative process of coding, categorizing, mapping and reading until the themes and sub-themes were arrived at; these themes were conducive to give the final version of the analytical findings. Later, the cross-case analysis (Chapter 5) then draws upon the theoretical framework and the larger context of the research.

Finally, a discussion (Chapter 6) draws upon the literature and the relevant theories to help understand the findings and demonstrate the contribution to literature as well as allowing the theoretical framework to emerge. This is to allow the clear emergence of theory without overwhelming it and/or overlapping it with rich stories from the cases, as recommended by Eisenhardt and Graebner (2007). Therefore, gradual analysis presentation and reporting of the data were performed, for clearer understanding and reading and for better theory building.

3.7 Quality of research, data and analysis

Different strategies can be undertaken to ensure consistent quality of the data and analysis. It is preferable to use an alternative terminology for judging qualitative research to better reflect the different nature of it (Bloomberg and Volpe, 2008). Dependability (reliability), credibility (validity), confirmability (objectivity), and transferability (generalisability) are used to establish the trustworthiness of qualitative research (Bloomberg & Volpe, 2008). This section provides the alternative quality measures applied for qualitative research here.

Dependability

Dependability, conventionally termed as reliability, concerns the stability of data over time (Guba and Lincoln, 1989). Dependability is concerned about the consistency of the research. The major question for dependability is: if the same research was conducted by another researcher in its defined environment, would it yield the same result? Dependability can be a risk due to observer or participant errors and biases. To avoid participant errors the research has to ask the same questions and ensure that responses use the same definitions. As an example, for this research, companies have different definitions and measurements for “sustainability strategy” therefore, the researcher has to make sure that the responses are comparable (Saunders et al., 2007). Regarding participant biases, participating supply chain managers might answer to comply with company policies to stay out of trouble, even though in reality they probably do not follow those company policies. To avoid this as much as possible, confidentiality and anonymity are ensured, and results shall not reveal individual answers. The avoidance of observer bias is achieved through the selection of appropriate data collection methods. Also, the reflection and discussion of the data collection and research methods contribute to prevent observer bias.

Credibility

To achieve credibility in this thesis, I needed to ensure in the data collection process that the participants’ understanding of constructs matched. Semi-structured interviews provide the opportunity to probe answers further. Hence, I can check during the interview whether we understand terms in the same way, which increases the credibility of this research. According to Halldorsson and Aastrup (2003), a credible enquiry often appears as imprecise in terms of boundaries and relationships (e.g., causal as in logistics research) but enriches the depth of meaning and understanding of the phenomena being studied.

Confirmability

The last issue regarding trustworthiness refers to the conformability. In a case study, Baxter and Jack (2008) found that there were a number of critical elements to establish trustworthiness. These included clearly written research questions, appropriate case study design, purposeful sampling, systematic data management method, and sound data analysis; all of these aspects were followed in the current research. For a study to be trustworthy, it needs to be reflective and present both sides of an issue, which is ensured in this research by interviewing both supply chain and sustainability employees from the same organisation. Further, two experts in the area (i.e., the supervisors) who were not directly involved in the coding regularly checked interpretation of the quotes and coding appropriateness.

Transferability

The transferability of the study refers to external validity. Yin (2013) defined external validity as “*the extent to which the findings from a case study can be analytically generalised to other situations that were not part of the original study*” (p. 238). In order to establish transferability, it is ensured that thick description’ of the participants and the research process, are provided to enable the reader to assess whether the findings of this research are transferable to their own setting. While the study has also looked at multiple cases. The findings may be helpful to other supply chain professionals in adjusting organisations to a green behaviour culture.

3.8 Triangulation

Using more than one source of evidence maximises the strength of data (Creswell, 2013). In this thesis, the data was collected from different sources. The first data was collected from both sustainability and supply chain staff, because intra-organisational relationships in implementing sustainability practices relating to supply chain consist of interactions between these two actors. Therefore, obtaining the opinions of both sides of the relationship provides the full picture, which in turn increases the credibility of the data.

Data was obtained from different managerial levels where applicable. In some cases, the supervisor and the subordinate work on a project together; therefore, this research asked about such employees who work together, and they were interviewed where possible. Viewing the subject of the study from different perspectives through different and knowledgeable participants limits bias in interview data (Eisenhardt and Graebner, 2007). Second, data was gathered from employees who represented different functions of the supply chain, such as production, quality, spare parts, procurement (direct and indirect) and logistics. This gives a wider view and exploration of environmental behaviours and impact in the upstream supply chain.

3.9 Ethical considerations

At times, data of a potentially sensitive nature was collected, where it involved discussion of sustainability issues faced by organisations. The research was ethically approved (details in section 3.7) by the university before the data collection commenced (See Appendix 2), and researcher followed all the measures concerned with confidentiality and anonymity, which made the individuals comfortable with providing information and participating. In order to ensure the anonymity of the organisation is not breached by readers of the thesis, the locations of the research sites have been re-named by giving them name tags, such as “Alpha”, “Beta”, “Gamma”, etc. In order that the name of the organisation could not be deciphered by reference to suppliers and a subsequent process of elimination, company suppliers which are mentioned have been kept anonymous through the use of assumed names to make identification of any of these impossible. Participants were informed that all data was confidential and would not be shared with other participants in the study, or anyone else apart from me.

Participants were informed that their responses, position, location and employer would be kept anonymous and confidential. Participants were recruited through a snowballing technique. They were included on the basis of their willingness to talk to a researcher about their perceptions of engagement in environmental practices. They were excluded on the basis that they did not want to speak to a researcher or did not have time to do so. Having been informed that their responses would be anonymous and confidential, they gave their consent to be recorded. There were no risks to the health and safety of the

participants or me. Participants were interviewed during work time and did not lose any pay as a result. As a visitor to the various workplaces, I read the available health and safety notices on my way into the building. There was a minimal risk that I would lose the data recording equipment whilst travelling from the data collection sites back to the university, where the data is securely stored. This risk did not materialise. The University of Leeds ethical requirements were followed, and ethical approval was granted before data collection.

3.10 Conclusion

This chapter has discussed the methodological approach to the thesis, in terms of advocating an inductive, qualitative, multiple case-based strategy, to address the questions posed by the thesis. At the beginning of the chapter, the preferred research philosophy (interpretivism) was discussed. Next, semi-structured interviews were argued to be the most appropriate format for the collection of primary data, followed by documentary evidence where possible. The most appropriate vantage point for observing the phenomena concerned has been put forward and multiple cases have been introduced to play this role. Then, the chapter explained the sampling strategies and the access issues, followed by data collection techniques and the interview challenges faced.

After this first half of the chapter, the second half looked at the data analysis method. The data analysis approach follows a framework suggested by Creswell (2007). This framework provides a strategy to guide through the analysis process. It starts with providing case context and description. This is then followed by the within-case analysis, cross-case analysis and eventually assertions and generalisations. As the sample size of at least five interviews at each of the five case companies is quite large for a qualitative study, such a framework helps to prevent myself and the reader from getting lost in the data and the analysis process. The data analysis discussed Stake's phases of data analysis, as well as quality of data collection and analysis, using all the four checks appropriate for case study research (credibility, transferability, dependability and confirmability), followed by triangulation. Finally, ethical issues were presented.

The following chapters now present detailed discussions of the data generated by this methodology. Chapter 4 presents the within-case analysis, which is followed by a cross-case analysis in Chapter 5.

Chapter Four: Synthesis of the case studies

4.1 Alpha within-case analysis: “Uni” case study

4.1.1 Introduction

This section presents an analysis of the first case company, which focuses on the supply chain and sustainability staff of a university (hereafter referred to as Alpha). It presents a detailed overview of the case and the context of the case. The following sub-sections analyse the data in detail, covering each of its participants, and the project in which they are involved, followed by the key themes and the key findings of this case in its context. Table 4.1 in the conclusion section summarizes the participants’ profiles.

4.1.2 Case overview and context

Alpha is a leading UK-based university. Founded in early 1990s the university is committed to having a positive impact on society, which is underpinned by their sustainability strategy that sets out their vision for 2020. The university places sustainability at the core of their processes and systems as they have attained whole university accreditation to the most recent ISO14001 (2015) environmental management standard, and as per the annual report have committed to integrate sustainability into their procurement activity. They have an overarching environmental policy along with a sustainable procurement policy.

The organisation's greatest sustainability reporting function in the early 2000s had two elements: one linked to funding from the Higher Education Funding Council for England (HCFE). Under this, universities had to report a wide range of metrics and HCFE started introducing environmental metrics on which they had to report. The second element was concerned with decisions to start reporting against businesses in a community’s environmental index. So, they were reporting on those two different levels that majorly comprised the mandatory part of receiving funding and then there was the businesses and community environmental index, which was something that they did not have to do as a

mandate, but it was supposed to be important. Later, in 2014, they developed an environmental management system (EMS) which helped them move from an issue-based approach to a strategic and systematic approach. Now, it is very comprehensive and embedded into what the university does.

In terms of structure, they have the sustainability strategy first (on the top) and below that is the environmental policy, which is their statement of intent about what they want to achieve as an organisation. The sustainable procurement policy makes it compulsory for them to include a minimum 10% weightage towards sustainability in any tender going out of the university during procurement of products and services. In compliance with this policy, all the projects undertaken by different buyers discussed in this case have followed the 10% policy in their respective projects. The organisation has several schools catering to different disciplines and employs more than 8000 employees. It has various departments employed to carry out day-to-day operations, namely facilities directorate, estate function, sustainability department, purchasing department, etc. There is a dedicated sustainability department to manage the organisation's environmental and social impact. This sustainability department works closely with the procurement department to keep a tap on targets around sustainability through procurement activities.

They follow a category-risk approach to classify different projects associated with different categories such as construction, IT, purchase of lab supplies, equipment, etc. The tender process is managed using a traffic light system which represents the risk associated with a particular category: green means low risk, amber means medium risk and red is a high risk. This system defines their tender process so, if it is green, the procurement team just uses a standard sustainability questionnaire which looks at some high-level risks. If it is amber, they are supposed to check with the sustainability team to confirm if there are any additional requirements that they should fulfil for that tender. And, if it is red then it guarantees that there needs to be high involvement from the sustainability team. Projects are also classified depending on the budget allocated to them. All large projects that exceed a certain amount have a greater level of involvement from the sustainability department. In high-risk projects, the sustainability manager assists the buyers in screening vendors and communicating expectations to them. The sustainability manager underlined that there is a difference between projects that are high risk and low

risk; hence, they are managed in completely different ways. An example of this is a construction project which is high budget and high risk and therefore demands continuous involvement of the sustainability manager, right from the design to the implementation phase. An equipment purchase, on the other hand, is a low-risk project which can be handled by the buyers themselves.

4.1.3 Case participants

The sustainability manager (Alpha_1) had been in his current role for 1.5 years and in the organisation for seven years. He had performed three roles since he joined the organisation. He entered as a sustainability officer, then he took over management of the team for about four years. Later, their function changed into a service with three other people working with him. Thus, he along with others worked in a team of estate services. When the director of sustainability was appointed, that team rapidly expanded. And then he was promoted to one of the team managers in the service. Therefore, it started with three people and expanded to a team of 12 people. His role in the organisation is to lead sustainability in large-scale projects by liaising with framework consultants, influencing procurement staff and solving their questions related to sustainability, and ensuring that the 10% weightage is given to sustainability in all tenders, as it is the standard rule of sustainable procurement in the university. He also looks at increasing projects and activities in areas where the organisation faces issues, so it could be carbon emissions, wastes, biodiversity, etc.

The organisation has a purchasing department comprised of 35-40 employees designated as category managers (buyers and senior buyers) headed by the procurement managers. I interviewed five of the senior buyers and one purchasing head. These category managers handled different categories and were assisted by buyers to run tenders for those categories. Based on the information provided by the sustainability manager about the criteria used by the university to classify risk associated with categories, procurement managers were selected based on their involvement in either of the risk category projects as that determined the following: (1) the key environmental, social and economic risk, (2) key opportunities, (3) value of contracts and (4) the level of influence with stakeholders. The following sub-sections present an analysis of Alpha participants

by addressing each of the research questions in turn and the themes that emerge within them.

4.1.4 Case analysis

Alpha_1: Sustainability manager

Project overview: Construction project
<p>The purpose of this project was to build a new innovation centre, in addition to other objectives, such as 1) it was supposed to have a new entrance to the university, 2) it had to have a landscape that needed to fit into the biodiversity action plan, etc. Alpha_1 described the organisation as very segmented and commercially driven, with a set way of purchasing. Therefore, sustainability inclusion was a difficult process and required the sustainability and purchasing teams to collaborate with each other. This project had a high contract value, high risk and opportunity to integrate sustainability, and high involvement from the sustainability team. Alpha_1 had to ensure the 10% criterion to sustainability was met, assess impact, devise sustainability questions to ask the contractors and work into a partial interview process. Basically, he had to review the tender responses and later interview the contractors to evaluate their level of sustainability and communicate the organisation's expectations to them. And, once the tender was awarded, then Alpha_1 met up with the contractors to talk about issues around sustainability that had come up in previous construction projects. Thus, he called on issues such as tree damage at construction sites, etc., and so was also involved in the design part. Alpha_1 worked very closely with his purchasing colleagues on this project to put frameworks in place. He ensured that buyers considered sustainability when they went out to tender. He conducted a risk and opportunities analysis to identify areas of high risk. He played a critical role by acting as a project advocate who seeks to influence others from different departments in the organisation to embed sustainability considerations in various stages of the project (design, supplier selection, etc.).</p>

Environmental behaviours in which Alpha_1 engaged

1) *Influencing others to consider sustainability criteria*

Alpha_1 tried to influence the design team, contract managers, and purchasing staff to fulfil sustainability requirements associated with the project. In this case, it involved consulting, educating, persuading and explaining the importance of sustainability to others. However, he faced some conflicts with them, as the design team tended to neglect the sustainability aspect in the design process, and the procurement person handed over the document at the last minute, making it challenging for Alpha_1 to review it and recommend further changes. As per Alpha_1, The reason for the procurement department not being very co-operative was that they were ‘commercially driven’ and were concerned about the ‘project going over budget’. Alpha_1 understood there was a need to influence the purchasing head because the sustainability objectives set by the university would be interpreted by him (‘filtered down’), and thought that it was through consensus agreement (with the procurement head) that sustainability objectives (or responsibilities) for the procurement team were agreed. This required him to persuade the procurement staff by explaining the importance of considering sustainability and the benefits of doing it. Alpha_1 highlighted that it was “*harder to persuade people, I suppose, that it is worth doing it and it is the right thing to do*”. Yet, he expected to gain their co-operation by making them aware that the “*driver behind it is actually that the university has agreed that this is something which we should be doing, so that’s the core driver*”. Alpha_1 expressed the need to influence other staff by explaining to them the reasons for following a sustainability approach as well as consulting them for their suggestions. He added that this was quite challenging and also did not work:

“So, that didn’t work; it was quite frustrating, as we have fed that further back to [the] design team and project managers are [told] why it’s important to do it the way that we want it to be done”.

An extension to this behaviour was seen in the form of helping them by finding solutions to sustainability issues in which he engaged, as he said, “*So, it’s finding solutions that are fairly simple but also effective at the same time.*”

2) *Finding opportunities to integrate sustainability into procurement process*

Alpha_1 played a key role in identifying areas and had been “*trying to think about how we can integrate sustainability decision-making into [the] procurement process over the past two years. It is getting acceptance now but before that it was quite a talk*”. This was because sustainability was not something that employees would consciously think about while running tenders; rather, it was a side-line agenda. This was reflected in the way they identified it so, “*We would maybe find out about stuff and somebody think, ‘Oh, that’s got a sustainability angle to it.’ This passive approach made them “miss out on quite a lot of stuff*”. Now they have shifted to an active approach by trying to look for “*any opportunity within that. With the current university research, we try and link it with research so we can test things out, for example*” (Alpha_1).

3) *Assisting procurement staff in vendor selection*

Vendor assessment and development was another major area where Alpha_1 helped procurement staff and it comprised meeting with vendors to discuss any concerns related to sustainability and stating their expectations, checking the background and reputation of suppliers concerning whether they are ‘okay’ to bid or not, and later interviewing the vendors and reviewing the tenders.

Alpha_1’s attitude around responsibility towards sustainability

Part of the job

Alpha_1 engaged in the sustainability aspects particularly because sustainability was an integral part of his job and felt accountable for the operation of the project sustainably, as he mentioned,

“Yeah, I am the main driver in this sort of a project because I am responsible for operations and other things, and this is probably the highest-impact stuff we do in terms of sustainability from a purchasing perspective. I tend to lead on those larger projects.”

Alpha_1 believed it to be important since the mandate to integrate sustainability arose from the policy, which determined how the sustainability staff were supposed to act on it. He explained that, *“They are not projects, it’s almost programs and they are embedded in what we do... we have this EMS which identifies our key environmental aspects, impacts, etc.”*. Due to the explicit requirement of the job, which created a sense of ownership to drive sustainability across the organisation, Alpha_1 felt responsible for influencing employees from other departments to collaborate towards meeting environmental targets. These interactions led to liaisons between them (sustainability and other departments). Alpha_1 perceived the responsibility to integrate sustainability in all the projects in which he engaged, as this enabled his organisation to claim funding from the government, and finally to meet the green targets set for the organisation.

Outcome expectations from the project for Alpha_1

Look for reducing environmental impact and benefit for organisation

Outcome expectations is found to be a prominent theme that emerged in more than one way and refers to the anticipated outcomes from a participants’ participation in sustainability activities as perceived by them. Alpha_1 highlighted that improving the ultimate outcome for the organisation was an expected outcome from sustainability considerations in their processes. He seemed to prioritise sustainability based on the benefit associated with either him or a colleague, as he mentioned, *“I do it based on impact and that benefit... It might not necessarily be that important to our benefits and outcomes, but it might be important to a colleague’s benefits and outcomes”*. Therefore, his expectation from the process of implementing sustainability measures in the project was driven by the *“ultimate outcome for the organisation”*. The concern for a good outcome among participants is also seen to have an impact on the perceived responsibility. For example, Alpha_1 mentioned, *“So, from us the reason why we are asking [the] question [is] to think about how we can improve the outcome of that final supplier”*. In other words, the perceived responsibility is aligned with the expectations and benefits, which bring different engagement behaviours that are related to each other. What follows is drivers, which take a variety of forms.

Drivers² for Alpha_1

The following are the drivers that drive the case individual to engage in sustainability initiatives; while some of these are external (organisation-related), others are found to be internal (individual-related).

Legitimacy from regulations and support of environmental policy

Alpha_1's motivation to act upon regulating the environmental impact of the organisational activities came from the policy. As per him, the department's actions depended upon the legal register that comprised directives, legislation, and regulations which specified the control measures that they were required to follow. Therefore, a major driver for him is the legitimacy faced due to the perceived risks for the organisation to meet environmental targets posed by the government and recognise itself as a responsible organisation and to avoid any legal risks of non-compliance. Environmental management plan, policy and standards embedded in the way they functioned, and acted were a major driver for Alpha_1. This sort of systematic approach not only defined his approach but also enabled him to check whether other staff were doing what was expected of them in an annual process.

Barriers³ faced by Alpha_1

Conflict of interest, lack of co-operation, cost-biased attitude of purchasing staff, gap of ownership, and perceived limited level of influence

Alpha_1 faced difficulties in gaining the co-operation from others, as he explained, “Naturally, you can get pockets of resistance and it's part of my role to try and work out how to reduce that whole way around it or improve the system [so it] works for everybody.” Alpha_1 highlighted that the reason for low co-operation from the procurement and design teams was that they were driven by cost saving instead of value. Alpha_1 realised that the KPIs of procurement staff (which were cost focused) influenced

² Drivers refer to the facilitating conditions mentioned by participants to while working on the projects for incorporating sustainability

³ Barriers are the lacking conditions or challenges faced by participants to implements sustainability aspects in the project

their decisions, even though they theoretically accepted value as being important. This caused a conflict between objectives relating to sustainability and to purchasing. Therefore, he had a difficult time in influencing others as there was an evident conflict with the design and procurement teams, whose main aim was to reduce the overall cost of the project.

He felt frustration while carrying out the process of de-risking the project due to the design team's ignorance and lack of co-operation in completing the tracker document, which is crucial to evaluate impact. Alpha_1 experienced that there is an apparent resistance because "*a game gets played*", making it impossible for the sustainability team to pick on issues or suggest any changes. This leads to a waste of time and effort on the part of sustainability team, making them feel tense and frustrated. He said that they have to be "*thick-skinned*" as they face constant tension as these projects are highly constrained under the budget. This made him experience conflict with purchasing and design who aim to "*do it within budget and get something that satisfies the client enough but isn't necessarily up to the highest spec the client required*". This made Alpha_1 feel that, "*There's constant negotiation and tension throughout it because the core practice of building a building is very commercially driven*".

Alpha_1 explained that the reason this was a barrier was because there is a lot of expenditure going out of the university, so there is a lot of stress on everybody, especially purchasing staff, to make cost savings. Therefore, the ownership to consider value over cost is lost from the purchasing side. He went on to suggest that this can be overcome if purchasing staff are given accountability and time to champion an initiative. Despite there being a mandate for the purchasing department to allocate 10% to sustainability in tenders, the sustainability manager had reservations about this practice actually being executed at the purchasing end, as he said, "*To be honest, there's no way it has happened in the past, but it happens a lot more than it used to*" (Alpha_1). Therefore, he believed that incorporating the 10% criterion towards sustainability was somewhat contingent upon it being made a strict mandate for purchasing to include, otherwise they might just opt for the most cost-effective alternative available to them – except for a few participants who were keen to act ethically.

The other difficulty faced by Alpha_1 while executing sustainability in projects was that he often found himself to have a low level of influence on procurement staff, which limited his involvement in some of the projects. Even though the sustainability manager has a substantial role in various high-risk projects, he finds himself in a position where he has a low level of influence in those projects as they are commercially driven projects which aim for major cost savings.

Alpha_2: Senior Buyer

Project overview: Travel policy update
This project focused on retendering business travel for the organisation. The organisation has a target to reduce their scope 3 emissions as one of the commitments towards meeting environmental targets. In Alpha_2's opinion, business travel is a significant contributor to that target; therefore, she has been asked by the management to introduce a sustainability factor in booking travel for the academics. This required her to work collaboratively with other departments including finance, HR, IT and sustainability and appoint the right contractors for retendering business travel. To achieve this objective, Alpha_2 had asked the suppliers to help her find ways to improve the environmental impact in travel (by reducing Scope 3 emissions). Alpha_2 was responsible for establishing the mechanism for this initiative by putting the policy together and ensuring the necessary infrastructure was in place.

Environmental behaviours of Alpha_2

1) Took the initiative to update existing travel policy including sustainability criteria

Alpha_2 was involved in updating the travel policy for staff in the organisation. This required her to provide information related to the carbon footprint of different fleets available to the end user. She took the opportunity of retendering business travel to weave in sustainability aspects, which helped university meet the sustainability targets along with providing the end user with an option to consider their environmental footprint when they booked travel. This was an approach to balance their travel activity and the impact it had on emissions, as Alpha_1 mentioned,

“So, we’ve got to balance, really, we don’t want to inhibit activity or reduce the amount of research we do by saying to people, ‘No you can’t travel’. What we want to do is educate them to travel in a greener way.”

The initiative to revise the existing travel policy or tender document, was found predominantly among procurement staff who had recently joined the organisation (including Alpha_2, Alpha_4 and another purchasing employee), and had an awareness about sustainability risks and realised there was a scope to achieve a greater sustainability impact. As Alpha_2 explained, *“Travel is a significant contributor to that target/footprint. So, when we set out with [the] tender, that was one of the objectives that we wanted to do”*. Alpha_2 also had meetings regarding making such improvements and considered this important, as she perceived several benefits from it.

2) *Influencing others to co-operate in greening*

Alpha_2 was keen to influence suppliers to help them deliver on their agenda to integrate sustainability in travel. Therefore, she sought their participation in making a decision or planning how to implement the proposed improvement in travel policy. Alpha_2 was also influenced by the sustainability manager and liaised with them to meet the green targets. She highlighted that she constantly worked with the university’s suppliers to keep up with those targets by discussing steps taken by others in the same sector so that they could improve their processes:

“Well, with suppliers we do that every quarter and we try to make sure that we are on target and they will provide suggestions on how we can make improvement by looking at what’s worked well within other universities.”

Alpha_2 was found to use influence in attempts to gain co-operation from others. This not only involved influencing colleagues from the same function but also involved influencing colleagues from different functions as well as the suppliers. Both Alpha_2 and Alpha_3 looked for their suppliers’ participation in making a decision or planning how to implement a proposed policy, strategy or change. For example, Alpha_2 consulted the IT department to develop the infrastructure while working closely with the sustainability team to put that proposition to the suppliers who were going through the

tendering process. Also, the suppliers were consulted about meeting the targets, as Alpha_2 explained that, *“Our suppliers are helping us to deliver on this agenda; that’s one of the KPIs contracted to help us”*. The buyers influenced their suppliers such that they both worked on it as a collaborative initiative which required the support from the suppliers. As Alpha_2 explained: *“[We] can’t tell them that we need to deliver on that and put it on them; they need to help us achieve that ambition. So, that’s very much a joint working initiative.”*

3) *Going beyond complying with the 10% scoring criterion*

Purchasing staff had different ways of integrating sustainability in decision-making related to purchase of products and services, one being the allocation of a 10% weightage towards sustainability in every tender. Thus, Alpha_2 looked for opportunities to integrate sustainability such that it is part of the decision-making, as the senior buyer explained,

“Most of the tenders that we run attribute 10% of the weighting to sustainability, but what we did in this business travel: one, we have woven it into [the] evaluation process so we give an ability to an end user, a booker, traveller, when they go on to [to make a booking that assists them] to understand the carbon footprint of each journey. They will have that, and they will be able to make an informed decision.”

Alpha_2’s attitude around responsibility

Influenced by organisation’s commitment to norms and influence from sustainability manager

Alpha_2 believed it was important to consider sustainability in the tender process for two reasons: (1) the scope for reducing the university’s environmental footprint, which was huge in this project, and (2) the legitimacy perceived due to the organisation’s commitment to regulations, as it was consistent with their ethical values as an organisation. Alpha_2 was responsible for establishing the mechanism for this change initiative by putting the travel policy together and ensuring the necessary infrastructure was in place. Although some purchasing employees believed it was a part of their job to integrate sustainability into purchasing decisions, Alpha_2 seem to be influenced by the

organisation and by the sustainability manager. As it was expected to be an outcome of the environmental management strategy, the sustainability team had an important role in influencing other departments of the organisation including purchasing staff to act responsibly. They not only informed them about sustainability but also drove it among purchasing staff by reminding them about the green targets to be met, and also helped them identify opportunities to improve processes. As Alpha_2 highlighted about the sustainability team, *“Obviously, they are banging the drums of [the] scope 3⁴ agenda and the target that we have got there; my colleagues from [the] purchasing team ensure that it works on an operational basis”*. Further, Alpha_2 sought support from her sustainability team to fulfil that target as she mentioned,

“With [the] sustainability manager as well, trying to keep a tabs on how that’s going in line with his target, and then just the regular reporting that we feedback, you know, to the senior management and deans so that they can see the impact of their different faculties.”

Felt responsibility due to moral obligation

Alpha_2’s motivation to engage in sustainability stemmed from the belief that it was a reasonable thing to do in order to change existing ways of buying travel; therefore, there was the opportunity to achieve a quick and good outcome. Alpha_2 drove the project by leading from the front and keeping an eye on everyone’s target. Moral compass was found to have an impact on the way Alpha_2 made purchase decisions as it had an apparent alignment with the organisation’s goals. For instance, Alpha_2 gave the reason that, *“On travel, we have an obligation as an organisation to reduce our environmental footprint and [this] is also is consistent with our ethical values as an organisation.”*

⁴ Scope 3: Within Scope 3 emissions, almost half comes within the category of capital goods. This includes the embodied carbon impact of construction and infrastructure projects, which goes beyond activity on the building site, factoring in all relevant activities such as quarrying, manufacturing and transporting construction materials. The second most important category of Scope 3 emissions comes from *downstream leased assets* – mostly energy use by tenants of buildings. Within this, around four-fifths comes from retail assets, while the remainder comes from offices.

Therefore, responsibility to engage in greening was perceived differently by employees: when there was a mandate from the policy along with the intention to engage in green behaviours, the employees acted proactively. Similarly, when being influenced by others to achieve organisation targets or improve existing processes, employees did act proactively if they were willing to engage. It almost seems like responsibility comes from external sources, which then leads the individual to take ownership for it, as evident from the quote below:

“It is part of the ambition to achieve that 10% savings; that’s the objective of the organisation that was set by the sustainability team and we have agreed to deliver on that.”

The following paragraphs explain the different outcome expectations Alpha_2 had with regard to the green practices in which she engaged.

Outcome expectations for Alpha_2

Benefits for the organisation and to achieve green targets

Alpha_2 expected several benefits to be delivered to the university from the project. Also, it was supposed to have long-term improvements in reducing the carbon impact. She expected that it would be *“very positive” and deliver an “awful lot of benefits... to the university: cost savings, energy efficiency...”*. Through this, she also expected to achieve the green targets by increasing end-user involvement in booking greener travel.

Cost savings as well as carbon reduction

It was found that Alpha_2 expected this initiative to provide a number of associated benefits and a high degree of stability. She highlighted that, *“We want stability, we want people to know that they are going to get good service and work closely in partnership”*. Therefore, Alpha_2 with the help of her suppliers aimed to reduce the university’s carbon footprint in relation to staff business travel, expecting that a long-term partnership with suppliers would reduce the carbon footprint along with the cost. As Alpha_2 states:

“When they [individual departments] are reporting on our suppliers, we want to see improvement year on year and see good trends and get them to work with our supply chain to help reduce the carbon impact so, for example, promoting deals with greener airlines which have a newer fleet which is more sustainable, so more cost effective for us.”

Drivers for Alpha_2

Management support, sustainability policy

Alpha_2 reported a high level of management support and collaboration from the sustainability department which enabled her to act as a catalyst towards culture change in the organisation. This was evident in her case as she experienced the support in the form of management granting approval for sustainability requests made by her department. Alpha_2 recounted that,

“Overall, they are very supportive, and we had a number of different business cases that went through; those were signed off at the highest level. And, within that business case... we specifically addressed the sustainability requirement”.

Additionally, she also received the support from suppliers to deliver on the sustainability aspects. Support derived from sustainability policy: The other major driver behind initiating this project was the need for an advance approach in order to move forward as an organisation. What assisted her in successfully executing the project was the support of a robust environmental policy, as it allowed her to take the required actions as there were negative consequences for not obeying the rules stated in the policy, which helped her overcome the risk of non-compliance from other managers and the end user. She also believed there was a moral obligation to reduce the university’s environmental footprint, as it was consistent with their ethical values.

Barriers faced by Alpha_2

No barriers reported by Alpha_2

Alpha_3: Procurement head

Project overview: Energy-efficient equipment purchase project

This project was aimed at buying a large number of energy-efficient freezers, to set up a lab for one of the faculties in the university. This project was not a high-risk project; therefore, the sustainability team was not directly involved in it. However, his team of buyers derived inputs from the environmental policy for procurement which compelled them to give a 10% weightage to sustainability in every tender. He showed an interest in green products when there was an opportunity to procure them at a lower cost as, on a different project, he negotiated with manufacturers to provide recycled paper at a competitive price. The procurement head was mainly involved in assisting the end user to buy the required equipment. Alpha_3 reported that he was responsible for ensuring that buyers made tender decisions based on whole-life cost rather than unit cost and gave importance to efficient equipment which consumed less energy, thus concluding that saving environment and saving money go hand in hand.

Environmental behaviours of Alpha_3

1) *Considering running cost over unit cost*

It was found in this case that the purchasing head (Alpha_3) was very keen on promoting eco-efficiency even though there existed a conflict between opting for the lowest price and the most eco-efficient option. Therefore, he took efforts to influence other buyers to consider the whole-life cost, as he emphasised in the quote below:

“You know if you say, ‘Well, what's the most important on this list here?’ Almost certainly everyone's going to say price. Every time, you know, ‘[I want the] cheapest price’, and then it's up to you to sort of steer them away from that and say, ‘Well, actually, is it not more important that we have a whole-life cost here rather than [a] unit price?’”

This indicates that, even if some buyers did not actively search for alternatives with a low environmental impact, calculating the running cost for equipment makes them aware of what is an environmentally friendly option while sourcing equipment. Alpha_3

consulted with suppliers to find alternatives that were not just green but also had a lower price.

2) *Meeting green targets*

In this case, it was found that the organisation followed the sustainability procurement standard which set their expectations going forward with tenders and for managing operations. There are two aspects of this behaviour: one is at an organisational level that there are certain targets the organisation as a whole must contribute to in order to demonstrate impact. Second, at an individual level, it helped them secure funding from the government, for which employees were expected to engage in fulfilling green targets specified for them. Purchasing staff were generally informed about these targets by the sustainability department and the procurement head as well as other buyers including Alpha_2, and Alpha_5 actively participated in fulfilling them. The procurement head was keen to meet those targets and seemed to promote them, as seen from the quote below:

“We long, when we are able, to meet green targets and green aspects and we capture it; that way, we can demonstrate green impact. So, we do measure as well as promote it. We do set ourselves a target.”

This environmental behaviour among the employees is evident here because Alpha is a public sector organisation. As Alpha_3 mentioned,

“But, you see, the university is driven by [the] government. And so, the government says, if you don't meet these targets, you will not be funded quite as much, so there's a big incentive for the university to be as green as possible”.

This was perceived to be a benefit related to a project which Alpha_1 talked about earlier, which made him consider any sustainability impact and risks that would also contribute towards meeting green targets. It also implies that the UK government's provision for organisations to act green and promote sustainability through supporting the organisations financially does make the organisation take the benefit.

Alpha_3's attitude towards responsibility

Part of the job and moral obligation

Alpha_3 had a perception that giving importance to green aspects in purchasing was a part of his job, as he mentioned that,

“First of all, it's my job, I have got to do it right. But, second of all, I believe in it”, and It's down to people like me to ensure that things like the green aspects, the sustainability aspects of the procurement, are as high as you get can”.

Therefore, as per the role he had to prioritise sustainability while making purchasing decisions. Additionally, this being part of his job, he was also committed to the environment because he personally believed it is the right thing to care for the environment. He also accepted being in a position to make an impact. This showed that he was internally motivated to do the right thing and expected to achieve cost savings as well as eco-efficiency through reduced wastage and energy efficiency.

Not my job to influence

In addition to the above, Alpha_3 mentioned that,

“I feel that the university has a clear policy on sustainability. And I feel empowered to work here and promote to, let's say, enlighten colleagues, to go out there and say, ‘This is important because it's a very clear policy because it's mandated’. Well, it's the way we should be doing it”.

However, when it comes to influencing other buyers, he had a contradictory opinion where he mentioned that, *“It hasn't got to be me. I am not the one who has to do it. But I enjoy doing it, you know, especially when something goes right”*. Thus, Alpha_3 believed that it was not his responsibility to influence others, but it was due to something he believed in which made him promote greening, so he still did it as that made him feel good. This shows that there can be a gap in how responsibilities are assigned by the organisation and perceived by the employees, and the responsibility needs to be communicated more explicit in order to promote self-initiated environmental behaviours such as influencing others.

Responsibility felt intrinsically

Alpha_3 possessed strong environmental beliefs, which was evident from the way he advocated climate change issues. He even mentioned that individual motivation is important to champion greening in procurement. He felt good to be involved in influencing others and promoted greening as it was the right thing to do morally, as reflected in his comment that,

“We've got one planet and it's not going to last forever if we carry on the way we are going. So, we've got to find a way of reducing our carbon footprint at all.”

Outcome expectations for Alpha_3

Cost savings as well as carbon reduction

Alpha_3 expected to achieve cost savings and eco-efficiency concurrently through reduced wastage and energy efficiency. A close investigation of Alpha_3's intention to prioritise the energy-efficiency requirement in his project shows that it had a cost implication as, for this particular instance, it was found that the cheapest option was also the most energy-efficient one. This was also depicted in the practice of considering whole-life cost instead of running cost, as this strategy to improve eco-efficiency as a means to achieve cost savings is another benefit expected from prioritising sustainability in purchasing decisions. Alpha_3 emphasises that carbon reduction is linked to cost savings in a long-term perspective, as the purchasing head emphasized several times.

As discussed above, considering eco-efficiency was expected to provide cost savings and this offered a justification for the amount spent on energy-efficient equipment. Also, it made it convenient for them to shortlist suppliers, as Alpha_3 explained, *“It makes it a lot easier when the manufacturer is able to provide a more competitively priced unit that is environmentally friendly”*. The importance of cost saving is evident here, possibly because of the procurement function's priority to reduce cost. Thus, whole-life cost is particularly appreciated and is a form of justification for cost savings.

Drivers for Alpha_3

Past experience and awareness

Alpha_3 had worked in the chemical industry in the past and had an awareness about the negative externalities of organisations on the environment. Therefore, being aware made him engage with and promote sustainability, especially when he considered himself to be in a position to influence.

Alpha_3 felt a moral obligation, enjoyed doing it and felt empowered besides the clarity of the sustainability policy

Alpha_3 possessed strong environmental beliefs. He felt good to be involved in influencing people and doing the right thing. Alpha_3 found it was easier to convince others to prioritise being green because he believed it. Moreover, his personal values aligned with the environmental goals because he believed in environmental sustainability and felt passionate about it, otherwise it would be very difficult. Alpha_3 believed the policy directed him to take the required actions and it was empowering to work towards sustainability as there was a clear policy towards sustainability which supported him to follow a systematic approach.

Barriers faced by Alpha_3

Lack of budget, insufficient funding

There were some barriers faced by employees during the course of their involvement, as corroborated by Alpha_3. However, different individuals faced different challenges, except for one common barrier: lack of budget. The reason mentioned was that Alpha is a public sector organisation which greatly relies on government funding and the funding was not sufficient. As Alpha_3 observed, “*There's a gap between what the government will give and what things cost, and it's times like this when there is austerity. And it's quite a challenge on the public purse.*” He emphasized that they as a procurement department faced a high level of pressure to meet the budget.

Barriers found for other purchasing staff by Alpha_3

The university does not push the message to prioritise green

Alpha_3 perceived low importance was given from the top to communicate about sustainability and making it a priority, especially among buyers; thus, he did not find sustainability to be fully integrated into their function, as per the quote below:

“Now, logically it's down to the, sort of the, university to push this message out to all these departments, to all its faculties, to all its schools, to say, ‘And if we lose out on funding here, it's going to impact directly on you’. Now I do not know how much of that happens. I don't know if it's cascaded down that way it should be.”

Alpha_4: Senior buyer

Project overview: Updating tender documents
Alpha_4's role is to procure lab supplies for one of the faculties in Alpha. The particular project in which she was engaged was focused on updating the tender documents to make them more comprehensive for the procurement staff. Specifically, towards sustainability aspects of the tender, and this took place in collaboration with the sustainability department. This project was an initiative from the procurement side due to the problems faced in understanding some of the sustainability-related information in the tender documents as it was vague and dated. Alpha_4 anticipated legal risks relating to non-compliance as the tender document were not up to date to carry out the supplier's risk assessment. Especially the sustainability aspects in the tender needed to be updated which made it urgent to update these tender documents with more accurate criteria. Alpha_4, along with other colleagues including sustainability manager saw it as an opportunity to add value to these documents as that would help them in better decision-making.

Environmental behaviours of Alpha_4

1) *Taking charge to update existing tender documents*

Updating tender documents was an initiative by buyers to help them improve the supplier selection process. For example, the existing tender document within Alpha was not considered fit for evaluating the sustainability criteria of equipment, which made Alpha_4 along with her colleagues take the initiative to update it. They had faced difficulties in the past in understanding parts of the tender document that asked contractors about their sustainability-related information; therefore, *“We decided to stop complaining about it and make some new ones”*. Also, Alpha_4 highlighted that it was suspected that buyers may not read the policy, as she mentioned, *“I mean, anyone can have a policy; it’s just whether anyone has read it in their organisation and whether they actually do follow it. And that’s why I am sceptical about that questionnaire”*. This compelled her along with others to update the existing tender document as it was vague and lengthy and not fit for use.

2) *Influenced others and worked in cross-functional teams*

Alpha_4 persuaded her colleagues by highlighting a common problem that they had all faced while working with the tender document. On this project, she was responsible for incorporating the changes into the tender document based on inputs from different departments, and organising the meetings and ensuring that the required people were present. As she perceived several legal risks of non-compliance if tenders were not carried out correctly, she felt the need to explain to others, make them aware and avoid those risks. At the same time, she experienced influence from her colleagues to initiate this project. It requires her to influence other staff as she had to explain it to others why it was important to change existing tenders, and this way tried to educate other staff about the risks as she told:

“I think it’s more about explaining why we are doing things here. It is because there is, even though it seems small, there is this risk that we aren’t doing things properly by not telling the suppliers exactly how things are being evaluated”

Thus, she sought the support of others to collaborate on the project and jointly work towards it. As a result, liaison occurred between different teams, depicted in Fig. 4.1, for putting the policy together, wherein each member had an important role to play such that there occurred a cross-functional liaison.

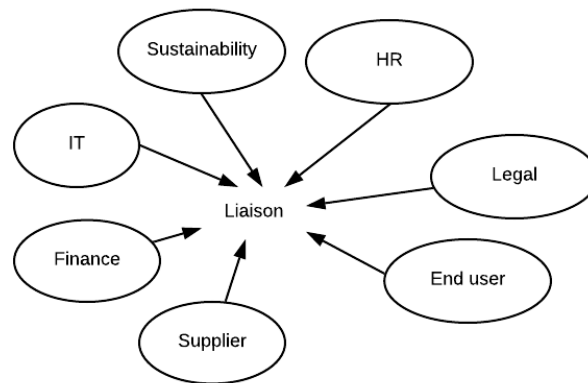


Figure 4.1 Cross-functional liaison in Alpha

Attitude around responsibility for sustainability (Alpha_4)

Influence from colleagues and sustainability manager

Alpha_4 stated that the reason for her involvement in this project was the felt responsibility to manage risk on behalf of the organisation. She mentioned how it was her, along with two other colleagues who had also joined the organisation within the last year, who had identified that the existing tender documents were not fit for purpose and thus initiated this project. Alpha_4 recollected, “Alpha_2, D and I all started within [the] last year. And, when we started, we looked at the documents and said, ‘Actually, these aren't fit for purpose.’” For both Alpha_2 and Alpha_4, although they led the initiative, they were influenced by others to initiate the change. This indicates that some SC employees participate actively, but with the help of others (sustainability manager, suppliers and colleagues), as exchanging information regarding prevailing norms from working in their previous organisation enables them to become aware of best practices. It might be that this use of liaison, within and outside the organisation, is unique in supply chain functions as swapping information and developing networks are core skills of employees in the supply chain. The theme of felt responsibility to engage as a result of

the influence of others to improve operations/existing situations by integrating sustainability was clearly evident.

Outcome expectations (Alpha_4)

Improved processes, reduced risks by adding value to the tender documents

Alpha_4 expected to add value to the tender documents by making them meaningful so that it was convenient for everyone in the purchasing team to run tenders in the right way. Therefore, this would make it more transparent because, *“If we don't have all this done right and with some of the stuff that they're quite reluctant to take out or include... what value is it adding?”* Alpha_4 along with other colleagues saw it as an opportunity to add meaningfulness to these documents and be able to achieve a *“meaningful outcome”*, especially about sustainability aspects, by updating these documents with more relevant criteria, as mentioned:

“And I'd like to get us to the point where everything in it means something. I want to get to something meaningful that comes to a meaningful outcome when we are awarding tenders instead of something that's quite flexible and made up.”

Alpha_4 perceived that there were several legal risks of non-compliance if tenders were not carried out correctly, *“...because there is, even though it seems small, there is this risk that we aren't doing things properly by not telling the suppliers exactly how things are being evaluated”*. Therefore, adding meaningfulness through updating policy and tender documents reduces confusion among buyers and increases their ability to make improved decisions. This also reduces the risks of non-compliance.

Drivers (Alpha_4)

Teamwork

This project was carried out in collaboration with different departments, including pricing, legal, sustainability, etc., as it required their expertise; therefore, the support from others was a crucial driver. For Alpha_4 though, it was huge support from the colleagues that assisted her in putting forward the ideas and backing the proposed project.

Past experience and awareness

The motivation mainly arises from the awareness about the risks of non-compliance and legal action towards the organisation. Alpha_4 had recently joined the organisation and had a background of working in legal services, which helped her identify the issues with existing documents. She depicted a high level of awareness towards the organisation facing any compliance risks in the future because of her background in legal services and knowledge regarding legal actions against non-compliance, as well as experience of working with comprehensive documents. This made her able to take charge of updating the tender documents, along with her colleagues, to make them fool proof and add more meaning.

Barriers faced (Alpha_4)

The barriers Alpha_4 faced included delays from others in terms of the speed at which other departments responded. This affects the progress of the project and makes the change process take even longer. As she recounted,

“I think I've met with them about a month ago and I've not heard anything back yet, whereas I work at a much quicker pace. So, I think that the change will happen, but it'll be a lot slower than I envisioned.”

Alpha_5: Senior buyer

Project overview: Energy-efficient equipment purchase
This project aimed at procuring energy-efficient freezers for the end user as there was a grant stipulated for sustainability; however, it failed. The outcome of the project was that the buyer was unable to procure the freezers because the supplier did not meet the specifications required for that grant. It was a demand from a certain department to buy freezers with very low energy consumption. It was a low-risk project and Alpha_5 was involved quite late on. The sustainability team had identified an opportunity to use the grant for the purchase of these energy-efficient freezers, but the purchasing team failed to deliver the project on time. Alpha_5's role was to upturn quotations for the freezers with required specifications from different suppliers who could provide the required freezers in the given time.

Environmental behaviours of Alpha_5

1) Complying with the 10% scoring criterion

Alpha_5 mentioned that, “*Sustainability wise, my biggest involvement is when I do the tenders because then we have criteria to evaluate against.... It's always 10% against sustainability*”. She followed the norm/standard rule of allocating a 10% weightage towards sustainability and confirmed that she followed it in all tenders. However, she also agreed to actively look for competitive prices and try to save costs in all her projects. Alpha_5 was keen to comply with the technical specifications of the equipment first and fulfil requirements and obligations. She agreed to seek the support of one of her purchasing colleagues who the procurement staff see as a sustainability champion as well as a sustainability manager when she had any sustainability-related queries in a tender. However, in this project she was not liaising with them (given that it is a low-risk project). It was a demand that came to her from a certain department, with the request for low energy consumption. Alpha_5 reported that suppliers were unable to provide equipment with such a low energy rating in the given time, thus Alpha_5 could not procure it. This example indicates that practices such as energy consideration cannot be compromised and somewhat integrated within purchasing role. However, in this project time was a constraint as they could not find suppliers who could provide the freezers with the requisite specifications in the given time.

Attitude around responsibility (Alpha_5)

Required to follow the criteria to do tenders

Alpha_5 believed it was a part of the job to follow the requirements for procurement coming from the user and incorporate the usual 10% criteria in every tender. However, for this particular project the sustainability requirement was important. Therefore, Alpha_5 got involved in finding the supplier to fulfil the freezer (-80-degree specification) requirements for the purchase of the freezers. Alpha_5 told, “*I always just want to get what's best for the department*”. So basically, felt responsible for getting the requirements fulfilled be it from the end user or someone from the department.

Outcome expectations (Alpha_5)

The motivation for Alpha_5 was “*doing the right thing and meeting the requirements and obligations*”. Her expectation from the project was to have a good outcome in the form of fulfilling customer requirement, as she explained, “*I'm always just motivated anyway to have a good outcome*”. Despite the failure of the project, Alpha_5 managed to establish some good contacts with suppliers.

Drivers (Alpha_5)

Alpha_5 was driven to incorporate sustainability requirements stated in the policy. According to her it was the right thing to do to just fulfil the requirements while also looking for a “*good price*”.

Barriers faced by Alpha_5

The main reason for the failure of this project was reported to be the limited timeframe in which to buy the equipment. Alpha_5 came on board in this project very late on, and she did not have the complete information about the technical specifications (energy-efficient equipment with a specific rating) of the equipment to be procured. As there was no clear communication between sustainability with other departments including the end user, it caused a gap in communication about the efficiency-related prerequisites of the equipment to be procured. As a result, due to the tight deadline for buying this equipment, Alpha_5 could not find suppliers to fulfil the demand for freezers with the required rating in time. She expressed frustration about not being given the exact product specification, especially the energy-efficiency requirements, by either the end user or the sustainability team, which led to the university missing out on the funding. This has another implication for the top management who, according to the procurement staff (Alpha_3, Alpha_5 and Alpha_7), did not emphasize giving priority to sustainability considerations as much as cost saving while buying.

Alpha_6: Senior buyer

Project overview: Equipment purchase for setting up a lab

This project involved procurement of a large array of equipment to set up a lab for the user. The end user pulled together the specification of what they required to get this lab functioning. This was a low-risk project. The role of Alpha_6 was to write the tender document and advertise it and jointly score the results with the end user, and ultimately their manager went through those scores and checked if the scores were satisfied/met. Also, Alpha_6 was involved in coordinating with the supplier to make sure that deliveries were happening on time and they shipped in as few shipments as possible, and all the warranties and service plans were set up for all the different pieces of equipment. Her decision-making involved trade-offs related to cost associated with single vs multiple suppliers.

Environmental behaviours of Alpha_6

1) Considering running cost over unit cost and complying with the 10% scoring criterion

This was found to be a frequent practice to consider whole-life cost instead of unit cost for any equipment that was purchased in Alpha. Alpha_6 believed it would make a considerable impact if purchasing staff evaluated equipment based on whole-life cost. All the participants involved in equipment purchase, including Alpha_3, Alpha_5 and Alpha_6, seriously followed this practice. They acknowledged that the more energy efficient the equipment is the less it costs to run over its whole life. In this way, it would serve both the purposes of saving energy and saving cost concurrently.

Both criteria, allocating 10% to sustainability and considering whole-life cost, were fairly new practices recognised by buyers in the way they make purchases in Alpha but were confirmed to be followed. For most buyers, this comprised the only involvement sustainability wise, as this was mandatory for them. However, even though the 10% is mandatory, the most important criterion still remains the cost, as Alpha_6 explained, “So, between me and the end user as part of the whole-life cost, we look at how much things cost to run. So, obviously, the more energy efficient it is, the less it costs to run over its

whole life.” Alpha_6 mentioned about influencing the end user to consider the whole-life cost of items instead of the unit cost before sending out the tender, but very briefly.

Attitude towards responsibility (Alpha_6)

Perceived as part of the job

Alpha_6 complied with the 10% criterion for sustainability in all tenders and noted that, “*A lot of it comes from our procurement roles in the university so it's mandatory that 10% of sustainability is part of the scoring criteria but also the cost elements*”. She further emphasized, “*that's just part of my job, really*”. Although she did not see sustainability as a separate task or a side-line agenda, her involvement in pro-environmental behaviours was found to be limited to complying with the norms. One of the reasons for this limited engagement could be because Alpha_6 simply followed the existing policy and norms without raising any questions.

Outcome expectations (Alpha_6)

Good outcome for the end user

Meeting end-user requirements and saving cost: Alpha_6 emphasized that being involved earlier on in any project can help her improve the overall outcome of the project by influencing the end user to take into account the trade-offs between cost and sustainability of equipment. Meeting the requirements of the end user in a cost-effective manner was a sought-after outcome in her project. Similar to others, Alpha_6 also agreed that, “*Cost is a driver for it, really*”, which she was found to incorporate in her project as, between her and the end user as part of the whole-life cost, they looked at how much things cost to run.

Drivers for Alpha_6

Likes challenges on the job

Alpha_6 liked challenges; therefore, she enjoyed working on this project as it was a large-scale project and quite complex, in her opinion. She implied that she liked it because

it was a challenging project and the most difficult, she had ever carried out, and it was enjoyable because, *“It's quite nice to have a project to get your teeth stuck into.”*

Barriers (Alpha_6)

Quick turnaround for claiming funding on the project (Time constraints)

Similar to Alpha_5, the short timescale in relation to the funding was a challenge for Alpha_6, too, as she explained in response to a question about problems faced

“I suppose just the timescales of the funding that we had. How quickly we have to spend money sometimes impacts the purchasing decision rather than really focusing on getting the right product. Sometimes we've just got to get what we can get on time.”

However, this project was carried out successfully, unlike Alpha_5. This indicates that they need a proactive strategy to be prepared with a supplier base to meet unexpected demands for typical specifications of energy-efficient equipment to be able to source it in a short time.

Alpha_7: Senior buyer

Project overview: Building refurbishment
This project was one of the highest-budgeted (£50 million) building refurbishment projects for the organisation. In this project, Alpha_7 along with the consultants adopted the “new procurement route” and they were the first ones to adopt this route in the country. This was a high-risk category project. Therefore, the sustainability aspects were majorly handled by the sustainability team. Cost saving without compromising the value was a major objective. Alpha_7 reported that it was a successful project in terms of making a saving of £1 million. Alpha_7 communicated this with great enthusiasm that, by making considerable cost savings in this project, his reputation within his cohort grew and it helped him in his personal growth too. The sustainability aspects of the project were also communicated to contractors to keep tabs on sustainability aspects. Yet, due to the scale of the project, it was mostly addressed by the sustainability team, with major involvement from the sustainability manager.

<p>Because of the new procurement route procedures, vendors were scored on various sustainability criteria and, if they scored poorly on any, they had a meeting with the sustainability team to fulfil the requirements.</p>

No apparent engagement in Environmental behaviours

The engagement of Alpha_7 towards incorporating environmental considerations was found to be low. However, Alpha_7 did hold meetings with contractors to communicate expectations that had to be delivered by the project. Alpha_7 did not feel the need to engage in the environmental side of this project because it was not something he was required to be directly involved; hence it was side-lined. However, he agreed that he had considered and given standard weightage to sustainability in all tenders. He depicted a high work engagement and passion towards his job as he started from a very low level in the same organisation; however, that did not greatly translate into engaging in sustainability aspects because this was not something directly related to his job.

Attitude around responsibility (Alpha_7)

No perceived responsibility

There was no perceived responsibility to engage for Alpha_7. He concurred that he was aware of the 10% criterion; however, he said that it was subject to not being enforced because, *“It's not been cascaded down from either the sustainability or our direct procurement manager that we need to incorporate it”*. The same was previously stated by Alpha_3 as well. For Alpha_7, there was neither a perceived responsibility towards sustainability due to a mandate nor any motivation from himself to engage in greening activities. This indicates engagement in sustainability behaviours may depend on the voluntary involvement of the individual if there is no perceived responsibility. Although buyers

“We have generally monthly or two-monthly meetings with our sustainability team”, they are “not in charge to implement them” because “it's not been enforced as yet, should I say”.

This lack of enforcement of sustainability implementation also acted as a barrier for Alpha_7 to not engage.

Barriers faced by Alpha_7

No accountability

The main barrier to his engagement was that he did not perceive any accountability to report or integrate sustainability considerations despite being aware of the organisation's 10% policy. This indicates that the management has failed to make it a priority for employees in the absence of stringent measures to implement the policy.

4.1.5 Conclusion

The procurement employees as well as the sustainability manager in this case engaged in various green activities such as integrating sustainability criteria in the construction of the new building, updating tender documents, updating travel policy, and buying energy-efficient equipment, and their behaviours in this case can be categorized into five main green behaviours: (i) complying with the 10% scoring criterion, (ii) updating existing policy and tender documents, (iii) influencing others to co-operate in greening, (iv) meeting green targets and (v) considering running cost over unit cost.

The involvement varied from one participant to another, which may be because of the varying risk categories for which they are responsible as well as the scale of the project, as highlighted by the participants. All participants except one in this case take sustainability criteria into consideration during tenders. Participants' environmental behaviours such as taking charge to update the tender documents and travel policy depicted efforts to go beyond compliance and bring about culture change. Introducing the sustainability factor when booking travel to provide the end user with the information to consider their carbon footprint in their decision-making was a small step in that direction. Reporting their behaviours in an annual report to benchmark against other departments to encourage faculties to improve their carbon footprint was a similar step.

The sustainability manager had a huge role to play in this case, not only in putting the infrastructure in place but also in helping buyers to appoint the right contractors, meet green targets and access the funding to invest in energy-efficient equipment. This required collaborative working and influencing when needed on his part, although he did face

tensions and conflicts while doing this. However, the close working relation between sustainability and supply chain staff and suppliers in certain projects to fulfil sustainability requirements emerged as being vital. The transactional but repeated type of interactions between end users and the procurement staff show the existence and scope of influencing others towards sustainability as a self-adopted environmental behaviour. The employees' skills of working with suppliers and cost reduction have an impact on the use of costing techniques such as whole-life costing as a medium for promoting eco-efficiency among buyers and working with suppliers to find green solutions. Further, initiatives driven by cost saving included long-term partnership leading to continuous improvement: working with suppliers to help them deliver on sustainability agenda. The impact of cost saving on employee engagement was significant in this case. Cost saving was also found to have a positive effect on increasing their involvement.

Further, the involvement of various departments – IT, HR, Finance, Purchasing, Sustainability – and the end user showed the presence of collaboration and social support for successful implementation of projects. It was found that perceived responsibility by the participants is an additional outcome besides other benefits expected from integrating sustainability in purchasing decisions, and is established prior to effective engagement in green behaviours. However, it is the sense of responsibility towards the organisation's green targets that arose from the organisation's sustainability policy and influenced attempts from the sustainability manager and other colleagues.

It was found in this case that employees perceived a sense of responsibility towards the organisational sustainability objectives which played out in different ways: part of the job, influence from colleagues, etc., or from certain subjective norms, for example, standard rule mandatory 10% weightage given to sustainability in all tenders. To some extent, the organisational practices towards sustainability seem to exist for legitimacy reasons, and for sustainability to become fully integrated to improve the efficiency in different purchasing functions was still a work in progress. This is seen in the instances of conflicts, project failure, and lack of perceived responsibility too for some participants.

Table 4.1 Alpha participants' profile summary

Alpha Company Profile: Country: UK; Sector: Service; Industry: Education; Year Found: 1904; Employees: 8000; Certification: ISO 14000: 2015							
Participants	Alpha_1	Alpha_2	Alpha_3	Alpha_4	Alpha_5	Alpha_6	Alpha_7
	Sustainability manager Tenure in org: 7years Tenure in current role: 1.5 years Age group: 30-50 Gender: M	Senior buyer Tenure in Org: 15 months Tenure in current role: 15 months Age: 30-50 Gender: F	Purchasing head Tenure in org: 14years Tenure in current role: 15 months Age group: <50 Gender: M	Senior buyer Tenure in org: 6 months Tenure in current role: 6 months Age group: 30-50 Gender: M	Senior buyer Tenure in org: 9years Tenure in current role: 2years Age group: 30-50 Gender: F	Senior buyer Tenure in org: 11years Tenure in current role: 2years Age group: 30-50 Gender: F	Senior buyer Tenure in org: 11years Tenure in current role: 2years 6 months Age group: 30-50 Gender: M
Project description	Construction	Travel policy update	Energy efficient equipment purchase	Updating tender documents	Energy efficient equipment purchase	Purchase of equipment to fully furnish a lab	Building Refurbishment
Project motive	Implement sustainability aspects at every stage	Integrate sustainability consideration in buying business travel	Purchase the most cost-efficient equipment that meets technical specifications	Clarify the sustainability aspects in the tender documents and revise them	Purchase the energy efficient equipment	Purchase a range of lab equipment in a cost-effective manner	Refurbish the building as per the new procurement route
Driven by sustainability	Yes: Sustainability considerations must be incorporated at all stages of the project	Yes: Sustainability team is involved when require assistance on specific information and to keep tab on green targets	Yes: Sustainability team is considered in high budget/large scale project. This particular project didn't have	Yes: Sustainability is consulted to get detailed information of sustainability criteria that needs to be incorporated in updated tender questionnaire	No: Sustainability team was not directly involved because it was a low budget project	Yes: Sustainability consideration are followed by purchasing and checked by sustainability team	No: Sustainability and purchasing didn't work in close collaboration as the project is large scale. Sustainability

			sustainability involved				was involved separately
Attitude towards responsibility	Have to and want to: Part of the job, have to drive sustainability; want to improve the outcome for the org, improved relationship with others	Have to and want to: Influence from organization commitment and sustainability manager; responsibility arising due to moral obligation	Have to and want to: Part of the job and want to because felt moral responsibility towards environment	Have to and want to: Influenced by the colleagues/sustainability manager, want to because perceived risks for the organization and want to add value	Somewhat internal (Want to): No externally assigned responsibility but want to do the right thing by meeting regulatory requirements	Somewhat external (Have to): Part of the job to meet scoring criteria	No external mandate (Don't have to): No mandate towards sustainability so don't have to
Drivers	Accountability, Legitimacy, Environmental policy	Moral obligation; Environmental policy, management support	Clear policy, Cost savings, being in this position to make an impact on the environment, Moral obligation Enjoys doing it, Awareness and past experience	Teamwork, past experience	Environmental policy and moral obligation	Cost savings,	Meeting budget and saving cost
Outcome expectations	Good outcome for the organization in terms of following sustainability approach and managing impact	Good outcome for the organization in terms of benefits such as cost savings, energy efficiency	Good outcome for the organization in terms of cost savings as well as carbon reduction	Good outcome in terms of adding value to the tender documents	Meeting requirements of the end user	Meeting requirements of the end user	Reputation benefit for the organization

Barriers	Pockets of resistance in the organization; Low level of influence, conflict of interest	No barriers faced	No communication from top to prioritize sustainability for lower management, lack of budget	Delays from other departments	Lack of communication and limited information	Time scale of the funding is short	Sustainability not being cascaded down
Executed PEB	Proactive: Influencing others, Worked with cross functional teams, Finding opportunities to integrate sustainability, helping others and solving problems	Proactive: Took initiative to update existing travel policy including sustainability criteria, influencing others to cooperate in greening, Complying with 10% scoring criteria	Proactive: Considering running cost over unit cost, Meeting green targets, influencing others to act green	Proactive: Taking charge to update existing tender documents, work with cross functional teams, influence others	Compliant: Complying with 10% scoring criteria	Compliant: Complying with 10% scoring criteria, Considering running cost over unit cost	None

4.2 Beta within-case analysis: “Utility” case study

4.2.1 Introduction

This section presents an analysis of the second case company, which focuses on the SC employees of a water utility company (hereafter referred to as Beta). It presents a detailed overview of the firm, Beta, and the context of the case. The following sub-sections analyse the data in detail, covering each of the company’s participants and the project in which they are involved, along with the key themes and the key findings of this case in its context. Table 4.2 in the conclusion section summarizes the employee profiles.

4.2.2 Case overview and context

Beta is a wholly owned subsidiary of a leading British utility company. It employs over 2500 employees and provides a water supply to five million people every day. Beta is committed to a vision of delivering services that their customers value the most (providing water services), while also protecting the environment and meeting all legal requirements, as well as keeping their prices as low as possible. It is a public organisation and is funded by its customers, with the support of loans from investors. The company uses a combination of fixed capital, retained profits, long-term loans, finance leases and bank facilities to finance its operations.

Beta has been very mindful of the natural environment in which it works; sustainability is an inherent part of its operations. They have the systems and procedures in place to minimise their impact on the environment. For instance, the organisation acquired its environmental certification to ISO 14001 way back in 2004. They have also had the quality management standard ISO 9001 since the early 90s. Their leadership in environmental management is recognised nationally and they have achieved a platinum performance in the Business in Community Environment Index. They also hold the Carbon Trust Standard for carbon reduction since 2013. Thus, they have been on a long journey of integrating sustainability into the system and processes for over two decades.

The organisation has its supply chain function structured into three key specialist areas: Procurement, Contract Management and Governance & Compliance. These are managed by teams of Category Buyers, Contract Management Specialists and Data & Compliance Analysts. Working together with their suppliers, they aim to optimise the supply chain by unlocking value and driving innovation and change through the practices, processes and technologies they employ. They have an integrated management system (IMS) that handles health and safety, environment, quality and asset management. They updated their sustainability strategy for procurement function in 2017. Their goals are rooted within their SBOs (sustainable business objectives) and translated into their business performance promises, which describe the outcomes, deliverables and incentives for the 2015-2020 investment cycle. These are their critical measures and represent the economic, social and environmental challenges of sustainable procurement. Their procurement activities are aligned to both the industry market sectors and industry processes, to maximise and realise the potential within the supply chain. At the time of being approached for data collection, Beta was going through a change/update in its procurement strategy to incorporate more rigorous sustainability criteria for procurement and contract management.

4.2.3 Case participants

The sustainability intern (Beta_1) was interviewed as she belonged to the sustainability and strategy team and at the time was the key person engaged in drafting the sustainable procurement policy jointly with procurement staff, mainly the procurement head (Beta_2). Beta_1 had been in her current role for only a short time as she had newly joined the organisation. Beta_2 had been working in the organisation for around 10 years and was very familiar with the key business and supply chain partners. Beta_2 is an environmental scientist by degree and was genuinely interested in sustainability issues. He was in charge of updating the sustainability strategy for procurement. Thus, he put together a cross-functional team to do it with the involvement of various people around the business. The areas involved in this project included the environment team and strategy team, the quality maintenance team to look after the integrated management systems (IMS), the legal team to look after regulations, and various subject matter experts to consult on specific aspects. Beta_3 had worked in the organisation for over 10 years

and led the IMS team. Beta_3 was mainly involved in supporting the purchasing staff as and when required with sustainability-related issues. The final interviewee in this case was Beta_4, who was one of the category managers who specifically handled the chemicals category and was actively involved in multiple projects, ranging from developing a supplier framework for the chemicals category, VRM (vendor risk management) software installation, and sustainability workshops for the business in the community (BITC) project while doing the regular tenders. Beta was going through a revival in their sustainability strategy at the time of data collection which influenced the participants' involvement in projects that aimed at embedding sustainability and implementing it in their supply chain practices.

4.2.4 Case analysis

The following section presents the analysis of Beta participants' engagement in their respective projects by addressing each of the research questions in turn and the themes emerging within them.

Beta_1: Sustainability intern (Sustainability team)

Project overview: Drafting a sustainable procurement strategy
As part of developing a sustainable supply chain strategy, Beta signed up for an infrastructure carbon review which required commitment towards working with suppliers to reduce embodied carbon. As part of this, they also implemented vendor risk management in the supply chain. Beta_1 was responsible for co-ordinating with the IMS team and the procurement team to ensure the certification against ISO 14001 aligned with procurement to ensure that all the requirements as part of the certification were met. Beta_1 worked towards developing the overall sustainable procurement strategy and publishing it on the company's website so that the suppliers could see exactly what the organisation's expectations of them were going forward and what was promised in return for compliance'. This acted as an overarching strategy which would feed into their updated procurement strategy.

Environmental behaviours depicted by Beta_1

Different examples of helping behaviours were depicted among all four participants in Beta in the capacity of their projects towards sustainability integration. Beta_1 worked closely with the procurement staff, seeking inputs from them to obtain specific information, and in the process, she also advised them about sustainability.

(1) *Advising and educating procurement staff about sustainability*

During the policy update project, Beta_1 advised the procurement employees about the appropriate sustainability criteria to include as per the category of goods/service, as she explained, *“Throughout, I've kind of been giving advice on updating the tender questions, how you can make them more suitable for sustainability across all kinds of goods and services”*. Although the project to draft the sustainable procurement strategy was an integral part of her job, she emphasised how everyone's job needed to have sustainability at the forefront. She also stressed that it needed to be communicated from the top down to the staff, companywide as well as to the wider business, to make it a priority for everyone, especially when the business is going through a change.

(2) *Green supplier development and vendor risk assessment (VRA) for sustainability*

The year before the interviews were conducted in Beta, the company had implemented VRA to advance their supplier selection approach. Despite being a new practice, VRA became a prevalent practice among procurement staff in Beta and was quite successful at screening-out vendors based on different requirements, as Beta_1 elaborated:

“So, we've got a new process, it's called vendor risk management...so that we can look at things like environmental performance as well as their corporate social responsibility. And we can screen people out if they don't meet our basic requirements, so, if they had... from the environmental impact assessment and environmental legislation, they've broken that, then anything like that were to get screened out, so that was introduced last year. It's been really successful in kind of making sure that our tenders are sustainable.”

Developing suppliers to become green is considered to be best practice in the supply chain but it required support from the sustainability side. As part of this practice, buyers were expected to assess the vendors through a vendor set-up process and, to be able to be an approved vendor, vendors had to pass certain stages and certain questions and many of those were now sustainability questions. Although buyers conducted vendor assessment to screen-out vendors who were incapable of delivering on sustainability terms, on certain occasions, procurement with the help of sustainability staff worked with those suppliers to make them capable of fulfilling their sustainability expectations. Beta_1, as a part of the sustainability team, engaged in helping the suppliers also, after identifying the areas where they needed help. This kind of support was often provided to valued suppliers who were keen to work with the organisation. As Beta_1 recollected,

“We’ve also worked with – which I think is more important – with some suppliers that originally weren’t suitable, to help them become suitable. We’ve worked with suppliers to help them make sure that they will reach kind of the accepted level.”

Beta_1’s attitude around responsibility to incorporate sustainability

Part of the job to work towards sustainability, moral obligation towards larger good

Beta_1 perceived an inherent responsibility towards sustainability arising from multiple sources, both externally and internally. She perceived the legitimacy towards complying to standards, as she mentioned, *“We’ve got ISO 14001, we have got multiple standards for making sure that we are achieving those standards.”* Secondly, she also felt a moral obligation towards it, as she explained, *“I feel it’s kind of worthwhile for the greater good rather than just financially driven.”* Additionally, for Beta_1, responsibility was perceived with the job role itself and therefore the accountability towards delivering the sustainability strategy came inherently. The legitimacy was also perceived from the larger regulatory framework that the organisation was required to report to, including the Environment Agency. Reporting was an important part of the job for Beta_1, and a responsibility towards making sure Beta met its environmental requirements came from external regulations. As Beta_1 observed,

“We have to report to them [Environmental Agency] to demonstrate that we’re not having an impact on the environment; that we’re meeting requirements such as the water framework directive requirements”

Expected outcomes from sustainability integration by Beta_1

Reduce environmental risks and attract green employees

Beta_1 expected that the updated sustainability strategy for procurement would firstly improve their position by eliminating risks faced by procurement by making their expectations clear to their suppliers. Secondly, it would help the organisation in advancing the company image by portraying an image of an environmentally conscious organisation, as well as attracting greener individuals who want to work for a responsible organisation. As Beta_1 stated:

“By taking responsibility for the water environment for good, the organisation wants to be a sustainable company going forward; therefore, [we are] looking at reducing the risk associated with procurement and there is also lots to do with talent retention, so people want to work for a sustainable business.”

Drivers to engage proactively in the project (Beta_1)

Educational background and knowledge

There were several enablers for her to perform on the project she was assigned. Firstly, her background in environmental ecology followed by a degree in climate change is what facilitated her to work in a project that had an environment or sustainability focus. Secondly, Beta_1 was aware of the sustainability targets to which the organisation was committed, and specific sustainability objectives set for the supply chain. Beta_1 also had knowledge about the applicable framework and standards in the industry. While drafting the sustainability strategy with inputs from different departments, she found it helpful that there was an emphasis on sustainability within the organisation and they were making sure that the strategy was consistent across all the categories.

Top management support

She received a lot of support from the senior management, and the procurement head was passionate about environmental issues. There was a perceived legitimacy as the need for considering sustainability came from the higher tier, as the company CEO was a big advocate of sustainability too, which developed a commitment among the staff as well as her. The directions came from the board and this was important, according to her quote below:

“Initially, I think it needs somebody driving it and kind of increasing awareness of it across the team, even somebody kind of from [the] top level saying, this is important, this is what we're doing now”

According to Beta_1, the organisation expected to outperform and benchmark against other industry best practice going forward.

Challenges faced (Beta_1)

Getting time and co-operation of others

The only major challenge faced was in gaining others' commitment, as she *“found it difficult to get people's time, especially at the beginning of the project when people weren't so aware of who I was”*. This again emphasised why it is important to have a certain level of influence, especially when you are implementing a sustainability approach. This is because, for procurement staff, giving their time to input into the sustainability strategy was an issue as they were busy with their day jobs (running tenders). However, support from the procurement head and a few buyers helped Beta_1 maintain momentum and motivation throughout the project.

Beta_2: Procurement head

Project overview: Updated sustainable procurement strategy

This project/initiative was driven by the need to change the existing ways of doing business by integrating sustainability considerations. It also aimed at meeting the organisation's targets and procurement played a huge role in it. One of the objectives of this project was to embed sustainability considerations in all their procurement processes. As part of his role, the procurement head was responsible for assessing different risks faced by the organisation and developing appropriate strategies to manage them. It involved giving directions to buyers and communicating to them the priorities relating to managing supply chain processes and providing clarity to them regarding sustainability objectives for the supply chain by translating the business objectives in terms of supply chain objectives. Beta_2 also looked after managing the expectations of different stakeholders of the organisation. His attitude towards sustainability was pragmatic as it was considered to benefit the organisation in terms of reputation, brand image and meeting their stakeholder expectations. He also believed that embedding sustainability considerations into the supply chain processes would make them more efficient.

Environmental behaviours of Beta_2

(1) *Taking charge to update the sustainable procurement strategy*

Beta_2 was very proactive in terms of anticipating risks faced by the organisation and its supply chain. Thus, he was constantly looking for solutions to manage them; this involved taking an initiative to update the sustainable procurement strategy for the organisation as he believed it was antiquated and needed to be changed:

“Well, we had this sustainability policy for a little while. But when we've looked at it, I think it was too generic. So, we'll be updating it this year. So, we've got a series of gap closure actions against making it more meaningful.”

Thus, Beta_2 actively worked towards effectively drawing a future vision for the procurement function, and updating the sustainability strategy helped him carve it out to

make it more relevant to the procurement function going forward as it set out the goals, as he mentioned:

“To what extent do we want to be compliant: to be best practice or to be leading? So, against those dimensions on those lists of subjects we're going to come to a conclusion about where we want to be.”

(2) Educating others, driving awareness among buyers, liaising with cross-functional teams

Beta_2 engaged in several greening behaviours in order to improve their existing supply chain practices. Some of these behaviours included communicating the importance of sustainability inclusion and raising awareness, educating others, making them commit to the organisation's targets by taking charge to improve supply chain processes such as by updating the sustainable procurement strategy, etc. Beta_2 believed that an important part of his role as procurement head in the organisation was to change the mind-sets of people in the procurement department who were largely cost-driven. This was mostly because there was a cost-driven attitude among buyers, who looked at sustainability as a side-line agenda, and also to manage the expectations of different stakeholders. Part of educating others involved providing clarity to their supply chain partners because the ambitions of the business needed to be effectively translated in supply chain terms in order to be understood by them, as Beta_2 said,

"It's all in the language, what the organisation aspires [to] can be high level and broad, not directly linked to supply chain activities; therefore, it's the job of the agent to break it down and make it relevant to supply chain functions"

He was constantly motivating other buyers to consider sustainability by communicating the importance with the aim of embedding sustainability consideration into business processes. Being in charge of updating the sustainability strategy for procurement, it was his “*accountability to sign off that policy*”. But, in order to do that, “you do kind of need to bring in a number of different stakeholders from around the business to do that” (Beta_2). Such engagement is facilitated by cross-functional team working. It has also been hypothesised that such teams may facilitate the introduction of

a product stewardship approach (Hart, 1995). This way of liaison among various teams, presented in Figure 4.2, aimed at bringing people from different teams together, as they bring in individual expertise which helps drive the project.

“We do a lot of work on internal liaisons, so we have a kind of engagement plan where we go out to leadership teams in the business and management teams in the business.”

(3) *Prioritised sustainability in the supply chain decisions*

Beta_2 emphasised prioritising risks to be addressed in a realistic manner by choosing areas in which to excel, including the environment, safety and modern slavery, while leaving other areas to be just compliant in, such as living wage. Therefore, he was involved in devising strategies to address those risks and prioritise them based on inputs from senior management and other stakeholders. Working closely with the sustainability team and the IMS team along with the procurement department, he was involved in translating the organisation’s sustainability objectives into more operational-level activities to reflect the sustainability approach in procurement decision-making and communicating the message down the supply chain.

(4) *Influencing others including seniors to support sustainability decisions*

Another prominent behaviour in which Beta_2 engaged was influencing different employees to liaise with different teams (contract management, IMS, sustainability, etc.). Notably, he put in extra efforts to persuade the senior staff by explaining the importance of doing it, which did require him to invest his time in it, as he recounted:

“I think it's a lot of my time before we were maturing, this was spent in dialogue with the business about why we are doing certain things. So, a lot of the time soaked up with having to do whatever the loudest person asked for, whatever the loudest person wanted to do – my senior person.”

In this way it was seen that Beta_2 played an important role as an influencer on employees, especially those who were engaged in the organisation’s move towards

sustainability. As he explained, he had to “*influence the supply chain guys or the operation guys as you take in that lead*”.

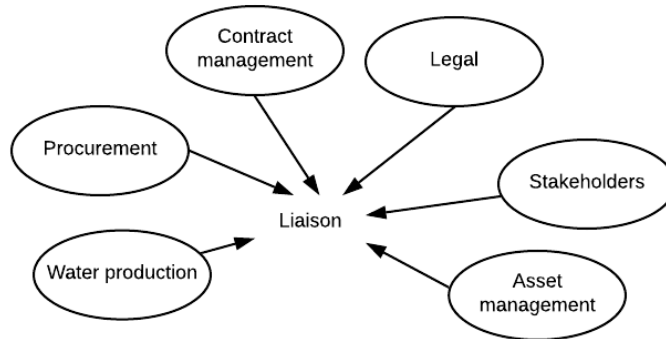


Figure 4.2 Liaisons between different functions internally in Beta

It was apparent that influencing them also involved helping them make sustainability actionable in the way the buyers run tenders and this in turn made the buyers realise they were doing something good. This type of support shown by the head (Beta_2) is similar to providing green leadership to the staff which involved changing attitude of staff about sustainability in supply chain activities. As evident from his quote:

“Giving them some guidance around what sustainability means, especially in supply chain activities, I think gives them some confidence that they can say that they work in this way.”

Beta_2 added that working in a sustainable manner is linked to their work motivation as well “*I’m sure it helps our retention, our job satisfaction as well*”.

Beta_2’s Attitude around responsibility to incorporate sustainability

The responsibility towards sustainability for Beta_2 arose from several external sources such as in the form of a mandate from the top, which makes him feel that sustainability is aligned to business goals, as reflected in this quote:

“I think it really allows us to have the confidence when we talk to the business and a decision is arrived at; it's not just a supply chain decision. You know you have got the senior sign-off in line with the business objectives, and its overall mission to work in a certain way, so it gives you a mandate.”

Accountability towards signing the sustainable procurement strategy

The responsibility towards sustainability is perceived due to accountability such that Beta_2 considered sustainability inclusion as an integrated aspect of carrying out supply chain processes. According to him, there are many reasons why accountability is important. Firstly, *“I think you need to have some accountability for the delivery in order to make any kind of a change”*. This was explained by an example that, *“If you keep sustainability as a separate function outside of anyone that's got any kind of accountability, it's probably not going to turn into anything”*, because they are often not being taken seriously. Lastly, having committed to organisation's sustainability objectives it required them to align sustainability consideration with the supply chain decisions because Beta_2 explained,

“There is a specific requirement of supply chain work that needs to be done. I mean, in order for us to as a company achieve our standard, which is something that we've already committed to doing.”

This form of accountability thus comes from embedding sustainability considerations into processes that makes prioritising sustainability a part of everyone's job. Also, because the initiative to update the policy was led as a supply chain initiative and was going to be received by stakeholders it became a greater responsibility for them.

“But ultimately, yes, we spend other people's money, really. We kind of commit them to certain things, so we have to spend a lot of time within the business [on] internal liaison and ensuring that each stage of the process [has] the right level of sign off, and we have a category management approach [and] each category has a strategy.”

This became a part of the supply chain process to address and reduce supply chain performance risks, which extended to reducing sustainability risks. Beta_2 highlighted a series of strategic risks that they managed on behalf of the business: the first is associated

with the procurement of goods and services that represent good value and do not put the reputation of the business at risk. The second risk is essentially the same but in the life of the contract. Thus, it covers the risk when a contract is managed and if it does not deliver the value that was expected or the supplier with which they work brings the reputation of the business into question. Third is more inwardly facing risk, which is posed by colleagues operating outside of the rules of procurement. It was found in this case that employees perceived these risks to be associated with procurement and it was evident from the way they emphasised practices such as VRA, an exercise that buyers took very seriously to manage some of those risks.

Interest in sustainability

One of the strong reasons for Beta_2 to be passionate about working towards sustainability within the procurement function was his personal interest in it. He perceived sustainability to be important in the way the business is run and also perceived personal benefits for him in his career growth. This belief seemed to contribute towards the responsibility he felt, as the organisation was also supportive and interested in the same outcome, and this may have led to the alignment of business goals and personal goals. The procurement head explained it as follows,

“I suppose I have a personal interest in it. I mean, I’m an environmental scientist by degree. I am genuinely interested in it and I think it also, when you’re going through this process of getting the senior sign off, you’re obviously engaging with senior people, so that’s more useful for your kind of brand and all that kind of stuff, and to me this is something: because the business is interested in the senior level, it takes you to places that you want to go to.”

Expected outcomes from the project by Beta_2

Expected several good outcomes for business/organisation

Beta_2 regarded his actions as yielding outcome in the form of benefits. Beta has been receiving in the past and expected to receive in the future certain benefits such as access to certain resources. Therefore, sustainability was given priority, even if it would demand more time or effort from him, as he mentioned, *“We need to get a good outcome for the business which may take longer than you’re used to”*. This was in the context of having

to carry out an elaborate risk assessment exercise post the implementation of VRM, prior to which it was a simple credit check. These sorts of outcomes were accompanied with resultant benefits at a macro level which included a good outcome for the business. At a micro level, it resulted in improved supply chain processes, both discussed at length below. Again, these are linked in the way one outcome has an impact on the other.

Expected to change involvement of suppliers from passive to active towards sustainability

Beta_2 expected several benefits from this project; the main benefit, according to Beta_2, was that sustainability initiatives were supposed to have a positive impact on outcome at a functional level. By updating the procurement policy in this case, Beta_2 expected several benefits by providing clarity to both buyers and suppliers. They expected benefits such as, they expected to increase engagement by changing supplier involvement from passive to active. The existing policy was vague and not practical from an operational perspective, as Beta_2 observed,

“I mean, at its worst, those kinds of things are just a list of warm words, really. You know, we want our suppliers to be great or whatever but they're quite limited in terms of the active involvement they would take, so I would say quite passive action, actually. So, we want to change that to be more active now”

To embed sustainability in supply chain processes for improving efficiency

Secondly, Beta_2 expected it would help buyers to document the processes better, so there is more consistency in the way that they work and the way that they procure things. He gave the following example,

“It allows us to work in a lot more planned way, so I can manage resources a lot more effectively, can plan better over time. I think it's more interesting for me to work in this way, in this kind of planned and thoughtful way where we actually put our position up.”

Thirdly, it was expected to add meaningfulness by a series of gap closure actions towards making the policy more meaningful (this is similar to what Alpha_4 expected from tender update in the previous case). And, finally, it was believed that it would

improve their decision-making and as a result allow buyers to have the confidence when they talk to the suppliers about doing business.

This implies that the criticality of risk can have an impact on employees' perceived responsibility towards addressing it in the procurement function as it makes them prioritise different risks, which they call a "*prioritisation approach*", as per Beta_2's quote below:

"We have a prioritisation approach that essentially says, 'Is this actively led by procurement or is it able to be done by the business but signed off by procurement?', and what makes that decision is a scoring process where it has a weightage for those different risks."

This further indicates that the combined effect of perceived responsibility to engage in an environmental behaviour and expecting a certain outcome from it has an effect on employees to engage proactively, as evident among employees in this case.

Drivers for Beta_2 to engage in sustainability

Top management support

This was a common driver among Beta participants as they believed that there was constant communication regarding the need for sustainability adoption which was important in raising awareness. As Beta_2 mentioned, "*We have an engaged board who do want us to be good at these things as well.*" Laying the roadmap to bring sustainability to the forefront of the supply chain policy and procedures and ultimately culture was being actively shaped by the top management.

Ability to influence

Beta_2 indicated that they have an important role to play in regard of approving the procurement that takes place for the organisation and have a high influence in determining the outcome of the purchases that take place (sustainably) as mentioned by him:

“You know, so we have procurement processes and regulations within the business which means that for a piece of procurement to be accepted it's got to be either liked by [the] supply chain, typically released [and] signed-off [by the] buyer, so we can exercise quite a lot of control.”

External ratings

He also shared that the recognition from the external ratings also acted as a motivation for the procurement staff. This has an implication on job satisfaction along with perceived benefits such as boost in confidence and the good feeling that comes with it, as he mentioned.

“When we get things like the five stars in BITC, the guys feel good about that; you know, that they feel like they're working for a good organisation. So, I'm sure it helps our retention, our job satisfaction as well.”

Teamwork

Engagement in projects with a sustainability outcome was driven by the support of individuals from other departments. Participants suggested that they not only brought expertise but also helped streamline processes. Additionally, they overcame barriers such as gaps in communication by facilitating conversations around topics such as climate change, best practices, etc. The quote below shows how they all liaise. This indicates a way of delivering specialist information between parties who come from different functions as Beta_2 told:

“So, this is a supply chain-led activity but that brings in expertise from around the business. So, we have, for example, we have a lead person on our IMS system part of our conversation, and we have a climate change specialist who sits within one of our strategy teams, so they're all kind of brought into the process”

Challenges highlighted by Beta_2

Similar to individuals in other cases, it was found that, in this case, the participants highlighted that the biggest barrier for buyers to engage was their time. Beta_2 mentioned that the reason for this is that buyers are busy conducting procurement exercises and they

have become used to carrying out these procedures quickly. Both Beta_2 and Beta_4 found that, *“A lot of people resisted [following] the new route of procurement because they were so used to getting things done quickly”*. So, it is an ongoing journey for them, and it has taken them a while to reach a stage where buyers are beginning to understand that, even though the new improved VRM process takes longer, that’s the way forward. Also, Beta_2 identified that implementing sustainability in supply chain procedures is when the supply chain staff tend to see it as a separate or different approach, and that is the biggest barrier, as evident from his quote:

“So, you know that's why I judge approaches by saying, ‘Well, if we can make this business as usual it doesn't feel different’, as in you haven't got a sustainability approach and then you've got how to bring vendors and now some of management is if that process which is your business as usual takes aspects from the sustainability area, then it's not two different things.”

Overcoming the challenge by making sustainability a compulsory practice

In a way, getting everyone’s support was not easy because of the resistance to change but what worked was making it mandatory, so that it is not left to the buyer’s discretion, as Beta_2 put it:

“So, it's not motivated by a specific target being achieved as such, and that we're trying to do it such that the process requires a sustainable outcome rather than leaving it with an individual to kind of decide for themselves.”

Beta_3: IMS Senior team leader

Project overview: Waste service purchase project
There were a number of initiatives started by the organisation which aimed at managing the organisation’s waste effectively on a large scale. These included projects such as diverting waste from landfills and generating energy from the by-products released during the chemical treatment of water. A number of such examples were shared by Beta_3. However, this particular project was concerned with evaluation and selection of the waste service provider who was going to pick up and recycle all of the waste that the organisation generates from its operational assets. Beta_3 carried out a rigorous vendor evaluation in the project on which she worked. And so, she was directly

involved with pre-qualification questionnaires and in the interviewing of the prospective contractors and then helping to select them and looking at their detailed responses. And then, she was involved in the actual setting up of their recycling hubs and waste service once they were in place. She also engaged in weaving sustainability issues into the procurement of goods and services. She works in close proximity to procurement by periodically helping them with ISO question set requirements for screening-out suppliers.

Environmental behaviours of Beta_3

One of the main environmental behaviours in which Beta_3 engaged was spreading awareness about environmental issues and considering sustainability issues in the supply chain processes. As she depicted the following behaviours:

(1) *Educating and influencing others to increase their engagement*

In addition to carrying out the regular supply chain activities such as finding suitable suppliers through the VRM process, the participants from Beta went further and usually took up more responsibilities in order to bring about greater change. For example, Beta_3, as an IMS team leader, had engaged in influencing others to incorporate sustainability from the time the firm adopted ISO 14000 certification, as she mentioned:

“I was encouraging those people who were looking at the procurement, the way we do procurement, and encouraging them to take the full spirit of the 14001 standards. And, see, are we actually impacting, you know, selecting our partners and contractors with the environment in mind.”

(2) *Driving sustainability in operations*

Beta_3 was a key person in bringing sustainability aspects into the tender process in the initial days and also ensured that procurement staff followed the norms. She shared how sustainability became an integral part of the procurement processes she led:

“So, I was a part of that team. Between us, we were the drivers to try and weave sustainability issues into the procurement of goods and services. But now the balance seems to have kicked in. And that the procurement team and I'm now fully engaged in that process. And others have begun taking it on board and really running with it. So, I think that's been a change.”

Attitude around responsibility (Beta_3)

Participants from Beta revealed these perceptions of accountability, sometimes referred to as felt accountability, which included not only formal aspects of their jobs (what is found in their written job descriptions) but also informal aspects of their work (what is not officially required but what employees think that they need to do, given the norms in the workplace). This was corroborated by other purchasing staff in Beta as well as Beta_3, who perceived a sense of responsibility to work towards environmental improvements due to legitimacy as well as the moral obligation, as she mentioned,

“Because we've got a duty. We are the custodian of the natural environment. We are bound by many laws upon us. We are a landowner, we're the third-largest landowner here... we could have a negative or a positive impact, so what we have to do is ensure that we have, wherever possible, a positive impact on it.

Part of the job

Beta_3 felt a responsibility to address environmental issues because she perceived her actions towards greening to be an integral part of the job. Being responsible for assessing different risks faced by the organisation, she ensured that the company maintained its ISO14001, ISO9001 and ISO55001 certification. This indicated that she associated her role with working towards sustainability, as she explained,

“It's my job to do continual improvement, so there are always areas that I'd like to improve. I can't think of any specific real problem areas at the moment that I've not addressed or I'm not addressing right now.”

Believed environmental improvement to be a moral obligation

Beta_3 possessed environmental values and belief towards the environment, as she mentioned, *“I think, if you're in a role like mine, we've got a fairly relentless drive for a*

belief in this sort of subject.” She believed that being in this role she was in a position to make a difference, which made her invest herself for the fulfilment of the project. Moreover, she understood the importance of incorporating sustainability consideration in procurement decisions. She believed that it was important to reduce the firm’s carbon footprint. Therefore, she felt the responsibility to do the right thing,

“And so that has really taken hold now and that's where we get the IMS connect because: A) it's the right thing to do, B) Global issues are not unknown – you know, the science behind all of the global issues that we face at the moment. And so, if we can procure in a sustainable way, then our carbon footprint goes down [and] our impact on the Earth as a whole.

Drivers (Beta_3)

Awareness

Beta_3’s awareness and belief in climate change seemed to have a positive impact on her efforts to behave proactively, as she mentioned, “Engagement and awareness are always key, and I don't think you can ever do enough of that.”

Top management support and green leadership

The support from the senior staff was a strong driver for the employees in the organisation and made them prioritise sustainability in the operations. Beta_3 emphasised that there was a supportive environment towards sustainability, and concern for climate change issues was equally evident among the employees, as she explained:

“The fact that our leaders have been very supportive and have officially come out to say that, no matter whether you are closed of views like climate change don’t exist, that they do sign up to the view that climate change does exist and it’s happening that we are doing something. So, it’s a mixture of culture, awareness and buy in from the top from leaders.”

This support was even extended in the form of green leadership which resulted from the change in management. The new seniors proclaimed their support for sustainability as they held environmental values and belief about it. This indicates how the attitude of top management can have a positive influence on the employees in relation to

sustainability. The green leadership from the top was well received by Beta_3, who also believed in the same subject, so there exists an alignment between the individual and organisational values. Beta_3 expected many good outcomes from the inclusion of sustainability in respective projects, which is discussed in the next paragraphs.

Expected outcomes by Beta_3

Reputational benefit

It was evident that Beta employees were not only mindful of enhancing the organisation's present position but also cared about its long-term existence, and this had a huge impact on how they as a business wanted to be perceived by their customers. They expected to both delight their customers and gain reputation benefit through their sustainable way of conducting business. A lot of the organisation's actions are reported by the press and they also have to communicate with their stakeholders on a regular basis, which creates an unspoken accountability towards them. Gaining reputation is a benefit they get by being recognised as an ethical organisation, as Beta_3 observed,

“Above all else we get the reputation of [being a] well-trusted company. We get to tell people that, ‘You know, we’ve done this, you know we’ve got the BITCs five stars.’”

Barriers faced by Beta_3

Beta_3, coming from another department (IMS), experienced a different barrier than the rest of the supply chain staff, as she mentioned, *“Every now and again, you do get frustrated, if you feel a little bit brick-walled by bureaucracy within the company.”* This was another barrier that Beta was trying to overcome.

Beta_4: Senior procurement manager

Project overview: Development of a sustainable supplier's framework for Chemical's category

As a part of this project, Beta_4 was involved in sourcing a range of chemicals that are used in the treatment of water by the organisation. Since chemicals are a high-risk procurement category, she introduced a detailed tender process as an initiative from her side by including detailed sustainability questions in the tender. With a drive to carve a way forward for this particular category, she developed a framework agreement for suppliers after rationalising the company's supplier base. This framework agreement is now used as a template for other categories because it is detailed and robust. Beta_4 was the first among the procurement staff to change the supplier framework for the chemicals category to include only those suppliers who were capable of meeting sustainability requirements. A critical aspect of doing this involved getting specifications together with all their formats so that the organisation was in charge of specifying terms as opposed to letting the supplier specify them.

Environmental behaviours of Beta_4

(1) *Bring a change in doing business sustainably*

Both Beta_2 and Beta_4 were keen to bring about innovation as part of managing their supply chain sustainably. However, Beta_4 took charge to bring about a massive change in the business by revamping the existing supplier framework, she explained in reality that, *"What it really ended up doing is making a small change in the business and not as big as I really wanted."* Beta_4 was *"trying to inject innovation where innovation hasn't really existed before and then start to ask those questions about sustainability."* It involved interdependence, to a large extent, between sustainability and procurement staff as well as other teams during the process of implementing change. This was similar to what happened in other cases when different teams collaborated together on a project. Beta_4 confirmed that *"The major thing was getting [the] quality team involved, getting legal involved; obviously, we have to do everything under [a] compliant procedure."*

(2) *Influencing others to co-operate towards meeting sustainability goals*

Influencing others by justifying the importance of integrating sustainability was a significant part of educating others, as Beta_2 elaborated that,

“It's a combination of explaining to people why it's important, also just asking people to just work to the rules. So, the rules have changed, and the processes have changed, people can't work outside of it. So, it's a combination of holding people to the rules but also explain to them why the rules are, what the rules are.”

She also had to use different influencing tactics to get others to co-operate, which varied from soft to hard tactics; for example, she mentioned, *“I think you have to virtually strong-arm people into giving you the information.”*

A common objective for Beta_2 as well as Beta_4 through this was to bridge the gap between policy and practice by making SC employees read the policy and educating them, to increase awareness about prominent supply chain issues. For some of them, this was not limited to raising awareness though, as Beta_4 realised that, *“I was going to have to really push to make people see things a different way.”* It extended to opting for more challenging behaviours, as discussed later.

Vendor risk assessment became a mandatory practice as it was supposed to help buyers manage environmental risk better on behalf of the organisation, despite causing a backlash amongst some buyers, as Beta_4 explained,

“It's really interesting that, right from the start, that a lot of people didn't want to use it. Because they were so used to getting things done quickly. We said, ‘Hang on a minute, this is more serious than that you can't get things done quickly; you know there could be a risk [from] Beta using this particular company.’”

(3) Knowledge acquisition

As such employees reported from other cases, they had to acquire knowledge regarding best practices and familiarise themselves with ongoing innovative practices taking place in their sector. Similarly, Beta_4 highlighted how it helped her when she was researching about the sustainable practices prevalent at the time,

“If you google who is doing best practice on this, that's where I will be getting my influences from. So, it would be very up to date and it would be quite innovative, and it would also be sort of quite new. You know, I have known some of the things other people are doing right now, and then you start to build that and say, ‘Well, how [does] that fit with Beta as a culture?’”

This shows that Beta_4 wanted to stay up to date about ongoing innovations and best practices which are relevant to the water industry to gain inspiration and develop their company’s approach towards sustainable innovation. She used such information to find ways to adopt the best practices suitable to Beta and tailor them to their function, as she explained:

“So, I had to try and look and see what best practice in the marketplace was, what kind of questions we should be asking of our supplier base.”

(4) *Taking up additional responsibilities and learning about best practices*

In this case, it was found that Beta_2 and Beta_4 acted as sort of change agents who were keen to make a change in the business operations by making it more conducive to implementing sustainability in purchasing and supply chain decisions. This required them to take on roles and responsibilities beyond their function. For example, Beta_4 engaged in multiple projects at the same time, which included community projects and sustainability workshops for the procurement staff, as well as running the usual tenders. For Beta_2, this involved engaging with the stakeholders and the senior community, which entailed going beyond the functional role and advocating for the sustainability standpoint the organisation pursues and communicating it to the press.

For Beta_4, it was not easy to balance different roles (running sustainability workshops and procurement) and at one point it led to her falling behind on one of them. As a result, she was taken off of it, as she mentioned,

“All my tenders were falling behind because it’s that you can’t do two things, really, at once. I had been trying to run the tenders and also run the sustainability workshops, and also as a business we are going into SAP next year as well, in 2018.”

Attitude around responsibility to engage in sustainability for Beta_4

Influence from the management/supervisor

Having an engaged board that values corporate sustainability, especially the immediate supervisor, can be a huge influence on employees in terms of shaping their perception about what the organisation values. Beta_4 had been a part of the organisation for over three years and was working towards introducing sustainability or sustainable practices into their supply chain, along with others. It was found that Beta_4 had a great influence from her supervisor, which not only made her prioritise sustainability in the procurement function but also encouraged her to take up additional responsibilities. This seemingly came from the trust the management put in her due to her being identified as a capable individual, as she explained,

“I was asked to do the project. It was something around the fact that I’m quite a perfectionist, so... they said, ‘You do the project’. Because that has the sustainability kind of involvement; anyway, it seems to fit quite well. So, I was selected to do the BITC.”

Thus, the employee derives impetus from both internal and external influences, which means it is a combination of her interest in the subject and willingness to make a positive change as well as the support of the supervisor that contributed towards her engagement. This observation is similar to what was found in other cases when employees engaged in challenging behaviours, although, for Beta_4, the accountability came from the top. This required her as well as other employees’ utmost commitment towards the project as it had a social outcome linked to it, which determines how the organisation is rated on certain parameters which directly impact their reputation, as explained in the quote below:

“I would say that the biggest prompt for us in the supply chain is the business in the community standard, because we are being posed from the top down to achieve high ratings within the CR [corporate responsibility] index, the corporate responsibility index, and the BITC.”

Expected outcomes by Beta_4

This sub-section presents the potential outcomes which Beta_4 expected towards both organisation and supply chain operations. Beta_4 even anticipated a concern regarding the organisation not being able to leverage on certain privileges if it was not able to maintain the reputation of a responsible and ethical organisation, which might pose serious threats to the existence of the business, as reflected in the quote below:

“And then benefits with the organisation such that you know, if we don't do this, we're just not going to have access to the same things that we have been able to have access to in the past. So, we know that if we don't sort of work towards a sustainable end game then it's going to mean big trouble for all businesses.

Driver for Beta_4

External ratings

Involvement in community projects, sustainability workshops and VRM, being measured against CR index and achieving high ranking motivated her to do better each time as there were reputational benefits associated with it. Since it is also a culture change for their supply chain staff, this drives Beta_4 to improve continuously by raising awareness and engagement. According to Beta_4, *“BITC is the driver because it's this thing that gets everybody, we have to sit up and take notice because we don't want to fail against our CR index... every year we have to get better.”*

Conscientiousness towards sustainability

The reason behind it, as she indicated, was that she was a perfectionist and *“can't really work a different way”* (Beta_4). This reflects the internal motivation one can possess to engage in greening behaviours.

Autonomy and supervisory support

An extension to the management support was found to exist for Beta_4 in the form of autonomy, as she believed her management not only supported her but also allowed her to take the extra time to learn about best practices.

Knowledge, skills and available tools

Beta participants depicted a high level of awareness and knowledge about sustainability issues and corresponding risks for the organisation along with the supply chain, as there was a great deal of communication regarding sustainability from the top. In addition to the sustainability intern other employees including Beta_2 and Beta_4 were also aware of applicable sustainability frameworks and standards in the industry through learning about the best practices. While implementing the sustainability strategy, Beta_4 found it helpful that there existed the relevant technology and infrastructure in the form of tools such as BPM, SAP and VRM integrated with sustainability, which helped them as a department make sure that the buyers were consistent in their approach across all the categories. Along with that, she possessed skills to help her evaluate the capabilities of the organisation's suppliers to deliver on those objectives and develop them if needed.

Ability to influence

Influencing others was enabled by the accountability that was assigned to her from the top and Beta_4 realised that it is vital to have it, as this gave her the authority to determine to set the expectations for everyone in terms of what needs to be done.

“So that gives me a sense of authority to be able to go to our team meetings [and] say, ‘Right, this is what we need to do in order to get five stars and where we fit within that’.”

Interest in sustainability

Although Beta_4 believed it increased her work and was stressful, she still liked to engage in it because she was intrinsically driven as well as pragmatic about the benefits for the organisation. She also expressed an interest towards sustainability which acted as a driver for her too, making her more engaged and positively influenced her leadership in this area. Beta_4 admitted that it was not an easy task driving a change in the existing way of doing things, observing, *“For me, there's no benefit; in fact, actually, it's really stressful. But obviously I must like doing it otherwise I wouldn't continue to.”* This indicates that she felt good engaging in this area.

Barriers faced by Beta_4

Resistance from others to change existing ways of working

Beta_4 observed that procurement staff were not readily receptive to these changes and the introduction of sustainability as part of a supply chain function. She expressed her frustration:

“It’s very difficult to get people to understand, it doesn’t matter how many presentations you do, people just go back to the old way of working. But it doesn’t mean that we’re not trying to move towards that sustainable model, but it’s just very long-winded and we get distracted all the time because we’re trying to do other things.”

4.2.5 Conclusion

In this case, employees’ involvement towards greening was depicted by all four participants in different ways; their behaviours can be categorised into four main activities: (1) updating policy and supplier framework; (2) educating others to increase their awareness about sustainability and driving it; (3) carrying out vendor risk assessment for sustainability; (4) taking up additional responsibilities and learning about best practices. The following paragraphs discuss these in more detail.

Two predominant factors leading to perceived responsibility to engage in sustainability emerged from the analysis: (1) accountability; (2) being asked by the supervisor. Beta procures goods and services that represent good value and has the reputation of being a responsible organisation. Thus, the environment, ethics, safety and social aspects are part of their vendor set-up process. Having to follow sustainable supply chain practices as a mandate was an impetus for participants to engage in green behaviours, albeit the responsibility to go beyond the norms of compliance and engage in championing sustainability came from some common and uncommon sources for certain participants, as discussed below.

Responsibility towards sustainability was perceived as an accountability towards delivering the expected outcomes in the form of enhancing reputation, reducing risks and improving supply chain processes by achieving their SBOs. Updating of sustainable procurement strategy was a major ongoing project that existed at the heart of a lot of employees as it was expected to bring innovation in their way of conducting business. Influence from the top had a positive effect on their engagement.

There is an indication that a strong sense of responsibility towards environmental goals and standards is perceived by all the participants who perceived green behaviours as a part of the job. However, the accountability as well as a higher degree of proactivity towards the sustainability risks is depicted more so among the employees at a higher level of the organisation's hierarchy as they are directly answerable to the stakeholders. For example, the procurement head had (Beta_2) represented the organisation at social platforms and responded to the press making him feel a greater accountability towards sustainability implementation.

Employees perceived a responsibility towards various risks faced by the organisation and had a strategic action plan to manage those risks. The procurement head in this case had a high level of influence and was a part of the senior executive team. His commitment and leadership not only helped the subordinate staff champion sustainability engagements but also led to sustainability practices evolving towards being fully embedded across the functional areas such as VRM. This reflected the sustainability approach in procurement decision-making and communicating the message down the supply chain. Individual employee-led initiatives to improve sustainability in the supplier selection process were also observed.

Beta employees displayed a more mature approach to sustainability as they were not just financially driven. This was the only case company out of the five cases where employees depicted that they managed to succeed in finding the balance between environmental and economic sustainability. Both top-down influences and bottom-up crafting of the role by employees were observed. The organisation had a broad overall organisational commitment to sustainability, but the individual projects had clear sustainability outcomes linked to them. There is a sustainability department with which

purchasing staff work closely; however, these projects were initiated and implemented mostly by procurement staff with the assistance of the sustainability team. Therefore, they did not need the sustainability manager to drive the mentioned projects, as in the previous case. Instead, they had the IMS team such as Beta_3 driving sustainability in operations.

The employees perceived a supportive culture in addition to the self-drive to champion sustainability initiatives using a broad mix of strategic and normative appeals. The managers had a strong commitment to their organisation, but they were also committed to social and environmental issues, which seem to have aligned with their organisation's socially responsible culture now, from a dominant profit-oriented standpoint in the past.

Liaisons within the organisation, although transactional, are based on collaborative and helping relationships. SC employees' knowledge and skills (existing or acquired) also play a great role towards managing the processes efficiently in this case. Liaisons were seen to exist to coordinate operations between departments and supply chain partners, to facilitate communication such as about risks and for collaboration on shared projects. It was found that employees worked in close association with the sustainability team and the IMS team. This happened under the guidance of the procurement head, who has been involved in translating the organisation's sustainability objectives at a more operational level and has been a major source of influence for other participants.

Some barriers that have emerged to affect engagement include factors such as lack of time to carry out longer VRM exercises, giving preference to cost and resistance to change from using the traditional framework. However, Beta's operating mechanisms have not allowed such behaviour to persist. Also, to overcome the barriers, efforts were taken when needed to explain the importance of sustainability and reasons for adopting the new approach.

Table 4.2 Beta participants' profile summary

Beta Company Profile: Country: UK; Sector: Service; Industry: Utility; Year Found: 1973; Employees: 2500; Certification: ISO 14000: 2004				
Participants	Beta 1 Intern (Sustainability) Tenure in Org: 9months Tenure in current role: 9months Age: <30 Gender: F	Beta 2 Procurement head Tenure in Org: 10years 5months Tenure in current role: 3years 10months Age: 30-50 Gender: M	Beta 3 IMS Senior manager Tenure in Org: 10years Tenure in current role: 10years Age: 30-50 Gender: F	Beta 4 Senior procurement manager Tenure in Org: 3years Tenure in current role: 3years Age: >50 Gender: F
Project	Drafting sustainability policy for procurement	Devising sustainable procurement strategy	Waste service purchase project	Sustainable supplier's framework development
Project motive	To incorporate the sustainability requirements in the procurement strategy as per the terms of the infrastructure carbon review and other government requirements	The main objective for Beta 2 from the project and in general was to change attitude of procurement staff towards from cost driven to value driven which emphasised on sustainability aspects	As an IMS person the main motive in any project is to ensure quality is maintained and sustainability aspects are implemented. So, they basically drive sustainability across procurement.	From this project the main motive is to develop a database of suppliers that meet the updated sustainability criteria for chemical category.
Driven by sustainability or not	Yes, sustainability is integrated at the core of the procurement processes	Yes; it involves updating sustainability aspects in procurement strategy	Yes, managing waste sustainably was a conscious effort	Yes; it is develop based on supplier's sustainability capability
Executed greening behaviours by them	-Advising and educating procurement staff about sustainability -Green supplier development	-Taking charge to update the sustainable procurement strategy -Educating others, driving awareness among buyers -Liaising with cross functional teams -Prioritized sustainability aspects in the supply chain decisions -Influencing others including senior management and staff to co-operate and support	-Educating and influencing others to increase the engagement -Driving sustainability among procurement staff	-Bring a change in the way of doing business by integrating best practice -Influencing others to co-operate -Knowledge acquisition -Taking up additional responsibilities and learning about best practices

Attitude towards responsibility	<p>Job requirement (Have to): Assigned responsibility to incorporate sustainability aspects as a part of the job</p> <p>Internal motivation (Want to): Internally felt responsibility towards doing something for the larger good</p>	<p>Accountability to lead the procurement function (Have to) Perceived responsibility due to accountability to sign off the sustainable procurement strategy; duty to address any anticipated risks including sustainability</p> <p>Somewhat internal (Want to): Has an interest in sustainability and recognise personal benefits in terms of career growth by engaging in environmental behaviours</p>	<p>External (Have to) Part of the job to make continuous improvement which includes sustainability improvements</p> <p>Self-realized (Want to): Awareness of climate change issues and an internal drive makes her realize the responsibility and importance of sustainability</p>	<p>Externally assigned (Have to): Influenced and asked by the management to engage in driving sustainability</p> <p>Somewhat internal (Want to): self-motivation as she enjoyed engaging in sustainability improvements, despite it being very demanding</p>
Enablers	<p>Background and knowledge of environmental issues</p> <p>-Top management support</p>	<p>Top management support; -ability to influence -external ratings -Teamwork</p>	<p>-Awareness of environmental issues -Top management support and green leadership</p>	<p>-External ratings -Conscientiousness towards doing the job thoroughly -Autonomy from the top and support from supervisors -Knowledge, skills and available tools in the organization -Ability to influence</p>
Outcome expectations	<p>Reduce environmental impact and risks</p>	<p>-Embed sustainability in supply chain processes and improving efficiency -Prevent any risks -Improved decision making</p>	<p>-Reputational benefit for the organization</p>	<p>-To have access to the same amount of privileges of being a reputed organization</p>
Barriers	<p>Gaining time and commitment from others</p>	<p>Resistance from the middle and lower management level to co-operate</p>	<p>Sometimes bureaucratic hurdles faced in the organization</p>	<p>Faced challenges from other departments in terms of getting their cooperation especially middle management</p>

4.3 Gamma within-case analysis: “Farm machinery” case study

4.3.1 Introduction

This section presents an analysis of the third case company, which focuses on the SC employees of a farm machinery company (hereafter referred to as Gamma). It presents a detailed overview of the firm and the context of the case. The next sub-section analyses the individual case data in detail; this is followed by a summary of the key findings. Finally, Table 4.3 summarises the case participants’ profiles.

4.3.2 Case overview and context

Gamma is a subsidiary of a global leader (multi-national company/MNC) in the capital goods sector established in late 90s and is privately owned. The plant employs around 1000 employees. They manufacture and sell agricultural machinery and have more than 400 models in over 100 product lines. They have placed the sustainable development of agriculture at the root of their “*clean energy leader strategy*”, which promotes the use of renewable fuels, systems to reduce emissions, technological tools and sustainable agricultural practices. Through their strong dealer network, they promise to stay close to farmers all over the world and offer a full suite of complete business solutions. Gamma began its operations in India in late 90s with the launch of its first tractor in the Indian market. Gamma is driven by its parent company, which is located in Europe, and operates all over the world with a presence in EMEA (Europe, Middle East and Africa) and APAC (Asia Pacific). The plant in India has acquired various ISO certifications, such as ISO 14001:2004, OHSAS 18001:2007, ISO 9001:2008, EN 16001:2009 and ISO 50001:2011, over the years. They claim to be the country’s most advanced tractor manufacturing plant. The plant is built along the lines of their global facilities and has won many national and international awards for quality and manufacturing excellence.

In India, companies are required to comply with regulatory provisions defined by Indian law according to the changes to be implemented. Following the directive on Corporate Social Responsibility (CSR) by the Indian government, which requires companies to invest in sustainable projects, Gamma adapted to ensure that its activities

are structured to benefit local communities. In this regard, a committee was established in 2015 to evaluate several project proposals. The areas of intervention identified include primary healthcare for local communities, technical training, education for underprivileged children, and water management. The organisation has set many long-term targets and objectives in this regard. The organisation has a structured approach to running its plants across the globe, based on the Japanese concept of world-class manufacturing (WCM). The plant located in India has to follow the parent company norms regarding sustainability besides the laws enforced by the Indian government.

4.3.3 Case participants

Gamma has a manufacturing facility for the production of farm machinery and a separate spare parts division which caters for the after-sales service. I interviewed three participants from the manufacturing facility (Gamma_3, Gamma_4 and Gamma_5) and two from the spare parts division (Gamma_1 and Gamma_2), as they all had an important supply chain function to handle. Gamma_4 is the production head, who looks after the plant machinery, plant upkeep, civil and retail activity, and also took up safety and environmental activities in the last two years, along with the environment and safety manager (Gamma_5). Together, they are responsible for sustainability reporting and are engaged in preparing various reports and documentation about the plant's sustainability activities. Gamma_3 was interviewed as he headed the indirect purchasing for the plant and had rich experience of working in direct purchasing previously. He has been involved in the purchasing of both Opex (operational requirements) and Capex (capital assets), so it was insightful to learn about his experience of implementing sustainability aspects in diverse areas. Lastly, Gamma_1 and Gamma_2, who belonged to the spare parts division, had an important function to supply spare parts to customers all across the world. At the time of data collection, Gamma_1 and Gamma_2 were working on changing the packaging material for the parts supply, which was an excellent opportunity for me to capture their involvement in that project with a sustainability outcome.

4.3.4 Case analysis

The following section presents an analysis of greening behaviours of the case individuals from farm machinery company Gamma by addressing each of the research questions in turn.

Gamma_1: Logistics and warehousing head

Project overview: Packaging improvement project
This project aimed at changing the packaging material used for transporting spare parts to their dealership network pan India and some export customers abroad. The primary reason for them to change their packaging material was to minimise damage to parts during transportation. However, there were side benefits associated with this as it reduced the use of wood and the use of Thermocol, which reduced their environmental footprint as well as cost. By using semi-virgin material in their packaging, they were able to improve the quality of the packaging, thereby avoiding damage as well as stopping the use of wood; thus, it had multiple advantages. This initiative helped them to recycle their packaging material and use it for the long term as well, which reduced the cost. However, they realised that they could not use this recyclable packaging for exports as this would increase their cost. Gamma_1's main role involves supplying the requisite parts to the dealers in time and in perfect condition; thus, packaging is an important area of his involvement. When he and his manager found out that there were incidents of clients receiving spare parts in a damaged condition, they decided to change their packaging.

Environmental behaviours of Gamma_1

(1) Reducing packaging by using conventional operations concepts and finding alternative packaging material which is recyclable

This project was aimed at improving their existing logistics of after-sales parts by changing their packaging while they were already working towards reducing the amount of packaging material being used. Gamma_1 realised that there was a huge wastage of resources in existing ways of transporting their finished products, which not only increased their cost but also had a high environmental impact: “So that is basically a

wastage of resources and that impacts our environment also. So that is one thing: we reduce a lot of the material or use recyclable kind of things. That is one thing we have started.” With this aim, his department first tried to eliminate the Thermocol in their packaging as Thermocol is a non-biodegradable material. Thus, he looked for an alternative material which would address the problems they faced such as damage to parts. However, they had to look for something that would not increase the cost too much, so they decided to change it to corrugated boxes, they also started to reuse the packaging. Gamma_1 was keen to look for alternatives that were low cost yet environmentally responsible. Therefore, he used several conventional operations management concepts such as lean and JIT (just in time) and applied them in a manner which would help the organisation reduce its packaging consumption, as elaborated below:

“We are going to consolidate the size of [the] packaging material because, first, we are using multiple sizes of boxes, so that will impact our inventory. So, if you take common size, common boxes and common packing, it will reduce [the] entire packing. Secondly, the important thing that we are going to start is JIT supply. Just in time means we are not keeping the material consumables like [a] big inventory for one month or two months. We are trying to reduce to [a] maximum [of] seven days. So that project is also there, so that impacted a lot on consumption and ultimately [the] environment.”

This shows that existing knowledge that SC employees possess can be applied effectively in addressing environmental issues in a very efficient and cost-effective manner, although this practice ultimately helps them improve their operations.

(2) Knowledge acquisition and exchange with network partners

Gamma_1 orchestrated his efforts to come up with packaging that would help the organisation avoid damage to the parts during transportation. For that, he collected the necessary information about the alternative material that could be used by researching about it on the internet and by reading about best practices of other companies. The spare parts department was in the trial phase of choosing the right alternative to be used for packaging. While they were waiting for the trial reports, Gamma_1 was involved in working out all the details, the ‘nitty gritty’ of the material and how they can source it,

while also obtaining feedback from the companies that were already using such packaging, as he explained:

“We have identified what kind of alternative is there. When we got the alternative, we looked at who the suppliers are, from where we can get this material, and, after getting, we checked who are the competitors or other companies who are using these kinds of things in India or abroad. All these things we got from management and other persons also. Once we got all these, we started it [finalise the packaging].”

Participants in this case including Gamma_1 and Gamma_3 connected with their network of buyers and suppliers in other companies to obtain various information related to prevalent practices or initiatives in their companies. Gamma_1 explained that they got in touch to discuss ongoing best practices and *“such kind of benchmark we are doing through our network because we have [a] circle in other organisations also.”* Thus, they used their purchase and supply networks to find new and connect with existing suppliers. They also found solutions to any technical and operational problems they faced in managing their supply chains, although, in this project, Gamma_1 only connected with his network to find the right suppliers for this new packaging material.

Attitude around responsibility to integrate sustainability (Gamma_1)

Customer satisfaction is part of the KPI so, packaging indirectly links to KPI

Gamma_1 and his supervisor decided to change the packaging because of the parts damage resulting from the existing packaging. This was an opportunity for them to change the packaging and address the customer complaints. Gamma_1 believed that it was his KPI to increase customer satisfaction, and packaging was an effective means of doing so. Therefore, he made efforts to obtain the required approval from management as well as the purchasing department who allocated the budget to finance the project. As he primarily handled the business side in Gamma, he understood the requirements of the market very well, which led to his decision to not only change the packaging but also to opt for recyclable packaging. Gamma_1 was responsible for supplying the required parts to the dealers on time and in perfect condition, as he mentioned:

“Our motto is to supply the parts within the right time and right condition. So, if our packing is not perfect, we will not be able to achieve that. That is the part and parcel of my KPI and that is the key area.”

In a way, responsibility for Gamma_1 to reduce packaging and use recyclable packaging was perceived from linking packaging improvement to his KPIs indirectly. Thus, it was driven from the need to come up with a long-term solution for supplying parts with minimum or no damage as that affected their business.

Influence from the top (director and supervisor involved)

He perceived an accountability towards addressing the existing packaging issue and improving it, as it had serious implications for their business. Along with the involvement from the top, this made it a priority for Gamma_1 to change the packaging, as he was going to be reviewed for it, which compelled him to engage, as he mentioned,

“Top-level management is involved. He and I are driving this project. It is a very sensitive kind of thing and [the] focus is very high and [the] review is also very high because since we are directly involved so definitely.”

Expected outcomes (Gamma_1)

It was found that, similar to other cases, participants in Gamma too anticipated a good outcome by incorporating sustainability. Gamma_1 perceived a benefit for the organisation and the business in general through their packaging change.

Good outcome for the organisation

Gamma_1 perceived several good outcomes from it and they were all linked with one another. First and foremost was to meet the customer requirement of providing parts with minimum or no damage; second was to reduce packaging consumption, reduce environmental impact and ultimately save cost. As Gamma_1 put it, *“we are driving this project; if we get some output, then we can see the reduction in damage.”* The outcomes seemed to be linked to each other, as one led to fulfilment of the other.

Satisfying customer requirements

In addition to reducing the environmental impact, satisfying customers was the primary benefit expected from this initiative, as Gamma_1 explained, “*After sales, we should supply the parts in good condition, timely and without damage. Like this entire process is helping in that.*”

Drivers for Gamma_1

Awareness from the past experience of working in MNCs

Gamma_1 had worked with several leading MNC firms in the past and he believed that practices such as green packaging and recyclable packaging are still new to Indian companies; however, they have been implemented from early on in MNCs. Thus, his experience of working with several leading MNC firms in the past increased his awareness on sustainability issues, which helped him in implementing packaging improvements in Gamma.

Barriers faced (Gamma_1)

No major barriers were highlighted as such, except for the increase in cost, but it was supposed to be balanced by the purchasing department through either reducing the cost in some other area or finding the right suppliers to source the new packaging material at a lower cost.

Gamma_2: General Manager of spare parts

Project overview: Packaging improvement project
This is the same packaging project discussed by Gamma_1 above. Gamma_2 is head of the spare parts division and Gamma_2 reported directly to Gamma_1 on this project. His primary function involves looking after two major aspects of the business: one is the parts operations and the other is parts sales and marketing. He heads a team of 78-80 people mainly responsible for the parts export business for South Asian Association for Regional Cooperation (SAARC) countries. Out of the 80 employees, there are seven to eight functional heads who directly report to him from their respective departments, namely inventory, procurement and planning; warehousing and logistics; sales and marketing; pricing; marketing and exports. He manages parts business for two brands:

one is agriculture and the other is the construction business, for which he handles the operations as well as the sales and marketing. They have around 400 dealers in agriculture and around 70 dealers in construction. Apart from that, they have around 100 stockists only for the agriculture business and these stockists are only for the parts business for the retailing and selling in the aftermarket. Their prime objective is to conduct the business through these channels for the agriculture and construction business. According to him, the most important functional key result area (KRA) for them is to satisfy the customer by means of availability of parts for all these 500-600 dealers because that is where the customers feel that they are happy and satisfied. Regarding the packaging project, Gamma_2 agreed they were in fact working on the packaging, but he believed that it had no relation to the environmental outcome. As per Gamma_2, the only reason for doing so was to avoid the damage that was occurring due to the existing packaging.

Gamma_2 depicted lack of engagement towards sustainability

Gamma_2 depicted a passive approach towards his involvement as he considered he was following the general organisation norms:

“I think within the plant we do not have any such issues. We follow the norms because, if we have ISO14001, 9001 certifications, definitely all those things do matter, and we have to do that. But when it goes outside the plant nobody cares actually.”

Evidently, he did not take responsibility for the impact of the products or packaging going out of the organisation because that did not have an effect on either the business or his KPIs.

No perceived responsibility by Gamma_2 despite influence from the top

While other employees such as Gamma_1 thought the project had a positive environmental outcome, Gamma_2, who supervised the same project, discarded any such claims, as he said, *“We are actually working on the packaging, but that's nowhere related [to] the environment”*, because it was purely driven by business reasons. This implies how individuals can approach the same initiative differently and that could have an

impact on their engagement, as one person perceived the responsibility towards sustainability and the other did not.

Despite the influence from the senior management, Gamma_2 was reluctant to invest his time and efforts in sustainability-related initiatives. He was asked to provide suggestions, as he explained, *“We had a meeting with our country head, so he asked for suggestions on working on CSR activities, environment and all those things.”* However, because of different priorities, he was unresponsive to such influence, although was willing to be involved if the influencing attempts and reminders were made frequently, as he said, *“This comes to, our routine work and agenda, so that is a basic concern for all of us unless and until somebody pushes us, ‘You need to focus on [the] environment’, then we will do that; otherwise we will just ignore that.”* This clearly depicts the impetus influencing behaviour can have on employee engagement. In his case, there was found to be an exception, as, despite the awareness and influence, he did not perceive any responsibility towards sustainability, neither externally nor from his personal influences.

According to the environmental manager (Gamma_5), the reason for this type of disconnect and lack of acknowledgement of sustainability in his functional role for Gamma_2 could be due to his unfamiliarity with the organisation’s culture as he had only recently joined. Gamma_5 highlighted that, *“This gentleman is actually new in [the] system, six months or four months old, so maybe he is not aware of those systems.”* This implies how employees tend to perceive involvement in sustainability to be voluntary and dependent on individual discretion if it is not made a part of the KPI. This was established by Gamma_2’s disengagement as he did not seem to find it linked to his KPIs.

Drivers for Gamma_2

Gamma_2 believed that external pressure such as push from the government and regulatory norms can have a strong influence on compliance with environmental norms as it is the reason why their logistics partners would comply with environmental norms; therefore,

“It's the government who is pushing and trying to impose. Rather after this Euro 3 will be there, Euro 4, Euro 5 will be there, since they are forcing it is still possible; otherwise, if it's not imposed, nobody will bother and will continue to use [a] 20-year-old vehicle.”

Barriers that stopped Gamma_2 from engaging

Lack of awareness and attitudinal barriers

The issues related to lack of communication and accountability were raised in many cases, as in this case, as the topmost barrier for limited or no engagement of employees. Similarly, Gamma_2 felt that he did not owe the organisation any obligation to be involved in environmental management, and he did not have any time to spare on other things, as he told,

“I would say I'm not very much aware because it more or less involves the day-to-day business, so we hardly have time to think of all those things.”

Unlike other employees whose past experience of working in MNCs made them aware and engaged to incorporate sustainability into their functional role, Gamma_2 had a contrasting view. Firstly, his experience of working in environmentally responsible companies previously did not change his attitude on prioritising sustainability. Secondly, he also implied that, in India, the environmental aspects are limited and are to be followed only inside the plant, and, lastly, that these activities do not link to a larger societal impact.

“Focus is not there in India, in terms of all those things [environmental sustainability]. Otherwise, if you talk of plant, we have all those EHS [environment, health and safety] and all those guys must be there, they take care of it, but that is confined to the plant itself, not as a society.”

Environmental department's job

Gamma_2 seemed to experience certain attitudinal barriers also, such as thinking it was somebody else's job. He believed that his commitment was supposed to be directed towards increasing business only. Gamma_2 considered sustainability to be an extra-role which was supposed to be a side activity and not linked to their business or operations.

Secondly, he believed it was the job of another department (indicated HR or environmental department) and entirely their purview. He also believed that it would lead to incurring additional cost for such activity, as per his quote below:

“See, I think we need to have a particular department who should take care of all these activities in the organisation. Because, even if I would suppose, it’s possible that I want to do these things, which is good for our environment, but then the question will come on to me only that, ‘OK you have to do it from your own budget’ and all those things.”

It also points out that a particular type of driver may not have the same effect on everyone because the perceptions of sustainability among different employees affect the way they behave or react to it.

Overcome the barrier by making it part of the KPI (Suggested by Gamma_2)

Gamma_2 implied that the only way to make sustainability a priority for him would be to directly link it to KPIs, as reflected in the quote below:

“So, when it comes to business and these things are linked, then I'll give priority to the business. Because that's where the KPIs and KRAs of me and my team are involved, so that will come first priority.”

Gamma_5 the sustainability manager made an important comment in this regard: that there needs to be an accountability on the part of the employees towards sustainability aspects just like other KPIs to increase their engagement.

Gamma_3: Purchasing head

Project overview: Packaging improvement project and power-saving lights installation
Gamma_3 was a part of several projects that had sustainability outcomes associated with them. He discussed several projects where he had a sustainability consideration while carrying out the purchase. Examples include installation of CFL lights in the plant, sensors installed in toilets, using CNG instead of propane, etc., and asking suppliers to switch to returnable packaging. In another project, the organisation was

setting up a new plant at a different location where the lighting had to be installed. Gamma_3 was responsible for purchasing the lights for this huge facility. The design engineer suggested fitting CFL lighting for this plant. However, Gamma_3 and his team found that it was wrong to install CFL and suggested LED lights instead. To obtain the necessary approval, Gamma_3 was asked to conduct a study about it in the existing plant where the LED lights were installed and list the benefits of going for the suggested option. Basically, they were asked to make a business case to get the purchase approved. They provided the study results and did get the LED lights installed in the new plant, even though it delayed the project by two months. Later, the energy-efficient lights were installed in several other areas of the plant and widely accepted by the organisation.

Environmental behaviours of Gamma_3

(1) Knowledge exchange with purchasing network to develop green concepts

Gamma_3 explained how he used knowledge exchange while working on these projects to solve problems and collectively found solutions to sustainability issues that he and his colleagues from different organisations faced. He described instances about contacting his colleagues/friends from other companies to find out about the new initiatives which they were working on in their companies. Therefore, he gathered information using his contacts, as he described it:

“I have friends; it's a small industry, to be very frank. So, I have friends in other companies.... So, I speak to them or what is the new thing which they are doing...What are the projects they are working on”

The use of personal connections and knowledge exchange with them is a common practice in this company. Gamma_3 asked for their opinions and learnt about caution that needed to be taken into consideration, especially when they implemented new concepts. By utilising these connections, he is able to learn more about what projects other companies are working on and the advantages of doing so. Then he starts exploring more about them and obtains market feedback on them. Gamma_3 also emphasised that he gains knowledge by learning from others' experience through this exercise as they have

already faced “*the hardship of solving that particular problem. During a certain period of time he'll understand what the answer behind that is*”. An example of a project that he had previously implemented using the same approach is elaborated below:

“So, we have our group circles of purchasing people. We came to know that they are going to start using CNG now, natural gas, piped natural gas. So then, after that we requested that we'd also like to join it because in that particular case, if they can use, they can extend this particular line over here. So, we got in touch with GX, IX, and then after that we got that particular pipeline installed over here. Now the pipeline is coming directly to our plant and we don't need propane.”

Gamma_3 learned about the concepts that have cost and environmental saving solutions and implemented it in his facility after gathering relevant information and specialised knowledge from purchasing colleagues from other companies. If it works, they will implement the same concept in other locations. The other example shared was of high-tech machinery that had to run on DG (diesel generator) sets completely because it needed a continuous power supply. However, diesel is highly polluting. These machines were imported from Japan, were highly expensive and they could not afford any damage to them. Therefore, they solved the problem by switching from diesel to natural gas. As Gamma_3 explained,

“We have come up with a concept of [a] natural gas-generating set. What we have done is we have taken it on lease and, whatever propane, whatever natural gas we are getting, it gets connected with that and then after that it is producing electricity. That way it is helping us out in saving the environment.”

These examples reflect that this is a type of tacit skill possessed by employees belonging to these groups who develop their knowledge within the network by knowledge exchange as it helps them in developing green sustainability concepts. This is because SC employees are quite privy to information relevant to sourcing the required resources as well as knowing the right people whom they can influence (as will be discussed later) and liaise with. This facilitates them in implementing greening solutions in their organisations.

(2) *Influencing suppliers to switch to recyclable packaging, developing them and educating others towards sustainability*

It was found in this case that participants influenced others, similar to other cases, for finding responsible alternatives, e.g., improved packaging materials, alternative energy sources, alternative fuel, etc., and implementing such initiatives. In this case too, participants tried to influence suppliers to help them implement a certain initiative which saved them cost and helped reduce their environmental footprint.

The organisation purchased material worth 2500 crores annually for one of their facilities, which *“came in wooden boxes wrapped with polyethene and with other packaging”*. So, they took an initiative to force their suppliers to use returnable packaging, due to concerns about, environmental damage as a lot of wood was being used for packaging, as Gamma_3 observed,

“This packaging should not get wasted. In case you get it in wooden boxes it is not acceptable because at the end of the day you are cutting down trees to get this generated. So, we forced our suppliers to use returnable packaging.”

Gamma_3 persuaded his suppliers who used wooden boxes for packaging to change to a returnable type of packaging and *“at [a] certain point of time the suppliers felt helpless and [said] they cannot do it.”* Then their organisation [Gamma] supported another logistics company who were already working on developing a reusable packaging, by helping them execute it, as he explained:

“Then we have supported them, and we have got in touch with agencies. There is a company by the name PLY logistics. So, they are experts over there, so we utilised their expertise.”

Similarly, there were other concepts that they came up with the help of suppliers and third parties, for example, making bricks from hazardous waste. Again, this was driven by the motivation to save the cost of disposing hazardous waste. Thus, every time they come across a situation where they incur cost, they think about ways to optimise the cost while reducing the environmental impact and spreading the awareness about it because,

“See, [the] purchasing department has made it a norm that first of all let's educate.” This involved learning about the issue and finding a solution to it with the help of relevant parties, and check with the government compliance norms, as Gamma_3 explained,

“We got in touch with an agency, who gave us a concept that, okay, land has to be leased and they will be burying down this whole sludge into that and then there is a proper treatment which is done, which was approved by the state government also.”

Following this, his team contacted other suppliers, influenced them and came up with the concept to make bricks out of the waste. Implementing a certain concept involves persuading several parties, as Gamma_3 observed,

“First of all, you will have to convince the supplier. You will have to tell him that you want to do this... and then after that, as [an] indirect purchasing team, they offer us, ‘Okay, this is the scope... After that they need to present it to their internal team within that...there has to be consensus between five departments. Finance has to be involved in it, legal...manufacturing has to get involved... purchasing... safety, and the other team has to get involved into it. So, all of us have to work like a team to get [a] certain thing implemented.”

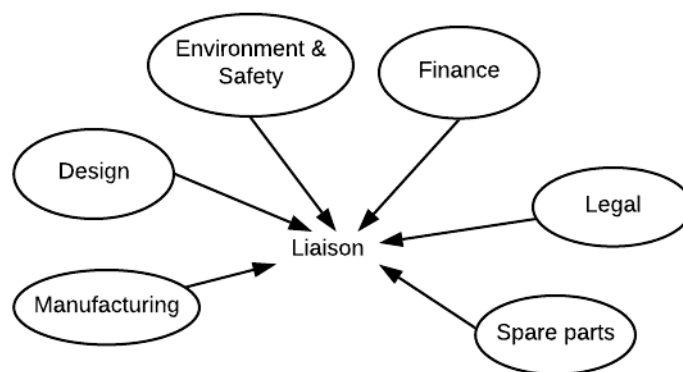


Figure 4. 3 Liaisons between teams in Gamma

He works with the technical department for every purchase, as the product specification has to be finalised by the technical department. Having all the quality and environmental certifications in place, they ensure that the product to be purchased is environmentally friendly. The purchasing staff conduct a cost benefit analysis to evaluate

the viability of the concept. This implies two things about them: firstly, they possess several key skills such as managing suppliers, networking with colleagues, cost and resource optimisation, etc. Secondly, these are highly relevant skills possessed by SC employees which they utilise for developing green concepts and implementing them in their organisation. Hence, Gamma_3 engaged proactively towards greening while working on different projects, even though many initiatives were driven by the desire to reduce damage or reduce cost.

A close investigation of the intention and practice of educating others shows that it has a mutual impact that, in the end, benefits both and helps maintain it. Educating their subordinates in this case is understood as a service from one party to another that has a domino effect, meaning it will be passed on further, as Gamma_3 explained,

“So, you impart that particular knowledge to your junior, he passes on that particular knowledge to someone. He will go to some other industry; he will go with that particular knowledge that, ‘Okay, when I am entering into a contract these are the things which I need to see.’”

In return for this, they gain too, as *“we are also getting educated on that particular subject and know about the advantages”*

Attitude around responsibility (Gamma_3)

Have been asked by the supervisor

The source of responsibility for Gamma_3 arises from being asked to engage by the supervisor, as he explained, *“My boss gave me this particular target, even though it is not related to my area, but he requested me help them out.”* This can happen when the supervisor considers an employee to be capable of delivering on a project, as in case of Beta_4. The demand from the supervisor can influence the way the subordinates prioritise sustainability, since supervisors can have a strong influence on employees (Ramus, 2000), as this acts as a cue that their organisation ‘walks the walk’ when it comes to incorporating sustainability. For Gamma_3, the obligation to engage in this project came from his director, as he explained,

“This was the intention of my director in purchasing. That, ok we should not use these kinds of packaging materials and move on to the returnable packaging.”

The demand from the supervisor is a particularly strong source of perceived responsibility and it reflects the importance of responsibility being assigned externally towards sustainability, because Gamma_3 developed a sense of obligation that made him take up more sustainability-related activities.

Organisation has to report sustainability performance

Gamma_3 understood that, being an MNC, the organisation reported its sustainability performance and collected carbon points from the various subsidiaries located within the EMEA (Europe, Middle East and Africa) and APAC (Asia Pacific) which they are responsible for reporting, as he observed:

“So, all these carbon points, in case if you do something good then, at the end of the day, [the] company has to declare, what is the company doing for [the] environment or for the world, for the people and so on.”

Supportive organisation culture towards sustainability

Gamma_3 also derived motivation to consider sustainability aspects as he perceived that there is a culture in the organisation to promote environmental improvements and being a ‘world class manufacturing organisation’ made it possible. Also, the strategy to work in an environmentally conscious manner aligned with the purchasing objectives, which made it more lucrative for him. Gamma_3 shared an example of it, as quoted below:

“Because, see, we also have our inherent agenda behind it that the more [of] this kind of non-renewable packaging material you use, you need [a] lot of space. But, in case you keep rotating it, then you need less space and, it is environment friendly and, on the other side of it, [it] is [a] cheaper option”.

Expected outcomes by Gamma_3

Cost savings as well as reduced environmental impact

Cost savings was the single most widely recognised outcome associated with sustainability initiatives that many participants expect to achieve in Gamma, as also found for other case participants. There were many participants involved in packaging

improvement initiatives and they identified that using recyclable packaging would help them at various levels on being able to reduce cost massively, as per Gamma_3:

“The best part of the whole study was that, first of all, we have been able to get it [the packaging] converted to returnable packaging, which has reduced the impact, and, the other side of it, we have also been able to save cost, so both ways it was advantageous for us.”

Drivers for Gamma_3

Management support

Gamma_3 stated that the organisation spends a lot of money on maintaining the plant and encourages environmental improvements. When it comes to following the world class manufacturing (WCM) model, they have a culture which supports continuous improvement even if it comes at a higher cost, as long as it has a good outcome:

“This is a different culture, what we have in Gamma. Where management is also equally inclined to have somethings, which is good. Otherwise, see, when you talk about WCM, it's a very hefty project. I am [saying] it's a very hefty project and we spend like in crores when we work on WCM, in order to maintain this particular plant.”

Training, external ratings

Gamma_3 mentioned that the organisation provides training to its employees which enforces them and makes them engaged in improvements:

“There has been lot of training which has been imparted on to this and then after that there have been audits.”

Past experience

Gamma_3 was keen to suggest sustainability-related improvements in the organisation because of his experience of working in different functions, as he explained, *“We have also learnt it from some experience.”* He found working in indirect purchasing particularly increased his learning as it helped him become a ‘jack of all trades’.

Awareness

Gamma_3 highlighted that awareness was important for him to be proactive, as he mentioned that “*you will have to know what is happening around you*” in order to learn about new initiatives taking place in the industry and establish contact with employees from other companies. He further added, “*When you visit [a] supplier, then you get to know many things.*” He explained that supplier visits serve as a medium for him to not only meet new people and exchange ideas and knowledge with them but also see what concepts they have already implemented in their organisation. This helps him gain awareness to drive sustainability, as he explained:

“Firstly, you meet them and see different things, then things come to you. Secondly, it is sometimes the supplier who approaches us with a different concept. So, this is how, for example, [a] certain concept has come from manufacturing or from purchasing; then we check around the industry, like in ABC, what you have done.”

External ratings

There is a culture of continuous improvement in the organisation, according to Gamma_3, as employees in different departments strive to gain improved ratings and there is competition. These ratings drive them to contribute to the performance of their department. As Gamma_3 stated:

“After that, there have been audits... we reach one level and then reach the next level. Now we are advanced, so this is bronze, then silver, then after that, then there are certain brands which are at gold level. So, people are approaching that, people wanted to reach that particular level.”

Challenges faced by Gamma_3

The only challenge faced by Gamma_3 was found to be increase in cost, as it is a challenge to make remarkable changes and improvements at a low cost. Also, being in a purchase function they have an obligation to save 5% in every tender, so that is quite challenging for them to maintain, as he shared the struggle:

“For a purchasing department, these are the guidelines. Every year, we have [a] certain target of reducing the cost by 5%. You cannot negotiate with the supplier every time, ‘Okay, give me [a] 5% reduction, only then will I give [you the] business.’”

Gamma_4: Deputy General Manager, Manufacturing

Project overview: Plant maintenance and upkeep as per the environment, health and safety norms and WCM framework

Gamma_4 looks at higher level reporting [for the plant sustainability performance] on several parameters ranging from waste management and disposal of effluents, reducing emissions of SO_x and NO_x, recycling to packaging waste disposal, etc. Gamma_4 is a senior member in the organisation and has spent more than 20 years in the organisation. From 2015, he has been involved in plant and engineering activities, which encompasses many aspects such as plant machinery, plant upkeep, civil and retail activity, safety and environmental activity. He gives safety the utmost priority out of all the practices. Gamma was audited twice a year by external auditors on various parameters of which the environment is one. The organisation asked Gamma_4 to follow a seven-step pillar approach as part of their KPI to meet legal compliance, legal audits, EMAT audits and environmental projects. Thus, the organisation made the senior management follow a rigorous approach to map the impact of the plant and reduce it, as Gamma_4 is part of the core team responsible for the environmental pillar out of the 10 pillars specified in the WCM framework followed by the organisation.

Environmental behaviours of Gamma_4

(1) Educating the staff on the ground

Gamma_4 corroborated that the majority of improvements in Gamma had taken place in the packaging area in the last seven to eight years because, *“Lawfully speaking, land contamination is an important issue. Thus, there are too many infrastructural sorts of changes that have been done.”* He explained that, being a manufacturing organisation, *“We bring in a lot of materials from outside, which come in different sorts of packaging ranging from polythene to wooden. There are disposables, there are [a] lot of lubricants*

that are getting used; they are wasted, and their disposal has to occur.” Disposing of the waste properly is a problem employee come across quite frequently, which they try to solve by liaising internally with departments. As Gamma_4 mentioned, the staff generally contact senior people: *“Whenever there is some complicated sort of packaging, they do get in touch with us.”* For managing and disposing of the packaging waste, Gamma_4 conveyed a need to help the lower-level employees by educating them. He educates them about recycling, land contamination issues and other relevant information, and even trains them, as he explained:

“There are chances of improvement where we are continuously focusing [on] and educating employees and all types of managers, not only logistic, all types, production managers also. To develop a system to identify those people, train those people.”

The way in which they impart the practical knowledge about addressing environmental issues equips them to handle such issues and, in a way, this helps them develop their green abilities. In addition to that, they have forums to increase the participation from employees where they ask for suggestions, and also recognise them and reward the staff:

“We have certain forums where we recognise them. We hold these kinds of forums on [a] monthly basis, which is there for safety, environment and quality. We don’t have any forum for environmental protection specifically. We are rewarding them [for] environmental protection, but we have [included] it [in] safety improvement.”

(2) *Reporting for sustainability*

Together, Gamma_4 and Gamma_5 were also responsible for sustainability reporting and were involved in preparing various reports and documentation of the plant’s sustainability activities and performance.

Gamma_4's attitude around responsibility for sustainability

Accountability towards regulatory norms

The norms and guidelines followed in the plant come from the strict standards specified from the central and state governments and the Board of Pollution Control as they provide the directives regarding noise levels, air quality, water quality and soil quality of the plant. It was found that Gamma_4 and Gamma_5 were quite aware of the regulations to which Gamma was required to adhere, as reporting was a huge part of their responsibilities, as Gamma_4 explained, *"We also comply to local legislation and follow up with our Gamma global organisation."* He added that they have to follow the rules related to

"Recycling, land contamination and following general rules of the land with respect to [the] environment. We have our own strict standard, whatever the board specifies."

Therefore, there was an apparent accountability towards the regulatory bodies for the organisation, including him, to adhere to these regulations, as he further emphasised:

"We have some central reporting related to effluents, the emissions that we have following the usage and driving of tractors or disposal of daily-basis items in what manner [they] should be disposed [of]. And it started from our own department, started with manufacturing because we have to comply [with] these regulations, we are answerable."

This indicates that there is a culture of sustainability practice in Gamma, where these behaviours are carried out as a regular practice and have become part of everyone's job, especially the senior staff. As Gamma_4 put it,

"That is a part of our job. We don't have any motivating factors attached to it for the white collar but, yes, for the blue collar we do have schemes via [a] suggestion scheme."

As another participant corroborated, *"This is a WCM organisation where there are different pillars, one is [an] environment pillar, [one is a] safety pillar, so all of them are working into that particular aspect"*. This indicates that the organisation's norms are

guided by the WCM model shown in the Fig. 4.4 below, as it defines their objectives towards the environment, and it is considered an important means to engage in environmental improvements. Every pillar has a head who drives the core team members, who are heads of departments, and under them there are line managers; they are called the extended team. They have a highly structured approach so that they are all responsible for reporting on their part. These team members are identified by HR after they have been interviewed, and then trained to measure the impact of their department and suggest improvements. Gamma_4 suggested that they have strategies to increase the engagement from lower-level staff by offering certain incentives. However, for the senior management it is integrated with their KPIs, as he stated,

“We do try to incentivise it at the grass-roots levels. That is fine, others have to facilitate it. I can’t be asking for motivation every time. If I am asking for motivation, I can’t keep my subordinates motivated all the time. It’s a part of their KPI.”

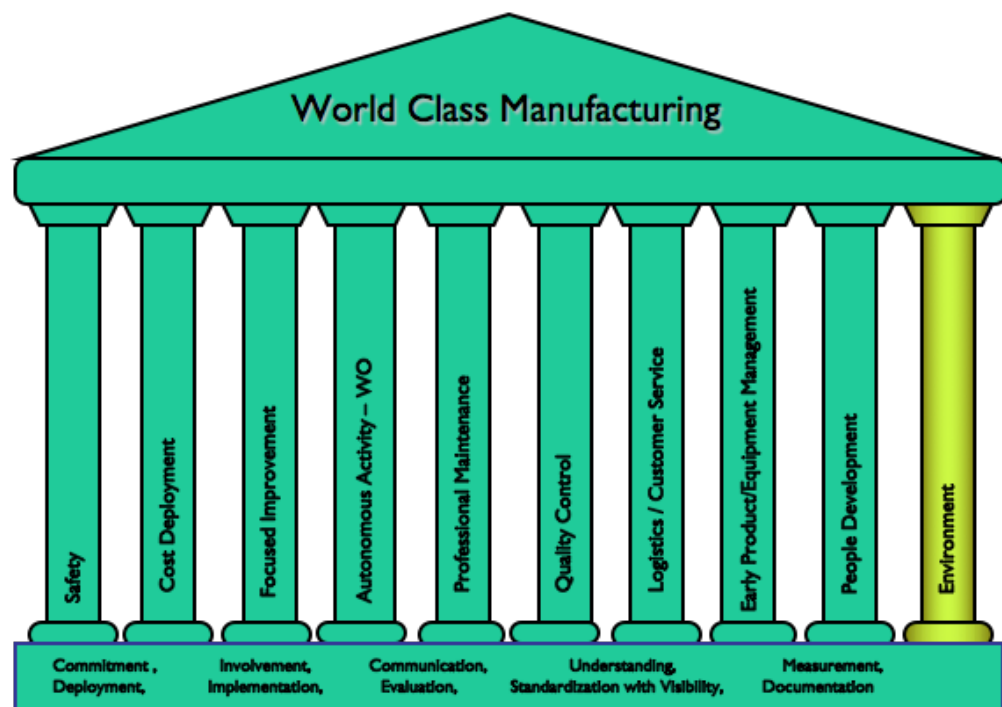


Figure 4. 4 Framework used in Gamma

Expected outcomes by Gamma_4

Gamma_4 was highly involved in making the plant prepared for annual environmental audits and achieve continuous improvement in its sustainability performance every year.

Consequently, he expected to see environmental improvements for the plant in the long term through greater involvement from the staff in sustainability. Gamma_4 believed that there is a positive change expected in terms of the plant's sustainability performance from the previous year, as he explained,

“mainly reduce the impact on the environment because, you have to ensure if the disposal has taken appropriate action [so] we have to go to that kind of detail and that kind of change, we have to submit those certificates to the government agencies. These many details have to be given which if I see year on year is as the production level has increased our disposable waste has gone down.”

This indicates that Gamma_4 perceived a great responsibility towards carrying out the sustainable change because of the anticipated outcomes and the mandate to report, such that the push from the norms which mandate him to act combined with wanting to see improvements in the long term makes him prioritise sustainability considerations. This resulted in making him an active member in contributing to the green culture of the organisation.

Drivers experienced by Gamma_4 to engage in environmental improvements

Organisation culture for sustainability

In this case, the culture of the organisation was found to have a positive effect on some participants that influenced their engagement towards the sustainability aspects. According to Gamma_4, his actions are shaped by the organisation's values and vision. The parent company drives Gamma to become a world-class manufacturing plant, which requires them to undertake stringent measures. Therefore, Gamma_4 finds that the culture promotes sustainability, as he added:

“[There is] no binding force on us but, yes, it is culture of the company. It is something cultural, inherited right from day one: the safety of employees, safety of machinery, safety of people around – that has to be the prime concern. While we are reinforcing safety, [the] environment comes [there] by default.”

Awareness about regulations

These acted as the key drivers for Gamma_4, as he believed them to be indispensable: “*I think very strict adherence to norms. And then, [the] second thing is continuous spread of awareness*” when it comes to engaging in sustainability.

Teamwork and collaboration

Lastly, teamwork and collaboration were highlighted by Gamma_1, who explained that it is part of the process to take inputs from various departments and discuss the major outcomes of the project with key stakeholders. Gamma_4 corroborated that it is important, as “*all of us have to work like a team to get certain thing implemented.*” Finally, Gamma_4 emphasised that having a systematic approach to involving its employees to comply with the regulations required them to work collectively towards those targets, as evident from his quote when explaining about how they worked:

“Because they are part of the compliance structure. It’s not that it is only my KRA or that I have to reduce the carbon footprint. I can only reduce because others are collaborating. Even [if just] one single guy is not collaborating, then everybody is failing.”

No major challenges faced by Gamma_4

Gamma_4 did not find any apparent challenges from his side or from others during the implementation of these improvements. In fact, he was defensive regarding the performance of the plant and did not really see any problems with the overall operations. This could be because of the long tenure (20 years), which made him feel attached to the organisation. Also, it could be that he was trying to do his best being in charge of the overall smooth running of the plant, so he did not see any shortcomings. In contradiction to other case individuals, he said,

“I don’t see anybody resisting... the reports are there, which they can always see. They can surely come back if there is something wrong. If everything is okay, nobody will come back to you. Nobody reports that water quality is bad, which they are consuming day by day. Nobody complains [about] unhygienic conditions [or] voice their concern elsewhere. So, we presume things are good. Wherever there is an issue that gets escalated and rested. We have topic-wise sort of CFTs which we have to address their concerns.”

Gamma_5: Senior Manager (Quality, Environment and Safety)

Project overview: Works on employee engagement towards environmental improvements

Gamma_5 is part of the environmental pillar and belongs to the core team of the WCM model which defines their objectives. Gamma_5 elaborated his involvement in regular activities that they all did as part of their KRA for the plant upkeep. He mostly reflected on the systems and procedures in place to engage employees from different levels in the organisation towards the environment, and health and safety (EHS) consideration in the production and operational processes. Gamma_5 touched upon many activities and initiatives besides packaging reduction and recycling that have been implemented in the organisation and made mandatory for the plant upkeep, such as waste segregation, water recycling, green air development, energy conservation, and many other similar environmental improvement activities. Within energy, they switched from forced draught exhaust fans to wind ventilators driven by wind; after that, they went to turbo wind. Similarly, in the paint shop they earlier used non-water-soluble paints, but over a period they switched to water-soluble paints. Thus, that is how they have tried to reduce their environmental impact, to give just a few examples.

Environmental behaviours of Gamma_5

(1) Suggesting improvements in the plant and engaging other staff

Gamma_5's role is to suggest improvements and address any problems related to EHS faced by the employees. He works on driving the engagement of white-collar staff in contributing towards improvements. On his experience of working with middle management, he believed their engagement in sustainability improvements had increased over the years, as he stated:

“It is a continuous improvement process; they do get involved but, yes, it is a continuous journey if you talk about since 2007 or maybe earlier, there are step-by-step significant improvements. And we are much better compared to 2007.”

However, he felt that this is a culture change and it is slow. The various plant-level practices that contribute to reducing environmental impact are standardised for all (despite the organisational level), except that the white-collar staff are required to suggest plant-level improvements. Thus, he sought greater engagement from them than from the blue-collar staff. However, the organisation encourages engagement from every level; thus, it has several awards and schemes to make staff participate in suggesting organisational improvements. Gamma_5 also collects data to evaluate employee involvement from top to bottom towards safety and environment, as evident from the following quote:

“And, starting with the involvement and the recognition, we have the level of personnel involvement starting with HODs and every head of the department is engaged there and then their engineers and, down the line, group of champions and our associates. How they are forming and what kind of recognition we are giving them months after month. This you collect to contribute in all the issues.”

In order to understand what makes them set their priorities towards working on sustainability aspects, the next section explains the sources of perceived responsibility for Gamma_5.

Attitude around responsibility towards sustainability aspects (Gamma_5)

Accountability towards sustainability as a part of the job

The primary reason for Gamma_5 to be involved in sustainability is that it is his job and he is expected to do this. However, even though the organisation expects every individual including those at shop-floor level to engage and participate, Gamma_5 has a greater responsibility as it is an integral part of his job, as he explained,

“You came here because your part of [the] job is this and, similarly, I am here because my boss told me. But if it is not your job and my boss has not told me, we would not be sitting here. Similarly, if our processes say, my management says, my boss says, you have to do this. So that, be it white collar, be it blue collar, everybody will do it. As on date we need to strengthen it on those processes and monitor them also.”

As the environmental and safety manager, Gamma_5 is also part of the environmental pillar core team of the WCM model which defines their objectives. Gamma_5 emphasised the need to comply with the stringent checks that the plant is required to go through annually, which makes them take “environment” as a serious consideration besides other area. As he stated, *“We are audited twice a year by external auditors on various parameters, of which [the] environment is one. This is how we are scoring changes. There is what we call as [a] pillar route map here.”* The reporting system and mandatory norms have made it a responsibility for the white-collar staff to stay on top of sustainability improvements happening in the plant, as Gamma_5 highlighted,

“With [in the] Gamma environment our environment procedures have [existed] from the beginning and we already have [a] well-established environmental sustainability management system and reporting system. So, we have to report our environmental parameters annually to check whether we are sustaining or improving or deteriorating.”

Expected outcomes perceived by Gamma_5

Top management needs to be engaged more and drive the system

Gamma_5 expected greater engagement and support from the top level, as they are the ones who can make the sustainable change happen by collectively driving the system. As Gamma_5 shared, “my expectation can be from the top management because we need to drive a system.

Drivers for Gamma_5

Environmental laws, policy and regulations

Gamma_5 gave credit to well-established policy and procedures specified by the environmental sustainability management system and reporting system to drive such improvements.

“And there is a policy and there is a procedure which has been defined by the state government, where they have said that [waste] has to be disposed [of] in the right way.”

Similarly, he ranked legitimacy as everyone’s top priority because,

“Legal comes top. When you talk about legal, everybody is ready. In legal, there are no restrictions [on] cost, but when [an]other thing is not legal, then [the] priority is cost.”

Barriers faced by Gamma_5

Resistance to change among employees

Gamma_5 believed that the culture change is slow and there can be some resistance to change from the ground staff because of their mindset, which is reluctant to change, as he said,

“When you talk about culture change, it is because we are Indian, and we have [a] certain mindset for not accepting change. But we are interlinking those things into our practices.”

Lack of accountability towards sustainability among employees

Gamma_5 indicated that the involvement from staff in the organisation especially by making them accountable for sustainability outcomes. According to him, if every employee is made responsible it would have a much higher impact on the green culture improvement.

“Everybody gets involved, see, in a culture when everybody gets involved, obviously things change significantly. I am not saying they are not involved, but they are not accountable. So, once accountability is fixed it can be improved.”
(Gamma_5)

4.3.5 Conclusion

This case company’s participants mainly engaged in: (1) reducing packaging and wastage and using recyclable packaging, (2) knowledge exchange with the purchasing network to develop green concepts, and (3) influencing and educating others towards sustainability. Not all participants were found to engage in greening initiatives; however, packaging improvement is one area which was found to be a common priority.

Their engagement behaviours include influencing and educating others, reducing wastage, and improving packaging and knowledge exchange. Their engagement in greening behaviours was primarily dependent on their perceived responsibility towards their job and organisational norms. SC employees' skills are found to be key determinants for the successful implementation of their projects that help them in finding low-cost yet effective means to improve the organisation's environmental impact.

It was found that, in this case, some participants (Gamma_3, Gamma_4, Gamma_5) perceived responsibility towards environmental management mainly from the following three ways. Firstly, the mandate came from the legislative bodies acting upon Gamma, which comprised both central and state law-making bodies. Secondly, they were required to adhere to the WCM model specified by the parent organisation, which included sustainability as one of the pillars. And, lastly, the participants perceived the demand coming from the supervisor and management for them to take up certain green initiatives. Meeting customer requirements also led to the emergence of the importance to integrate sustainability, which was indirectly linked to KPIs. In addition, an exception existed where the individual did not perceive any responsibility to incorporate sustainability (Gamma_2).

The nature of the business also played a part in explaining the engagement of employees in some environmental behaviours more than others. For example, it was found that Gamma, being a manufacturing company run by a parent company located abroad, had business within and outside India. This required them to adhere to both local and global regulatory laws and serve both local and global customers. Therefore, one of the major initiatives that was widely implemented in the organisation was related to packaging improvements as their products and spare parts were transported all across the globe.

The impact of awareness was evident in the way participants approached and engaged in driving initiatives towards all kinds of improvements, including environmental. The awareness came from two sources: one was through knowledge exchange with the circle of purchasing employees in other companies and the other was from the past experience of working in different roles.

This case depicted a great deal of networking ability among purchasing employees who used their connections with colleagues from other companies, which drove some of the participants to initiate and implement sustainability improvements. This shows how employees go beyond internal liaisons with departments within the organisation. Most participants in this case have connections with peers in the same industry, and most relationships are mutual, which allows for knowledge exchange between them, compared to the other cases where the employees usually liaised with suppliers and sustainability teams. Therefore, the practice of making connections with SC employees within the industry is very prominent here.

Gamma participants were experienced and found to be familiar with the sustainability issues faced by the organisation. While most participants tried to integrate economic and environmental issues in purchasing decision-making, one of them (Gamma_2) saw them as separate entities. This was seen in the way they saw environmental improvements as having an impact on their KPIs. This has implications on assigning responsibility to all employees in one form or another.

Research about projects was found to be very important in this sector and it must be conducted prior to the commencement of a project with their circle of employees from different organisations. The impact of information sharing and collection via direct and indirect connections is that it allows parties to stay connected and updated with other parties about new environmental initiatives taking place in their organisations, and this in turn nurtures and maintains relationships. It was found that participants benefitted greatly from these types of networks in avoiding the risk of failure as well as in finding cost-effective means of implementing green concepts.

Table 4.3 Gamma participants' profile summary

Gamma Company Profile: Country: India; Sector: Manufacturing; Industry: Agricultural machinery; Year Found: 1998; Employees: 1000; Certifications: ISO 14001: 2007					
Participants	Gamma 1 Assistant general manager (Head of Logistics and warehousing) Tenure in Org 3years Tenure in current role 3years Age 30-50 Gender M	Gamma 2 General manager (Head of spare parts) Tenure in Org 1yr 6months Tenure in current role 1yr 6months Age 30-50 Gender M	Gamma 3 Purchasing Head (Indirect purchasing) Tenure in Org 12years Tenure in current role 12years Age 30-50 Gender M	Gamma 4 Deputy General manager (Manufacturing) Tenure in Org 20years Tenure in current role 2 years Age >50 Gender M	Gamma 5 Senior Manager (Quality, Environment and safety) Tenure in Org 10years Tenure in current role 4 years Age 30-50 Gender M
Project detail	Packaging improvement project	Packaging improvement project	Multiple projects	Plant upkeep and more	Increase employee involvement towards environmental improvements
Project motive	Reduce packaging consumption and change the packaging for parts by using recyclable packaging made of biodegradable material	Change the existing packaging	Find sustainable ways to improve plant performance such as by installing energy efficient lights, recyclable packaging, natural gas pipelines	Improve the plant efficiency and sustainability	Suggesting improvements in the plant and engaging other staff
Driven by sustainability or not	Not entirely, the primary objective is to reduce parts damage. No involvement from sustainability department	No; only to avoid the damages and customer complaints	Yes, they consult with sustainability if faced with some issue	Yes, as they need to improve the sustainability performance of the plant every year	Yes, the sustainability person is involved towards improving engagement and participation from the staff
Executed greening behaviours by them	-Reducing packaging by using conventional operations concepts and finding alternative packaging -Knowledge acquisition and exchange with network partners	No, only complied to norms imposed by the plant	-Knowledge exchange with purchasing network to develop green concepts -Influencing suppliers to switch to recyclable packaging, developing suppliers	-Educating the ground staff -Reporting for sustainability	- Suggesting improvements in the plant and engaging other staff

			-Educating others towards sustainability		
Attitude towards responsibility	Somewhat external (Have to): Customer satisfaction is part of the KPI, so packaging contributes to that	Neither have to nor want to: Lack of responsibility perceived	External (Have to): Felt responsibility to engage because being asked by the supervisor Internal (Wants to): Committed to improve the organizational performance and sense of admiration for it	External (Have to): Felt responsibility to engage because he perceives accountability towards the regulatory norms, so it is part of the job Somewhat internal (Wants to): Inherent responsibility to engage as imbibed it due to the culture of improvement over the years	External (Have to): Felt responsibility to engage because it is part of the job
Enablers	Awareness from the past experience of working in MNCs	Government regulatory norms	-Management support -Training, External ratings and awards for organization -Past experience -Awareness and drive	-organization culture -Regulations and awareness among staff -Teamwork and collaboration	-Environmental laws, policy and regulations
Outcome expectations	Good outcome for the organization by satisfying customer requirements	Commercial benefits	Cost savings as well as reduce environmental impact	Reduce environmental impact and improve plant efficiency	-Expect top management to engage more and drive it
Barriers or challenges faced	None	-Lack of awareness -Attitudinal barrier that sustainability improvement is somebody else's job	Make cost savings as making improvements are costly	No apparent challenges faced	Resistance to change among employees and lack of accountability towards sustainability among managers

4.4 Omega within-case analysis: “Cement” case study

4.4.1 Introduction

This section presents an analysis of the fourth company, which focuses on the supply chain and sustainability employees of a cement manufacturing company (hereafter referred to as Omega). It presents a detailed overview of the case and the context of the case. Following the case description, the next sub-section analyses the case’s individual data in detail; this is followed by a summary of the key findings in this context. Finally, Table 4.4 summarises the participant profiles.

4.4.2 Case overview and context

Omega is part of an organisation that is over 100 years old, and is a leader in the Indian cement industry. It operates in five states in India, supplying various grades of cement and currently exploring opportunities to tap overseas markets. It employs over 10,000 employees across India. They have a strong network of 4000+ dealers that spread pan India to serve their customers. They are known for using high-end equipment, ultra-modern technology and imported machinery for the production of cement. They have been active in working towards social sustainability in the past, and they have recently started to recognise the importance of environmental issues and the need to make a visible commitment to sustainability, which is exhibited by the fact that they published their first sustainability report in 2017. They have acquired ISO 9001:2008 and 14001:2004 and their manufacturing facility has been rated among the top Greenest Cement Plants in India as per reports. Their manufacturing units under the reporting boundary are certified under OHSAS 18001. They have also formulated a companywide OHS policy which lays out guidelines and safety norms for all employees, permanent and contractual workers, and other agencies involved on their premises. Their focus areas include primarily seven things: energy consumption reduction, increased dependence on renewable energy, water footprint management, water conservation initiatives, waste management and circular economy, greenhouse gas (GHG) emissions tracking and monitoring, and compliance with regulation.

The core aspects of sustainability are instilled among Omega's employees through activities, initiatives, awareness programmes, training and informational materials. The management is involved in continuous monitoring and assessment of OHS risks, and corresponding methods of reduction. All their units are ISO 50001 Certified for Energy Management Systems. They claim to maintain their emissions far below regulatory norms with incorporation of the latest state-of-the-art of technology pollution control equipment like reverse air bag house, electrostatic precipitators, bag filters, etc. Their units have also developed a Clean Development Mechanism (CDM) for GHG reduction.

Cement has many health and safety hazards associated with it during its production and transportation. Therefore, all precautions must be taken to eliminate any hazards by considering the environment and following health and safety measures specified by the government. Cement organisations in India are required to follow the norms set by the Central Pollution Control Board (CPCB) as well as the State Pollution Control Board (SPCB). Omega had different projects that focused on improving the plant's operational and environmental performance. Omega also ran programmes to educate the neighbouring community regarding the health and safety hazards associated with cement production as part of its community service.

4.4.3 Case participants

Omega has several plants operating in different regions in India. Every plant is headed by a plant manager who is responsible for the performance of that plant. Omega_1 is the production head for one such plant and is responsible for maintaining day-to-day production targets. The managers corroborated that they had a separate environmental cell which is administratively headed by the senior manager of quality control (Omega_2). Both Omega_1 and Omega_2 had been a part of the organisation for over 10 years. The organisation had appointed long-time managers to the newly created sustainability roles as they were aware of the risks and regulatory norms they faced. As a result, both Omega_1 and Omega_2 took up environmental management as an additional responsibility. They were engaged in separate projects based on their expertise. As, Omega_1 is a certified energy manager, he was involved in an initiative aimed at reducing the plant's NO_x level. Omega_2, on the other hand, led a project that focused on using Jarosite (a hazardous material) to replace gypsum in the cement production process. Both

projects had an environmental impact; therefore, they are appropriate to be considered in this study. Omega_3 handled an important function, namely logistics, which also had environmental hazards associated with the transport of cement. Finally, Omega_4 was selected as he looked after purchase and was involved in the purchase of spare parts and other equipment required to run the plant.

4.4.4 Case analysis

The following section presents the analysis of Omega by addressing each of the research questions in turn.

Omega_1: Production head

Project overview: Reducing emissions
Omega_1 is the head of the production department at Omega and is a certified energy manager. His primary function is to maintain day-to-day production targets. He is an expert at process optimisation and his role is to improve the plant's efficiency. He needs to ensure that the plant is able to meet future environmental changes that must be incorporated to fulfil the norms which the government set out and may impose in the future. In addition to fulfilling the norms, the organisation strives to reduce their dependency on fossil fuels by utilising alternative fuels. The project in which Omega_1 got involved aimed at reducing their SOx and NOx emissions, which they managed to bring down by 15% using a primary mitigation strategy. Omega_1 perceived the urgency to implement it sooner because other countries have already started to reduce NOx emissions, so they should follow suit as a commitment to society. He also perceived the risks of non-compliance and strong legitimacy from the government norms, which made him engage in reducing emissions. The other reason was that the organisation could use this opportunity to do it earlier than their competitors in India and get a first-mover advantage by showcasing it to the rest of the cement industry and to government enforcement agencies.

Environmental behaviours by Omega_1

(1) Exploring best practices by knowledge acquisition

Omega_1 led this project aimed at reducing SO_x and NO_x emissions in the cement production process, in which they managed to bring down the emissions by 15% using a primary mitigation strategy. Basically, they did this by making small modifications in predetermined firing locations and gas entry points to bring down the emissions. To improve this further he, along with others, explored this in more detail and collected all the relevant information by connecting with companies from other countries who had previously implemented this technology in their plants, as he stated,

“Whatever experience we could gather by talking to different people across the world, like people from Europe and China, etc., where they have these norms and by going through the internet, so that we could optimise the NO_x emissions.”

Finally, they came up with a secondary mitigation strategy where they started doing SNCR (selective non-catalytic reduction). Omega is said to be the first organisation to carry out SNCR in India. This method adds cost and risks to the production. However, to implement this initiative, Omega_1 engaged in learning about the technology as well as integrating it with their existing system, as he explained,

“I was the leader; I had gone through the technology and led the project but where expertise of instrumentation comes like in terms of integrating this new project in our existing control system, they do that. Basically, integration with the existing plant in terms of control, finding the limitations, the inputs we can give to this SNCR supplier, their peers and all.”

(2) Taking up additional responsibilities

Some participants in this case were keen to take up additional responsibilities. This involved taking care of environmental requirements in addition to their core functional job. This was evident for Omega_1, who not only headed the production department but also took responsibility for the sustainability-related matter, as he mentioned,

“[There is no] proper sustainability department, but all these sorts of things are looked after by me, because I am taking care of energy, operational improvement, alternative fuels, sustainability report.”

(3) *Influencing others to collaborate on the project*

As seen in earlier cases too, these projects are usually implemented with cross-functional teams. Similarly, this project needed the support of other employees and departments; therefore, it was important for Omega_1 to get the support of others especially from the senior management on board which did require some influencing on his part. As Omega_1 shared, *“I had to convince them and I had to take them along, otherwise what happens is that if he is responsible, he will do it.”* Omega_1 used influencing tactics to get his seniors to co-operate because, as he was the one in charge of the project for emission reduction, he had to ensure there were no communication gaps, as he explained, *“I took them on board, it is always better to go and talk to them. Yeah, in whatever means, I tried to involve them very well.”* This indicates inclusion is very important, for liaison. Omega_1 believed that he had learnt a lot during the course of the project, and especially had acquired valuable skills to negotiate with different stakeholders, as he recounted:

“The strategy we can’t predicate any changes is there. But yes, I learnt a lot of things that how to convince the regulatory departs, the regulatory bodies, and how to convince them, our colleagues and top management, that I learnt.”

(4) *Cross-functional liaisons*

Omega_1 led this project with the help of other departments such as instrumentation, electrical and mechanical functions. He did the major research involved in going through the technology aspect of it and sought expertise from the instrumentation and other departments. He tried to integrate the new project into their existing control system and identified any limitations as well as gave the requisites of what they required to the SNCR suppliers. Omega_1 conducted meeting with different stakeholders and drove his team to help him in preparing bar charts, conducting follow ups and placing the orders. There were a lot of health and safety risks involved in the project such as hazards caused by ammonia; therefore, they brainstormed a lot about all the possible risks and ways to

overcome them. They invited many suppliers to tender so that they could optimise the cost.

Attitude around responsibility (Omega_1)

As also found in previous cases, sustainability is understood by many participants in this case to be a regulatory requirement to which they need to adhere. As a result, the legitimacy to integrate sustainability in their respective functions comes from the following perceptions:

Meeting regulatory norms perceived as a part of the role

The main reason for him to install the technology to reduce emissions was the legal risks involved, as it was anticipated that the government sooner or later would enforce strict norms to reduce emissions. Omega_1 understood that and acted proactively to the anticipated norms, as he explained:

“My role is just to improve the efficiency of the plant and make the plant capable for future environmental changes and the norms which [the] government is going to impose over a period of time.”

This indicated that he believed his role entailed managing the legal risks related to the plant's harmful emissions. Therefore, he was proactive to find and implement measures to reduce the plant's emissions and avoid any related legal risks for the company.

Felt responsibility towards the plant's performance

The way Omega_1 described his role explains that he perceived responsibility towards the plant and took ownership for its environmental performance, as he did not separate it from the role and responsibilities of a production head; therefore, he perceived sustainability improvements as part of his responsibilities. Also, he believed that the top management supported him, which instilled a sense of responsibility in him towards achieving it, as he observed,

“You have to control those emissions and if any help is required then they will provide the help and facility, whatever it may be.”

Also, being a certified energy manager and in charge of the plant he felt that it was his responsibility to implement such improvements,

“My responsibility is to maintain day-to-day production targets, and I am [a] certified energy manager, so I am also looking after... basically, my forte is process optimisation.”

Felt responsibility from the supervisor

There is also a sense of obligation towards the supervisor that seems to be the reason for Omega_1 to commit to a challenging project. And, he received the leadership from the supervisor to make him feel capable of carrying it out successfully. As per his quote below:

“It was him; he was very positive. It was his commitment only that he gave leadership to me and told me that, ‘We have to reduce NOx emission and we have to be prepared, so do whatever you can do.’”

Proactive motivation

Omega_1 expected to reduce the plant's emissions and felt motivated and wanted to achieve that outcome, as he recounted, *“Yeah, motivation was high, stress was there, but I was motivated and excited to see the results of the project.”* This was basically to prepare the plant to meet future regulatory norms relating to the risks of emissions and ultimately pollution. This seems to have contributed towards Omega_1's intention to act proactively.

Expected outcomes by Omega_1

Meet future regulatory requirements imposed by the government

The apparent expectation from this project for Omega_1 was to prepare the plant for future environmental regulations to be enforced and make the plant on a par with international standards.

Drivers for Omega_1

Knowledge and awareness

This was another common driver mentioned by participants that had a positive effect on their engagement towards sustainability. Be it the awareness about the environmental guidelines they were required to follow or the awareness about environmental issues caused by their operations, their awareness was what led them to take it seriously. It also helped them to take a proactive approach as they anticipated certain legal risks in the future for which Omega had to prepare, as Omega_1 emphasised in adopting secondary mitigation strategies to reduce emissions,

“Because sooner or later it is our commitment to society when all countries are reducing NOx emission, so I should also be doing ...government is coming up with norms, so sooner or later they are going to enforce [them on] us, which is our commitment also.”

His awareness drove them to be the first to implement it by doing it before anyone else in the industry, according to Omega_1,

“So, we thought it is [a] better opportunity to do it first and showcase it to the rest of the cement industry and to government enforcement agencies.”

Teamwork

Omega_1 gave credit to teamwork for successfully installing the SNCR to reduce emissions, as he highlighted that, *“It was my engagement with the team and meticulous planning.”*

Management support

For Omega_1, support from top management was found to be a major driver as he shared that it was the leadership from his top management that not only created a sense of urgency towards being proactive to reduce emissions but also gave him the autonomy to find ways to do it. As he explained:

“I think the main driving force was confidence that top management had in me; they gave me freedom to do it, so that was always encouraging me, or you can say pressure to perform it.”

Freedom from top

Omega_1 mentioned that he experienced autonomy from his supervisors or management to carry out the project, which actually helped drive him to perform. As he observed,

“Encouragement was that I was given full freedom from my top management, so it was now my duty to execute successfully that was the main encouragement.”

The understanding and the belief that management showed towards the participant made the difference because that gave him the confidence to ‘go an extra mile’. This indicates that participants need to be given freedom to develop ownership and commitment towards delivering on the objectives, as Omega_1 stated,

“If you are involved in a job and take ownership, then everything is possible. You have to give freedom to the people who are working with you.”.

Therefore, the trust the management or the supervisor puts in the employees drives them to carry out such challenging projects.

Enjoy doing it

The other reason that drove his engagement was the fact that he felt good from engaging in it and liked the challenge, as he stated,

“It was not difficult. I enjoyed it. There was pressure. But, since I was given freedom from my top management, so I really enjoyed it.”

Challenges faced by Omega_1

Ego conflicts led to difficulty to get support from some seniors

There are certain challenges identified that employees found difficult while managing or considering sustainability to be an important aspect in the project. For example, Omega_1

experienced a barrier from others as for him it was difficult to get the seniors' support, as he explained, *"Sometimes it was difficult to take them on board, or [rather] I would say they were feeling not good"* about the project. The reason seemed to be a conflict of interest, as he observed,

"I tried to involve them very well; they feel it is an issue of ego. So, I went there, I sat with them and discussed [it]."

Omega_2: Quality Control Head

Project overview: Eliminating the use of gypsum in cement production and replacing it with an alternative material (Jarosite) which is otherwise hazardous to dispose of

Omega_2 is responsible for quality control in the cement production process at every stage, right from the mining to the final stage. He was involved in the project that involved replacing gypsum (a material used as a setting retarder in cement manufacturing) with Jarosite (a hazardous material which is a by-product during the production of zinc metal) produced in a nearby zinc manufacturing plant. It was an initiative from Omega_2 to reduce the cost of cement production by using this new material, which is available cost free or at a negative cost. This alternative material is a material that is hazardous to the environment, and it is difficult to dispose it off, so the zinc manufacturing company incurs a cost to dispose it off properly; therefore, it is available free of cost. Omega_2 learnt about the amount of Jarosite the zinc company had accumulated and were finding difficult to manage. Thus, he took it as an opportunity to source this material and use it in cement production as he was aware of previous research about it and the possibility to use it to replace gypsum. As gypsum was not only expensive but also depleting in reserves, if this initiative was successful it would reduce their cement production cost massively.

Environmental behaviours by Omega_2

(1) *Finding an alternative to hazardous material and acquiring knowledge about it*

This is an example wherein Omega_2 was involved in finding the alternate material to be used in cement production. This was a new initiative in the country; therefore, he took efforts to research about it and conduct a detailed study on it, as he explained:

“It is not in practice in India. There is one institute, ABB, and they have also studied about it and they have presented one report on this. This report helped me to use [it] in cement projects.”

This indicates that an important aspect of this behaviour is that it requires one to acquire the relevant knowledge about it and obtain feedback on the particular technology/concept by connecting with people who have implemented it, to explore it in detail. The other aspect associated with this behaviour is that it is difficult and challenging because the participant had to obtain approval from the top and the relevant regulatory bodies, which was not easy, *“because if you are using any hazardous material you need the permission”*. Omega_2 shared that he had to seek permission from the director and senior management to conduct the trials. Also, there were risks involved which they had to manage, as he mentioned, *“There is an agency that assesses the quality of cement in India. It does not allow mixing of any other foreign material in cement. For that, we are also fighting in the process to get approval from them also.”* There was a huge risk involved in taking a decision to use hazardous material in cement production because cement is a construction material so, if anything goes wrong, it could be more hazardous for people. Therefore, Omega_2 was dealing with all these challenges and risks, as he explained,

“We brainstormed a lot about what are the risk hazards involved... all [the] nitty-gritty we considered to whatever best extent we could.”

This indicates that most of these initiatives in Omega constituted health and safety risks, which also have to be taken care of and solutions found to them, while exploring and during the implementation phase of the technology/material. These risks vary from

one project to another, but the commonality was seen in terms of how participants deal with them. Both Omega_1 and Omega_2 were found to be proactive towards executing the projects as they were almost pioneering new ways of dealing with emissions and cement production in India, which was a fairly new practice in the Indian cement industry. However, to carry out these initiatives, they engaged in additional behaviours such as educating and influencing others, as discussed next.

(2) *Influencing others*

Omega_2 engaged in influencing others as he took up the project to replace gypsum with Jarosite. In order to prepare his team, he told them that they would need to gain several approvals during the course of the project, as he explained,

“I helped and communicated to my team what we [were] going to do and [about gaining] the permission from CPCB.”

This indicates that influencing and helping others by educating them is an essential part of liaising with them to implement any project which has a sustainability parameter associated with it. This may be because this is still not entirely integrated with supply chain functions and there is not enough awareness about it; also, the need to integrate it with everyone's job is apparent.

Therefore, educating others happened at every level in this case. Participants engaged in educating their suppliers and spread awareness among the staff too. Even the drivers were being educated about oil leakages, that there were health and safety hazards in the transportation of fly ash, and so they put all these environment and safety considerations clearly in their orders and expected staff to follow these considerations.

(3) *Taking additional roles*

Omega_2 also took up an additional role of looking after environmental aspects of another unit the organisation started, as he explained,

“Recently, we have started one such unit in RS and when we started [a] few years back, I was also in charge [of] environment regulations for the organisation. That time, I started all these things.”

This somewhat indicates that, in Omega, senior employees who had been heading their function for a long time took up responsibility to look after the environmental function as well, to provide guidance. Although they had a separate environmental department, Omega_2 was directly involved by acting as a head, as he stated, “[The] environment cell is different, administratively I am heading that.” He also engaged in the initiative to develop a rainwater harvesting system, although it was to fulfil a regulatory requirement that came from the government. He considered participating and contributing towards such an environmental initiative in the organisation because he perceived that these attributes were appreciated by the organisation and other employees. Thus, Omega_2 shared about one such initiative of his:

“I work for [the] environment and there’s one campaign I am running in my company... the name of this campaign is ‘return gift to earth’.... Every employee working in our organisation, on their birthday, we insist [that they] plant a tree, just plant [a] sapling, and [the] company will take care [of] and maintain it.”

Attitude around responsibility (Omega_2)

Responsibility due to the regulatory requirements make him perceive it as part of the job

Although this initiative was driven by cost-saving intentions, as Omega_2 explained, “The responsibility to reduce the production cost is on me. Also, using the various kinds of material, we can reduce our cost. I thought I can give the benefit of this, Rs.20 or Rs.25 per ton of the cement.” He also mentioned that it was not only a commercial benefit to the organisation but would also have a positive environmental impact for the country if they succeeded in this project as it would reduce the hazard Jarosite caused to the environment. He felt the responsibility towards environmental issues because he perceived that, “It is a part of my job.”

As he was responsible for the environmental management for the newly opened unit in another location. Therefore, managing the environmental impact was perceived by him as part of his overall responsibility in Omega.

Personal interest in sustainability causes

In addition, he felt strongly about the subject and was found to be engaged in different CSR activities, such as rainwater harvesting, tree plantation drive, etc.

“After retirement I have thought that this campaign I will run through [a] website and I will ask the people to join me. If they are not able, I will plant a tree and for that they have to give some little contribution [to the] cost of the tree and the maintenance. So that I will do after my retirement.”

Expected outcomes by Omega_2

Huge cost savings in the long run

Omega_2 anticipated huge cost savings from this project as the use of Jarosite with a small quantity of gypsum or in place of gypsum would massively reduce the cost of cement production. It was also supported by the zinc company producing the Jarosite as they were constantly producing it and incurred cost to dispose of this material. Thus, they were also interested to see the success of this initiative.

Help to the nation by finding a use for hazardous material and bringing down cement costs

The next sections explain in detail how Omega_2 anticipated the benefits for the organisation as well as the country in this case while implementing the project, which made him want to incorporate sustainability into it. Omega_2 believed it to be a valuable initiative for the country because,

“It can be used by the cement manufacturer where it will be [a] good help to our nation that we are able to dispose [of] the hazardous material.”

Omega_2 expected that, by using a cheap or rather negatively priced material to replace the expensive material they were using in the cement manufacturing process, the

organisation would not only make substantial cost savings, but would also reduce its negative impact on environment by utilising a hazardous material, as he explained:

“That is because it is a hazardous material and it is a zinc unit that is producing it and it is available free of cost or in the negative price. We can take this material in the negative price from the producer and [add it to] our cement with 50% replacement of this with [a] negatively priced material, with Rs.1400 per ton. So, it will reduce our cost.”

Also, they anticipated that the gypsum reserves would deplete in the near future because of the ever-growing cement industry. In fact, the quality of gypsum available in the market is reducing due to adulteration; therefore, finding an alternative material was supposed to tackle this issue of quality and quantity for the cement industry. As Omega_2 outlined,

“The gypsum which is available in India is now... they are depleting [it] very fast because [the] cement industry is growing in India and the availability has become [much] less.... This Jarosite in place of gypsum is going to be helpful to the cement industry to procure their requirement of gypsum”

Drivers for Omega_2

Teamwork within the organisation

Working as a team, in addition to the aforementioned drivers, is important in this case as the co-operation between the departments in Omega makes green initiatives implementation a feasible endeavour for the participants. Help from other departments was a common way of working and served to be an important driver for participants in Omega in the following ways: Firstly, it allows for goal alignment and makes it easier to work for a common objective, as Omega_2 explained, *“This is teamwork and it was [a] unit goal. The goal was common for all...”*. Further, Omega_2 felt it was a team contribution towards executing the project, as other teams had helped them in the actual handling of the material, for example:

“Other departments like [the] purchase department who helped me to purchase this material. And our safety department and environment department – they guided us how to store this material and handle this.”

Individual drivers

Freedom from the top

Omega_2 felt that it would not have been possible if his director had not allowed him to undertake the trials for the new material. Since he managed to obtain permission from the regulatory bodies to use the alternate material for trials and the supplier of the alternate material supported equally, as he explained,

“They also allowed us given the consent to use this material [for] three years. In the three years we can take the trial and confirm the results. Now [there is] no doubt [it was] our unit head director and Chief Executive who allowed me to take this trial.”

Recognition from the organisation

This was a personal driving force for Omega_2 because he believed it would make him get recognition from others as he shared,

“If it is successful, I would be recognised as the first person to use this material. The fact that an esteem I will be able to establish.”

Challenges faced by Omega_2

Must demonstrate commercial benefits to run the project

Omega_2 faced challenges such as in gaining approval from the regulating bodies as the project dealt with hazardous material. The other challenge was that the project was asked to slow down by the management until it was ensured that it would yield commercial benefits.

“[I] was asked to hold the activities – just means that the activities [are] still on but slow down the activities till we get the commercial benefits from them.”

Omega_3: Senior Logistics Manager

Project overview: Logistics improvement

This was not a specific project that Omega_3 got involved in but it was a discussion about how he managed the logistics for the plant and tried to improve it. His primary job is to coordinate with the plant for the dispatch of trucks as per marketing requirements, then follow up the inventory department for the orders so that there is a continuous flow of materials from the plant. Omega_3 did concur with others about the fact that being a cement industry they have to be careful of certain health and safety hazards, which is very important for them. Therefore, they must ensure that the vehicles are always properly covered during the transit and the material is handled carefully by the labourers. In contrast to other interviewed participants from the organisation, Omega_3 denied the existence of any rules or guidelines or any requirements that they were supposed to follow. However, they did have guidelines like other MNCs in the industry for the transporters. Therefore, it was the transport supplier's responsibility to adhere to the existing norms.

Environmental behaviour by Omega_3

(1) Complying with customers' sustainability requirements

In this case, following regulations was seen to be the biggest prompt for the participants to engage in environmental activities, mainly because cement production poses many environmental impacts during its production and transport. Therefore, there were regulatory requirements imposed by the government and other legal bodies such as CPCB. However, in this case it was found that customers also put certain sustainability requirements on the firm. And there were some participants who only considered sustainability to meet such requirements, such as Omega_3, who fulfilled the requirements as and when the requirement arise from the customers. Therefore, they just had to follow the norms as per the manufacturing plant's environment, health and safety requirements as Omega_3 put it:

“This is a cement industry and there is a history of it, so sometimes we ask [for] the proper covering of the material on the roads so that it is maintained and there is no pollution caused on the road. Then we even also provide the masks and gloves to the labourers because during loading and unloading that has to be seen from the human safety aspect also.”

In contrast to the other cases where most of the requirements towards fulfilling environmental norms came only from the government and senior community, for Omega_3 many times these requirements were imposed by the organisations who were their customers, as he explained:

“At present in India it’s more or less customer oriented...but now it is from the certification and other things from the company’s top management.

As per their transport providers, many companies have been demanding from their end that they should have minimum criteria regarding safety and environmental pollution and proper licences for drivers. Due to this, the transporters are faced with a demand to follow these requirements to do business. Also, they were required to check the material is properly handled, as Omega_3 observed:

“Other than these requirements with particular customers, be it other from vehicle certification, they require there should not be any emission. And there is a proper handling of material...so that there are no pilferages on the road and nearby surroundings and cities do not get polluted.”

These customer requirements are discussed when the companies place the order for the product, when they negotiate on quality and cost aspects of the product, when they discuss the environmental requirements to be fulfilled. Based on this, Omega_3 mentioned that the demand arises from the customer side to consider the environmental issues in product logistics and is on the marketing team. Otherwise, he does not directly experience the need to drive sustainability as such while managing the logistics, as he explained:

“It is not my thing. Basically, the person who deals [with] routine trials, especially [the] marketing department, has a requirement which is put through to us.”

They realised that the percentage of customers who have such environmental requirements ranges between 5-10% but it seems to be increasing in recent times, as Omega_3 stated,

“They want the international standard for environment, quality or services also. Numbers of customers are increasing, then you have to change your style of working to [meet] those customer requirements.”

Attitude around responsibility (Omega_3)

No perceived responsibility from the organisation

As opposed to the other participants, Omega_3 did not perceive a direct responsibility towards environmental impact; however, he did realise that the organisation needed to maintain certificates for which he was expected to follow the norms of EMS or even customers, as he described:

“Now it’s ISO and all these certificates are issued on the environment sustainability and quality, etc.... if you have to have the certificates, you have to follow the rules and maintain [standards], and how do you meet your customer’s requirements? It’s you build up for your certifications also.”

Omega_3 was flexible in terms of meeting the requirements as he explained, it was the organisation’s interest to care about sustainability and not necessarily his: *“So, from my side it could not be that important, but from [the] company’s side it is.”* This indicated it was not his decision to incorporate sustainability; instead, it depends on the management,

“If they want to supply, they have to follow those rules and if they do not want to supply, then... so its customer oriented more or less in [the] present organisation.”

Responsibility is perceived from increasing demand for sustainability procedures from the customers

With the increase in these requirements from the customers or the regulatory bodies, Omega_3 has started to realise that this is the way forward and is somewhat becoming an integral part and must be followed urgently, as he stated:

“There are difficulties, but everyone understands these are the requirements which need to be followed because this is the need of the hour. Moving in that direction. It could be a slow process for some, it could be a fast process for some, but this process has to be followed.”

Omega_3 highlighted that he perceived a demand for sustainability from customer requirements, as he mentioned that, *“It’s customer oriented: if [the] customer demands management arrange for vehicles and if the customer doesn’t demand, we manage other vehicles.”* Also, there is no obligation to serve those customers: if the organisation wants to enter into a contract with them, they will, otherwise not:

“For other customers, the environment aspect may be of higher standards. So, whatever inflow and outflow they follow strictly as per the norms. If you have to enter in their relationship with those types of customers, then you have to do it. Otherwise you don’t have to do it.”

Even though the organisation had an upper hand if they wanted to serve these customers demanding environmental requirements, in a way the customer acted as a driver to compel them to take responsibility for the environment and air pollution beyond their plant premises. However, this is limited to specific types of customers who follow international standards, as the participant indicated that the decision to serve customers with such requirements is dependent on several factors, such as required volume and the length of business between them, competition, market share, etc.

Expected outcomes by Omega_3

Meet customer’s sustainability requirements

There were not mentioned any outcomes that Omega_3 anticipated from this way of working except for meeting requirements as that was the prime focus of the project to fulfil demands which varied from customer to customer.

Drivers for Omega_3

Teamwork drives Omega_3 to meet the customer requirements

Omega_3 explained how the teamwork helps them meet the customer requirements easily and correctly,

“Even then, there is [the] security department, the legal department, to get that from the government if any issues are there... liaising [with] all these departments support [getting] work done easily.”

Barriers and conditions that were lacking for Omega_3

Lack of mandate from the organisation

Omega_3 considered sustainability consideration to be a low priority and he was only dependent on customer requirements. Therefore, the barrier for him was the attitude that it is not necessarily a matter of concern for his department, as he mentioned,

These are issues not [specific] to logistics, but there are other departments also to follow the environmental standards which are laid out for a particular industry or department.”

Omega_4: General Manager Purchasing

Project overview: Dust reduction equipment installation
Omega_4 is responsible for operation of three units at two different locations, one of them a new one. This project dealt with purchase of efficient dust collector equipment and energy-efficient electrical equipment. They invested in good-quality, latest technology equipment which had high initial cost but improved plant efficiency. Omega_4 elaborated the process from, first, the technical team and how they gather information from other plants located in various parts of the country that have newly been set up and with efficient equipment installed and collect all the details about their performance. Then they decide the specifications for their plant and look for vendors who can supply the equipment. After which, the tender process takes place – that is when the purchase team comes in and they negotiate prices. From there on, the purchase department is responsible for buying the equipment and its installation.

Omega_4 highlighted that his team is responsible for the price negotiations and timely delivery of equipment. He works closely with the technical team, which provides him with the specifications for the required equipment so that he can expedite the purchase accordingly.

Environmental behaviours by Omega_4

(1) *Vendor assessment and sustainable procurement*

Similar to participants in case Beta, the participant in the purchasing function (Omega_4) was found to engage in supplier assessment for environmental requirements. Omega_4 engaged in quite a few responsible practices within the organisation to improve the plant's sustainability performance. Being in a senior position and keen to influence others, he was in charge of keeping a check on their vendors and their level of sustainability: *"I have to sit [in] my department, and see whatever is assigned on [the] environment aspect is fulfilled or not"*, along with all the other important considerations, such as,

"I have to check which vendors [are] available. Who is giving me the best price? Whether they are environmentally registered or not. If they are environmentally registered, only those vendors are to be selected... that is my part."

And he further discussed any requirements if needed with vendors. For example, Omega_4 explained that they use batteries in their plant which they only give back to the authorised dealers for disposal. Omega_4 concurred that he is aware of the environmental policies and understands how strict these norms are. Thus, he is conscious of the aspects that need to be considered while running tenders and supplier selection. They assess their suppliers for the required certificates and licences and check if they are adhering to norms or not, as this affects the performance of their plant as well:

"We have to keep checking suppliers, we are taking their certificates and we see their licence, whether they have [an] environmentally valid licence. Suppose if they [have a] one-year licence and after that they realise it's not renewed, then they are unable to sell those batteries to those vendors. This is very important. Otherwise we can't sell. Otherwise we might get bad remarks on our performance."

It was seen that, even though Omega_4 had been in the organisation for 35 years, and in the purchasing function for 18 years, he did not show bias towards cost like some participants in Alpha and Gamma. Further, Omega_4 also engaged in procuring energy-efficient equipment despite the high cost. He considered whole-life costing because for him,

“It is very important to get [the] best equipment in the plant. Initial cost will be high but if you run for [a] long time, then your operating cost will be low.”

Although the technical requirement for the equipment is specified by the technical team, who pass on the demand to procurement, they sometimes also help them understand some of these requirements and influence them to go for a certain piece of equipment. Thus, the procurement people trust and rely a great deal on the technical team for the actual product requirement, as Omega_4 put it:

“So, our only thing is what you are forwarding to your supplier..... Suppose if you are not giving proper exposition, then you will not get the correct equipment. So, more trust is on technical expositions.”

This is taken forward with suppliers by the procurement people who negotiate about the cost, timeline, specifications, etc. Environmental sustainability was regarded as an imperative by Omega_4 in various processes that he carried out, being in a procurement function, and he gave it as much importance as was given to other aspects such as shorter lead times, cost effectiveness, product availability, etc. He was also found to engage in green leadership as he was constantly raising awareness and educating others about sustainability.

(2) *Educating and influencing others*

It was found that educating others in the organisation about sustainability issues is understood for participants in this case to make others aware about the environmental, health and safety risks and involve them in making improvements. As Omega_4 said,

“It is the matter of involving, [a] means educate the people about the environment. What are the dangerous things and then you have to involve them... So, slowly people will understand.”

Omega_4 believed that the senior staff needed to lead by example, by which he meant, *“You have to demonstrate. So, we, all senior people, have to demonstrate to the next level people and then [the] next level will follow”* They also involve the HR department so that they can help in organising regular meetings for the staff to educate them about it. As he put it,

“Our HR people will take initiatives and have conducted [a] number of meetings in our HR centres for all our workers. Educate them [about the] environment and these educational and continuous meetings; every week, there is a batch.”

Omega_4 emphasised the importance of awareness at every level of management and their involvement. He also felt that the leadership comes from the top: if the senior management is serious about it, everyone follows. Liaising with other departments is also increased by involving them, as he suggested, in order to improve:

“And co-ordination between the departments is also very good. Everybody will share their part and there is a competition for improvement also.”

He stressed the need to involve every employee by giving them specific targets and monitoring their engagement with the help of HR, this in turn improves liaison between teams, as he told:

“Have to ask people, they have given some target to the team... In between, they have to have meetings, ‘Where we are and why it is delayed?’ Everything is to be seen. And regular monitoring is also being done.”

Attitude around responsibility (Omega_4)

Responsibility towards EMS

Omega_4 did not convey that it is part of the job, but he did feel responsible to engage in it. For Omega_4, the mandate towards considering sustainability was perceived from the policy, as he explained,

“We have this one committee for ISO 18001, [the] environment aspect, and just like EMS. So, we have every six-monthly audit system here. So, [an] outside agency will come [to] our plant. They will see each and every section on environmental aspects.”

As a result, the responsibility is perceived by him because they have standards to adhere to for which they are audited periodically.

To summarise, Omega_4 was found to be aware of the norms and requirements and realised it was his responsibility to adhere to them, as he emphasised, *“Nowadays, the environment rules are very stringent. Government will not allow [non-compliance], so we are aware about the environment[al] policies.”* However, those who went beyond just following the norms and engaged in leading initiatives, influencing and educating others also believed in the cause and wanted to improve the environmental performance.

Feel responsible due to proactive motivation

Omega_4 emphasised that environmental leadership comes from the top, as he believed that, if the senior management is serious about it, everyone follows. Being one of the senior staff, he was keen to encourage the middle and lower management to get them involved further and suggest improvements related to environment and safety. Omega_4 was also found to be keen to take up more responsibilities concerning environmental improvements, as he said,

“We are working in [a] small force and getting results. And all the time we feel that we are charged up, we are free, and we are able to take [on] more responsibilities.”

An important observation in the case of Omega_4, who was found keen to take up environmental improvements as additional responsibilities, was that he had spent a long time working in Omega (for over 35 years). He belonged to the senior community, so this may be engendered by his experience of seeing the changes the organisation has gone through to become better, and he had enough experience to provide green leadership, as he depicted it, by educating the local communities about the EHS hazards. Also, the

willingness to take up these responsibilities and proffer his expertise in sustainability aspects depicts a proactive motivation on his part.

Expected outcomes by Omega_4

Good outcome for the organisation by improving operational efficiency

In order to achieve environmental improvements in manufacturing and business processes, Omega_4 stressed the need for efficiency improvement to become an integral part of the business culture in Omega. He believed that, even though they give prime importance to cost reduction, investment in efficient equipment and cost savings are related. That is because, “If your operational efficiency is improved, your production will improve.” The initial investment is high, but it pays off by improving the overall efficiency of the plant in the long run as it reduces their frequent break-down costs. This is expected to result in cost saving through preventive measures, as he put it, “So, initially whatever selection of equipment is very important to get [the] best equipment in the plant. Initial cost will be high but if you run for a long time, then your operating cost will be low.” Omega_4 emphasised how he prioritised efficiency considerations in his decision-making:

“Our production department, our operational departments, are well aware about all [the] rules and regulations [relating to the] environment.... They will give the first priority to that equipment only which can give us low power consumption, in which the efficiency is better and emission level is very low.”

Further, he suggests that this has helped them run their operations smoothly as there are no breakdowns in the plant, which has also made them more available and allowed them to use their time for making innovative changes, as he stated:

“And now we have time to think innovatively. Innovative ideas will come, people will discuss [things] with each other. Time is available [for] people and [the] plant is running smoothly. All three units are running non-stop, so these things definitely give us a boost to do further.”

Drivers for Omega_4

Awareness

Omega_4 stressed the importance of awareness at every level of management and their involvement. He was also aware that the organisation needs to be responsible towards the environment in which they work and have a duty towards it. As he said, “*We cannot have a negative impact on the surroundings and the society nearby*”, so considering environmental issues is important for them. The other reason is they are aware that they have standards to adhere to for which they are audited periodically.

Systematic approach

According to Omega_4, the organisation trains one person from every department to audit other departments. They prepare a report based on the audit and present it to management. Later, all the reports from various departments are compiled and studied by the department heads and they take the required measures to address any issues highlighted in the reports. Omega_4 felt that having these systems in place had made it systematic and convenient for them to improve their plant performance.

Ability to take decisions

Omega_4 believed that being in his position he was able to take important decisions regarding sustainability which despite being cost intensive were justifiable and long-term oriented. So, based on his judgement regarding the value of the project he was able to get such initiatives implemented. As he stated,

“but we are [the ones] who take the judgement whether we want to or whether the project is a big project; it’s not a one-time issue or it’s a continuous project or it’s [a] one-year [or] two-year project, or if it’s a continuous supply. So, what are the other administrative cost if we start supplying to these customers because we make a balance.”

Teamwork

Omega_4 corroborated that it was not just about liaison; there was a competition for improvement that existed between teams which helped them make a difference over the years in their performance, as he stated,

“Co-ordination between the departments is also very good. Everybody will share their part and there is a competition for improvement also... if you talk about 2002 and if you talk about 2017, the complete transformation is there.”

Challenges faced by Omega_4

Difficult to involve staff

He believed that there was a greater involvement needed from people, and he gave an example that the CEO especially must drive this thinking as the employees follow their leader,

“Challenge is initially involvement of people. So, involvement of people. Secondly, the top authority should also be interested. So, initially it must start from [the] CEO. If his focus is on [the] environment, then everybody will follow slowly.”

4.4.5 Conclusion

The different environmental behaviours that participants depicted in this case can be categorised into five environmental activities: (1) complying with customer's sustainability requirements, (2) exploring best practices and responsible alternatives, (3) educating and influencing others, (4) supplier assessment and sustainable procurement and (5) taking up additional responsibilities. The following paragraphs explain these behaviours in more detail.

In this case, participants deal with not just environmental risks as they manufacture cement, which negatively effects air quality but also poses health and safety risks. Thus, participants in Omega are very future oriented and focused on preparing themselves for any regulations that might be imposed in the future, as they anticipated stricter norms coming in.

In Omega, participants were found to explore best practices in terms of finding sustainable materials as alternatives to be used in their cement manufacturing process and installing technology to reduce emissions. Further, they were seen to invest in efficient

equipment that consumed less energy, which was found in other cases too. On an individual level, participants depicted similar Environmental behaviours as other case participants by educating and influencing others to involve employees in sustainability implementation.

As usual, some initiatives were cost driven but the biggest prompt for them to engage was regulatory requirements. Involvement in sustainability integration by taking additional responsibilities towards managing environmental impact was found to exist in this case. Participants including Omega_1 and Omega_2 were found to enhance their knowledge about existing best practices by reading about the new technology/material and consulting relevant people for problem solving. Finally, they depicted proactiveness towards future norms and obligations that the government may impose on the cement industry by, for example, advancing the existing technology to reduce emissions.

The mandate to fulfil requirements for the environment, health and safety arises primarily from the government enforcement agencies such as CPCB. Apart from that, the organisation also faces certain customer requirements to fulfil high standards for the environment and safety on top of ISO certification. Therefore, many participants tend to perceive it as part of the job, as that seems to be an embedded requirement, but they also expect several benefits from implementing initiatives with sustainability outcomes, such as cost savings, increased efficiency and contribution towards the country in the form of reducing environmental impact of cement production, besides other apparent advantages.

Table 4.4 Omega participants' profile summary

Omega Company Profile: Country: India; Sector: Manufacturing; Industry: Cement; Year Found: 1982; Employees: 10000; Certifications: ISO 14000: 2014				
Participants	Omega 1 Production Head Tenure in Org 12years Tenure in current role 4yrs Age 30-50 Gender M	Omega 2 Quality Control Head Tenure in Org 10years Tenure in current role 2yrs Age 30-50 Gender M	Omega 3 Senior Logistics Manager Tenure in Org 3years Tenure in current role 3yrs Age 30-50 Gender M	Omega 4 General Manager Purchasing Tenure in Org 35years Tenure in current role 18 years Age >50 Gender M
Project detail	Reducing emissions	Eliminating the use of Gypsum in cement production and replacing it with an alternative material (Jarosite) which is otherwise hazardous to dispose	Logistics improvement	Dust reduction equipment purchase
Project motive	Installation of SNCR technology to reduce SOx and NOx emissions of the plant	To use Jarosite as an alternative to Gypsum in cement production to reduce the cost of cement production	To organize logistics for the supply of Cement to the respective customers	Purchase of energy efficient dust collector equipment and its installation in the plant
Driven by sustainability or not	Yes, even though Omega 1 carried out both the functions in this project	Yes, Omega 2 handles the sustainability aspects too so integrated sustainability considerations in the project	Sometimes; Sustainability aspects are integrated by the marketing department when there is a demand for it from the customers	Yes, sustainability requirements are integrated and raised by the technical team for the equipment
Executed greening behaviours by them	-Exploring best practices by knowledge acquisition -taking up additional responsibilities by handling environmental issues at the same time -influencing others to collaborate on the project -cross functional liaisons	-Finding an alternative to hazardous material and acquiring knowledge about it -Influencing others -Taking additional environmental role on top of heading quality control	-Complying with customer's sustainability requirements	-Vendor assessment and sustainable procurement -Educating and influencing others -Assuming additional green leadership role
Attitude towards responsibility	Have to: Meeting regulatory requirements perceived as part of the job; Supervisor assigned the responsibility	Have to: Part of the job Responsibility due to the regulatory requirements make him perceive it as part of the job	Have to: No perceived responsibility from the organization but perceived demand from the customers Didn't want to	Have to: Responsibility towards EMS and frequent audits Want to: Feel responsible to offer green leadership

	Want to: Felt ownership towards improving the plant performance and a proactive reason to be prepared for future legal requirements	Want to: Personal interest in sustainability causes as well as being proactive to find an alternate material before others in the industry	No personal reason to involve unless required to	
Enablers	<ul style="list-style-type: none"> -Knowledge and awareness -Teamwork -Management support -Enjoy doing it -Freedom from top and trust from the management -Proactive mindset 	<ul style="list-style-type: none"> Teamwork within the organization -Freedom from top -Recognition 	-Teamwork	<ul style="list-style-type: none"> -Good outcome for the organization by improving operational efficiency -A proactive personality
Outcome expectations	<ul style="list-style-type: none"> -Meet future regulatory requirements imposed by the government 	<ul style="list-style-type: none"> -Huge cost savings -Help to the nation by finding use for hazardous material and bringing Cement costs down 	None	<ul style="list-style-type: none"> -Teamwork -Awareness -Systematic approach of the function -Ability to take decisions - systematic approach
Barriers/ Challenges faced	Ego conflicts with senior staff	Demonstrate commercial benefits to run the project	Lack of mandate from the organization	<ul style="list-style-type: none"> -Increase in cost -Involvement from other staff

4.5 Delta within-case analysis: “Steel” case study

4.5.1 Introduction

This section presents an analysis of the fifth and final case company, which focuses on supply chain managers and the sustainability manager of a steel manufacturing plant (hereafter referred to as Delta). It presents a detailed overview of the case and its context. Following the case overview and context, the next sub-section analyses the case individuals’ data in detail; this is followed by a summary of the key findings of this case in its context. Table 4.5 summarises the participants’ profiles.

4.5.2 Case overview and context

Delta was established in India as Asia’s first integrated private steel company. It is a global business conglomerate operating in over 100 countries across five continents. Globally, the company has been adjudged as the Industry Leader by the Dow Jones Sustainability Index (the most trusted and widely accepted rating by investors globally) for the year 2016. Delta has a strong presence across diverse industries such as agrochemicals, automotive, chemicals, construction, finance, consumer products, and hospitality, and has over 65,000 employees. The organisation is known for its cutting-edge innovation, a stringent focus on quality, sustainable operations and business excellence. The company’s sustainability approach as articulated in the Sustainability Policy reinforces the triple bottom-line approach in its systems and processes. The company has also established various platforms for engaging with its stakeholders to recognise their concerns and opinions, which are then prioritised and embedded in its business objectives and strategies. The company is actively associated with various industry bodies like the Confederation of Indian Industry (‘CII’), Global Reporting Initiative (‘GRI’), International Integrated Reporting Council (‘IIRC’) and the Taskforce on Climate-related Financial Disclosures (‘TCFD’) of the Financial Stability Board, in order to mainstream the best practices on sustainability in different functions and processes across the organisation.

Delta's sustainability programmes are based on formal policies and they have sustainability as a centralised corporate function. The organisation's policies are highly formalised, as evident from the annual reports. The organisation has a dedicated Corporate Sustainability Group that tracks the global best practices related to sustainability and facilitates its incorporation into Delta's key processes. The group also drives various external assessments and makes comprehensive disclosures on sustainability to stakeholders. The plant studied had acquired ISO 14000 certification in the year 2001 and holds a firm belief that better environment management leads to superior business performance, as per the company motto. It has the largest employer base among all its plants, with 32,000 employees. In December 2016, the plant underwent the GreenCo assessment conducted by the CII-Green Business Council and was awarded the Platinum rating (the highest rating on the GreenCo rating scale), thus making it the first and only integrated steel plant to be awarded this rating.

4.5.3 Case participants

The employees in Delta, including purchasing and supply managers, have a very specific role and there is a dedicated person for every function. The senior CSR manager has an advisory role to play and he suggests to management any sustainability improvements that would benefit the organisation. The plant to which the interviewed participants belonged had a separate department for sustainability, which comprised a team of six people led by the chief corporate sustainability officer.

Delta participants included Delta_1, who was in charge of logistics and engaged in a digitisation project. This project was aimed at reducing manual handling of paperwork (invoices) during logistics; this also had an environmental outcome in terms of reducing paper consumption. Delta_2 and Delta_3 belonged to purchasing and were responsible for managing different categories. As per the purchasing and supply managers, they had a rigid role as their job description was very specific. Both purchasing managers were predominantly cost driven and they had limited involvement in corporate greening projects; any initiative of which they were a part was aimed at reducing cost. There were clear boundaries between every functional role, with a dedicated department for each function. The senior CSR manager (Delta_4) had been a part of the organisation for around 29 years. Previous to working in this role, he had worked in engineering and

project activities. Now he is in charge of suggesting to management what to do sustainability wise and what would benefit the organisation.

4.5.4 Case analysis

Delta_1: Senior manager (Business performance enhancement and logistics)

Project overview: Digitisation project

Delta_1 was involved in a digitisation project which aimed at replacing paper-based invoices with a digital invoicing system. This project was driven by the need to reduce the manual work which took place in transferring invoice from one department to another. Therefore, digitisation was a solution to reduce the manual handling of invoices, such that the invoices could be maintained centrally on a server. Its conceptualisation and implementation started from the logistics department with a motive to reduce administrative work and cost. Additionally, this initiative had implications on reducing the environmental impact massively by reducing paper consumption. Therefore, Delta_1 believed it would be of huge benefit to the organisation if it was introduced in other departments too. The project was initially conducted for the tax department and sales office as they generated a great many invoices on an everyday basis. Also, the invoices had to be transferred manually from one office to another, so there was a huge scope to reduce this manual administrative work. With the digitisation of the invoices, it not only reduced the effort and improved the documentation, as whichever agency needs to see them can access the server and find the invoices along with the licences, they can also access old invoices. The project was conducted with a long-term perspective to reduce executive work and use of paper. The digital invoice scheme is encouraged by the government as well, which also provides the infrastructure for it. The project had involvement from many departments working in collaboration. It was initiated by the head of department of business performance enhancement in collaboration with the information technology (IT) department. The IT department had the major role to play as they were handling the technical aspects. There was also involvement from the logistics department, specifically people who managed the documentation, who identified the need for such, and then there were procurement people who helped them procure the necessary hardware and the key licences associated with it.

Environmental behaviours of Delta_1

(1) Resolving technical problems

Resolving problems was found to be a commonly observed behaviour by most participants depicted in this case, although in varying capacities. As Delta_1 put it:

“So, [there are] some projects where we also can play [a] major role in terms of identifying the technical details and resolving the technicalities and any obstacles... in which we can play a big role in the commercial part and the technical part.”

Delta_1 played an active role in resolving technical problems. For example, while working on the digitisation project, Delta_1 highlighted that, “There were problems related to the requirements also, because it's a new thing, so sometimes our people were not very clear... like, what is required. And what is the necessary and sufficient hardware and the software required.” Thus, Delta_1 worked towards identifying the correct requirements as per their needs, so basically resolving confusion related to technical specifications and ultimately finding the sources to procure the required licences. Although he did not engage in problem solving particularly related to sustainability, he did recognise the environmental benefits associated with the project.

(2) Collaborated with cross-functional teams

Delta_1 was majorly involved in executing the project by identifying the activities, identifying team members to be involved, identifying the idea to be championed, reviewing the project regularly, keeping the timing on track, meeting with stakeholders and then obtaining the funding for the project. His role was quite cross functional, so he worked with several departments to drive the project. Delta_1, along with other employees from the business performance enhancement division, was driving the project as he conducted the evaluation planning and implementation. Although it was a cross-function initiative which required the support of other departments, as shown in the Fig. 4.5 below, the decisions as well as any conflicts between them were resolved by the top management, as Delta_1 explained, “*At that time, we take a call based upon the directives*

of the senior management and...Whatever the issue is and accordingly jointly the team makes the decision.”

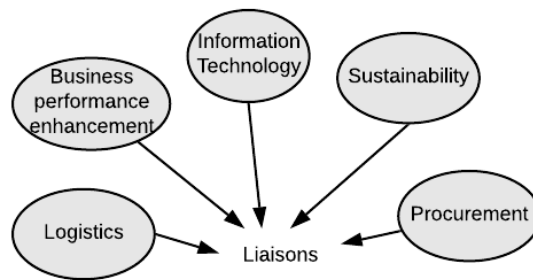


Figure 4.5 Liaisons between departments in Delta

While working with various departments internally, Delta_1 also contacted other IT companies for the management of the servers and procurement of licences as the licences were also mandated by the government. Delta_1 derived benefit from working with cross-functional teams as it helped him in obtaining a better understanding of how different functions worked in a very short span of time, as he put it:

“Learning is very fast track for some periods of time, so these are some of the benefits associated with these positions.”

He believed that, besides getting an opportunity to interact with employees from different departments, it also helped him get away from being restricted to one area of working. As he shared, *“You are working in a particular field and then you are only restricted to that field for some number of years.”* This indicates that Delta_1 showed willingness and was interested in working beyond boundaries when given an opportunity to do so.

Attitude around responsibility (Delta_1)

Felt responsibility from self

Delta_1 did not experience any responsibility assigned to him externally towards sustainability aspects. Although the project had an implication in reducing the environmental impact, it was not necessarily a priority for the purchasing staff. As Delta_1 corroborated, *“I was involved... but those [projects] are more focused towards*

improving the efficiency and not dealing much with sustainability.” He further added that, *“The primary objective is to reduce the cost or to improve the efficiency or some of the business needs... and then the secondary objective is sustainability.”* This indicated that there is no perceived responsibility towards sustainability from an external source such as job requirements, etc., since the primary objective of any initiative their department takes up is improving the operational efficiency, which can have a sustainability-related outcome as a by-product but is not dependent on it.

However, Delta_1 depicted enthusiasm in implementing this project as he could recognise the impact it had already had in the areas in which it was implemented and would have in the long run. He mentioned,

“The main encouragement which I received was that I saw the impact and it was beneficial for all. Logistics department benefited from it, ITES department also benefited from it.”

Thus, this was seen to benefit the organisation in many ways, and *“Basically, the impact of the project in different areas is what drove me to this.”*

“Our involvement basically depends on the benefits associated with the project with [the] ease of implementation and the timelines of the implementation and the stakeholder involvement.”

Thus, here the responsibility is somewhat perceived internally by him by anticipating benefits and good outcomes in the form of reduced carbon footprint (discussed in later sections below).

Drivers for Delta_1

Management support

Delta_1 felt there was support from the top management, *“Because this was [a] step taken in [a] forward direction and, if not now, then after [a] few years it had to be done... so the management was quite supportive [of] it and then we received the funding.”* The

management also conducted project reviews from time to time, which helped in driving participants because, *“Whatever obstacles in the projects, they are regularly reviewed, solved and then removed. So, there was no drop-in motivation at any level from this project.”* The reason for the management to be so supportive to the improvement initiatives in Delta is there is a *“culture of improvement”* (Delta_1).

Outcome expectations by Delta_1

Cost savings for the department

Identifying benefits was found to be linked to the role for participants such as Delta_1, who said,

“My role in this project was that, once the idea was generated, then this sort of project may be done and it will bring some benefits in terms of the reduction in printing cost, paper cost and other manpower cost.”

Thus, evaluating the project by assessing the benefits that could result from it was an important exercise to determine its implementation.

Reduce carbon footprint

Delta_1 perceived several benefits from the digitisation project and anticipated that it could be implemented in other areas of the company as well after being successful in one department. This was supposed to reduce various costs, as discussed above, but would also reduce the paper consumption and gradually, in the long term, reduce the carbon footprint massively once implemented across different departments in the company, as he elaborated:

“So, the project with such [a] huge impact it reduces [the] carbon footprint [by] a huge amount. So, once this kind of project is implemented across the company, so there is no looking back. And gradually it will be one step ahead in a direction of the future, like going completely digital and removing all the folders and replacing them with e-folders.”

The way Delta_1 explained it shows that it has huge potential, and *“is also acceptable to the senior leadership”*. He believed it was a *‘low-hanging fruit’* for them. His motivation to be engaged in the project was the good outcome for Delta and he felt it was

a simple yet a very impactful project. He highlighted that Delta was supportive of sustainable initiatives, which encouraged him to engage, *“So, being a forward-looking company, we would like to adopt such new areas in which sustainable improvements can be done.”* Although currently this project is not under the sustainability umbrella, later this initiative may be undertaken under the sustainability department. The decision-making involved to implement this project in a larger scope was associated with its long-term sustainability, whether it benefits the organisation in the long term or not.

Barriers for Delta_1

No inclusion from the sustainability side

As discussed before, there were apparent benefits for the organisation perceived by the participants when they realised there were certain benefits towards improving the environmental impact as a result of the initiatives. However, the barrier stopping them from becoming directly involved was that there was a separate sustainability department which took over to implement sustainability-related initiatives, even though the idea was developed by the supply chain participants, as Delta_1 explained,

“So, once the project reaches [a] certain level of maturity then it may [be implemented] elsewhere across the company by the sustainability team. So, the sustainability team has to play a big role in this area to drive such initiatives in other areas of the company as well.”

The reason for this was that they considered the sustainability impact as intangible and the job of another department. As Delta_1 explained,

“The sustainability department was involved in terms of the additional benefits associated and intangible benefits associated with the project.”

8.3.2 Delta_2: Procurement manager

Project overview: Packaging project

Delta_2 was engaged in improving the logistics involved in getting the steel coils to the end customers as they faced a lot of issues with the existing wooden packaging. He was engaged in finding an alternative to the wooden packaging they were using for transporting steel because it was being stolen. This was one of the most prominent issues they were experiencing. As Delta_2 explained, *“So, whenever we used to transport [the coils], we were using wood... but, by the time it reached end customer someone – from maybe from [the] wood mafia or someone – used to take that wood away.”* Due to this reason they “thought of doing something which can remove this wood.” The other reason for him was there were certain risks anticipated such as the government banning the use of wood in the future. Delta_2 highlighted that they had to be proactive as it was urgent to address this issue, *“because it is a kind of risk: tomorrow [the] government comes up with a ban – no usage of wood for transportation of coils – then what will you do?”* The other adverse impact it had was in the form of increased packaging consumption and wastage. Delta_2 realised that their existing packaging, *“was not recyclable. So, whatever wood was going, it was getting consumed and we need to offer fresh wood for fresh dispatch. So, [a] lot of wood was wasted and there was also [an] issue that in the times to come you may not get so much wood.”*

Environmental behaviours of Delta_2

(1) Working with vendors to address pollution issues

In the packaging change project, Delta_2 highlighted certain issues they were facing with the supplier of the wooden packaging, such as charging them a high price. For this particular initiative, Delta united with another company that was also transitioning from wooden to recyclable packaging. This behaviour also indicated that Delta was mimicking their counterparts in the industry in order to become sustainable. As Delta_2 mentioned,

“The other company also wanted to get rid of him [the other supplier] just because of sustainability issues. It was normally focusing on activities which can help [the] environment in a way.”

This collective practice led to a perception among the suppliers that led to *“a forward kind of push in the market”* and made them believe *“that Delta no longer used wood”*. Therefore, this also compelled the packaging suppliers to find an alternate to the wooden packaging because, *“Now they are also convinced that in times to come Delta will not use wood. So, their business is [at] risk”* (Delta_2). The redundancy issues associated with the wooden packaging were an impetus for both Delta and its suppliers to work together and find an alternate to it, *“So, we came up with a product which is, basically, [a] kind of polyurethane-based product”*. Therefore, this initiative to change to recyclable packaging, in his eyes was *“a supplier side as well as [a] dispatch side”*. For this collaboration to work, it was very important for both parties to be very clear about their goals and have aligned intentions. Thus, they communicated that clarity to the vendor in terms of what they wanted. Therefore, *“We normally tell them that, see, this is what we plan to do and what we intend to do. If your intention is [the] same as ours, let us do business.”* Thus, it works in both directions.

Attitude around responsibility (Delta_2)

Felt complete ownership for the function

Delta_2 perceived an operational risk along with the accountability towards it, which is why he felt the need to address the sustainability risk being faced by the supplier. He also felt he was answerable for any future risks arising for the category,

“Because people will come back to me, they will not go away anywhere else... if you are handling this category for so long. What is it that you have done to address this?”

This required him and the function to be prepared for addressing risks such as a government ban on wood usage, as he anticipated changes in the government norms in the future which might prohibit the organisation from using wood. Therefore, there is an implied responsibility that he perceived towards eliminating sustainability risks too. This created a sense of urgency to look for sustainable solutions because, *“You also get a kind of pressure that you are handling this category but tomorrow if something goes awry in terms of wood uses, what will you do?”*

Priority is given to commercial aspects

As Delta_2 emphasised, cost saving was always the first priority for him, being in a procurement function. He highlighted,

“It’s not about motivation. As a procurement guy, if you ask me what motivates me then there is only one point which motivates me, [which] is the cost. Jokes apart but, yes, cost is something which definitely was a key driver.”

There was a clear preference for saving cost as the ultimate objective, which was probably the motivation for considering any initiative that he may implement in his functional role.

Outcome expectations by Delta_2

Cost savings in the long run

The anticipated outcome by Delta_2 in this project was that the use of recyclable packaging for logistics of steel (raw material) could result in cost savings in the long run, as the longer you use it the cheaper it will be as he justified it by saying,

“Since we are using it up to once it is definitely costly. But if you set up your supply chain in such a way that you are using it multiple times, these things will become much more economical.”

He added that, “Because he was charging abnormally high...so we also wanted to get rid of it [packaging].”

Meeting regulatory requirements

This was the prime expectation, as finding recyclable packaging was supposed to help them manage any future risks, as it would help them avoid a negative consequence in the future arising due to using wood for packaging.

Drivers for Delta_2

Management support

Delta_2 believed that he received support from his management because the ultimate decision was taken by the management and it was positive. According to Delta_2, it is the strategy to avoid risk, as he mentioned, *“It is a kind of risk, tomorrow [the] government comes up with a ban... So, management was more than helpful in this particular thing.”* Also, it is believed to be linked to the reputation of the company too because, *“It also impacts your brand image. They are doing something on [a] lead basis and people follow you, then it gives you a good brand equity.”* Lastly, he also felt that the organisation encouraged his efforts towards sustainability: *“You also get lot of appreciation on sustainable initiatives. So that motivates you in a way.”*

Teamwork

While working in cross-functional teams, Delta_2 highlighted how they reach out to other teams and employees working on finding a solution to a similar issue, such that, even though the project is led by them, *“it is facilitated by the teams around me.”*

Barriers

Conflict of interest with vendors

Delta_2 highlighted that he is faced with a conflict of interest with vendors sometimes, since, *“He will always try to push wood. He will always try to push [a] cheaper substitute.”* And the vendors try to control the prices of the packaging in the market, which may affect their organisation’s interest. Therefore, the vendors can create problems for them and inhibit them from looking for an alternate by *“trying to find loopholes”*. Thus, this combined with a cost bias can act as a huge barrier for him.

Delta_3: Procurement manager

Project overview: Tackling polluting vendors

Delta is a prime source of steel for different vendors who produce certain products for them such as rods, etc. Delta had been receiving complaints about one of their vendors in Central India. Initially, there were complaints about the quality of the products from that plant and, a few years later, Delta received a notice from an environment controller that the said vendor was no longer able to operate the plant, as the vendor's plant was causing a lot of pollution in the city where it was based. This could have caused a major disruption as Delta_3 feared that, *"He will be out from the market in couple of months"*, which would affect the supply of their products in the market. Since the vendor used coal and the *"plant was located in the heart of the city, the burning of coal was creating a lot of problems around the city"*. To resolve this issue Delta_3 suggested the vendor switch from coal to furnace oil. Delta_3 identified that there was an opportunity for them to tackle the pollution problem as well as reduce the cost of fuel. As he explained, *"Within the last year, furnace oil prices went down.... And you can use this furnace oil, crude oil as a fuel. And if you see the pollution part, the coal has a much higher pollution level compared to the furnace oil. So, the idea was just to replace the high pollution-creating coal with furnace oil."* Through this, the vendor was able to lower their prices not just because the furnace oil was cheaper but *"the efficiency of this new fuel is much higher compared to the coal"*. This helped the vendor to avoid environmental risks and complaints against them by the local community.

Environmental behaviours of Delta_3

(1) Working collaboratively with vendors to resolve their pollution issues

Delta_3 worked with his vendors to implement the initiative as well as to help them reduce sustainability risks as that affected their supply chain performance. When faced with this situation, Delta_3 had a dilemma regarding, *"whether we find a new supplier, or we change some process and rectify the problem."* Being the owner of the category, he was managing the project by collaborating with various departments along with the vendors. Delta_3 explained this process of troubleshooting in which, *"I have to take inputs from different people, and I have to decide what to do with this particular*

problem.” In this particular situation, Delta_3 tackled the problem by working with teams including sales & marketing, technical, finance and the vendors. They solved the problem by coming up with an idea which was, “to replace the high pollution-creating coal with furnace oil. So, you have lower pollution; that was the solution.” He was concerned for the vendors because he had a long-term working relationship with them. As he highlighted, “They are the long-term partners. They [have been] doing business with our company for [the] last 20- 30 years... they understand [the] market and... we had [a] good relationship.”

(2) Improving operational efficiency

This behaviour basically comprised activities, projects or areas that helped participants improve existing operations by managing their supply chain by making it more efficient and sustainable in the long run. In this project, by avoiding the supply chain being disrupted due to the plant being banned, Delta_3 came up with a solution that would not only reduce the pollution but also help them save cost. This was possible because the alternate to coal was much cheaper, as the furnace oil prices had dropped substantially at the time. Therefore, there was a mutual benefit and the vendor was happy to work with them because,

“as a vendor, he always had the motivation in which the cost was going down. So, this cost was going down, so he was willing to participate, and we changed it.” As a result, they were able to tackle this problem and, “there was no difficulty in convincing their vendor, but it is going in a sustainable way.”

Attitude around responsibility for Delta_3

Taking ownership of the category as a part of the job

The reason for Delta_3 to engage in this behaviour was the perception that he was responsible for taking care of the category he was in charge of, as he believed that he was the “custodian” of the category he handled and, if any risks arose, he was responsible to take the decision and address the issues. This also meant that he took ownership for changing or improving the existing processes if he anticipated the need to do it, as he explained:

“For example, if I am handling a category, I am basically a kind of owner for that particular category. So, whatever new or new idea or maybe total change of mechanism or something, that has to start from me only. Because I am the custodian of that particular category. So, I need to explore new and new things I need to get into this.”

This indicated that some participants intuitively embedded sustainability consideration just like any other aspect important for the overall performance of the category, although it is not explicitly mandated for participants to engage in, as Delta_3 observed,

“The sustainability is not the driving force for certain divisions. So, for this particular project also it was not; there was no mandate that there is a sustainability issue for this thing... there are other problems so, because of that, we solved that problem and [the] sustainability part was also taken care [of].”

Therefore, he was found to engage in the project with an aim to improve operational efficiency and reduce cost, although that resulted in an additional outcome that happened to improve sustainability, as seen in the form of tackling the pollution problem, and conservation by eliminating coal use.

Outcome expectations for Delta_3

Cost savings as well as reduce pollution

Most participants including Delta_3 in this case were found to associate certain expectations for example, the operational efficiency would lead to cost savings, which was their ultimate aim. In this project also, the use of an alternative fuel was not only supposed to help them avoid pollution and risk to the community, but also save their cost.

Drivers for Delta_3

Management support

He agreed to receive substantial support from his management primarily because the ultimate decision was taken by the management, which was mostly favourable. He

believed that the management was quite interested in getting the sustainability aspects implemented, as he mentioned, *“There was a commitment from the management, and they want to solve the problem and it was solved.”*

Teamwork

With the help from others he was able to tackle this problem. Thus, whenever they are stuck or face a problem during the course of the project, it is resolved *“with the help of our own internal team and management commitment”*.

Liaisons with experts within the company to solve the issues

To be able to resolve such issues, they needed expertise to find solutions, which in this case was found to be present within the organisation, as Delta_3 recounted,

“Internally, we have [a] lot of expertise, so we don’t have to get expertise from [the] outside world. We were able to solve the problem from within our own departments.”

This is a resource that existed within Delta which they were able to utilise, unlike other cases where participants had to network with experts from outside to find solutions to the problems, they faced in implementing the initiatives.

Barriers for Delta_3

No mandate for sustainability

It was not apparent to Delta_3 that he needed to prioritise sustainability consideration, and this was because there was no mandate to do so. Sustainability is understood for procurement staff including Delta_3 to be a side-line activity such that the projects in which they are involved primarily focused on having a business motive. As Delta_3 mentioned, *“Sustainability is not the driving force for certain divisions, so for this particular project also it was not. There was no mandate that there is a sustainability issue for this thing.”* Therefore, it remains to be a by-product of operational improvements because, *“There are other problems; we solved those problems, and because of that [the] sustainability part was also taken care [of]”*.

Sustainability not a priority

Participants belonging to supply chain functions including Delta_3 did not think about the impact of their supply chain and operations on the environment immediately, so much so that there was no preference given to sustainability goals in the projects on which they worked. As Delta_3 put it, *“As an organisation, I cannot say, but for my particular role it was second- or third-ranking preference”*.

Delta_4: Senior manager CSR

Project overview: GreenCo rating project
Delta_4 was engaged in a GreenCo rating project which was essentially a company-wide audit-related project. As he explained, <i>“Its primary purpose was to ensure that there is all-round environmental excellence in the organisation.”</i> It involved assessing the performance of the plant on various parameters (specified by the Confederation of Indian Industry framework). For this, it required him to obtain inputs from different department such as <i>“environment, technology, marketing and sales, supply chain, procurement, logistics”</i> . He reported on 10 criteria including energy efficiency, water conservation, GHG management, green supply chain, life cycle analysis, product stewardship and renewable energy. Delta_4 acted as one of the leaders for this project and engaged in driving it. He mostly received support from others, as he shared there were <i>“several employees, many of them participated very actively, which resulted in achieving a platinum rating in the GreenCo rating system”</i> . However, other employees were not readily co-operative, which required Delta_4 to influence staff by <i>“continuous follow up, perseverance, and persuasion”</i> . He highlighted that, <i>“We face this challenge from all the departments. But we persuade them by telling them it’s important, emailing them regularly, and keep reminding them to do it”</i> .

Environmental behaviours of Delta_4

(1) Persuading others to incorporate sustainability

Although advising others was observed among other participants belonging to supply chain functions directed towards making improvements in operational efficiency here,

they explicitly gave priority to business. On the other hand, Delta_4, being the CSR manager, engaged in influencing the supply chain staff to strike a balance between the different aspects of sustainability, as he elaborated on how he and his team influenced them:

“We persuade them that trade-off is required in this, see, how you can balance both, because we say sustainability is... environment, social and economic are three dimensions of sustainability and all need to be balanced. We ask them to balance all three.”

Delta_4 acted as a key person in the organisation when it comes to involving everyone to contribute towards Delta’s sustainability goals. He shared that there *“is an inertia among employees that they don’t want to change [but] maintain the status quo”*. To resolve this, Delta_4 worked towards overcoming the resistance from employees, which *“mostly comes from middle management”*.

Attitude around responsibility (Delta_4)

Perceived responsibility as a part of the role

Delta_4 engaged in driving sustainability within the organisation, as it was a part of his roles and responsibilities. He was in charge of suggesting improvements relating to environmental aspects, as explained, *“I am in an advisory role; our work is to suggest [to] management what to do and what would benefit the organisation, whereas the other one is a line function where we had to execute the project. We are not executors, we are facilitators.”* He has been in the organisation for a very long time and has transitioned from working in the engineering function (for more than 20 years) to the sustainability function (for six years). Being at an executive level, he acted as a key person to drive sustainability implementation across the functions within Delta. He emphasised that as part of the *“sustainability department our role is to facilitate. If we leave it, the project would not move further.”*

Felt responsibility due to self-drive

Delta_4 believed that his department played an important role in change management and observed that, *“If we don’t drive it, the project would not run at all.”* He indicated that he

was self-motivated to drive sustainability improvements within the organisation as a team, which required them to keep trying, as he put it:

“Sustainability is a change management and any change is a time-taking process: it takes perseverance, patience and lot of self-motivation, and these qualities we develop in our self and within the team.”

Outcome expectations by Delta_4

Go beyond compliance and progress towards innovation while saving cost

Delta_4's expectation from sustainability consideration was that it would lead the company towards innovation, and bring a sustainable change:

“Our goal is cost reduction as well as improving operational efficiency, and our ultimate goal is that sustainability “should lead to innovation beyond compliance, we aim to work and innovate.”

Drivers for Delta_4

Teamwork

Delta_4 believed it was a collective effort as it could not be achieved without the input from other departments: *“It is teamwork and it was [a] unit goal. The goal was common for all.”*

Barriers faced by Delta_4

Lack of co-operation from others

Delta_4 realised that there could be a conflict of priority with the supply chain staff because, *“Their goal is different, they have different requirements, their KPIs are different, and cost consideration would also play a role.”* The other gap is the cost bias among them which can discourage them from co-operating with the sustainability department because, *“If you want to work towards energy efficiency, then our cost will increase as new equipment will have to be purchased, so cost would have an influence on them.”* This clarifies why procurement staff considers the two aspects (economic and

environmental) to be separate, and that is where Delta_4 is concentrating his effort, so that they start to balance the two. This also indicates that, if the organisation does not make it a priority for the employees, they are not required to do it. Moreover, the reason for other employees to not prioritise sustainability in their core jobs was because they considered it to be separate and were not willing to give enough time towards sustainability improvements, and were quite passive, as Delta_4 stated:

“It is a big organisation, so it’s time taking...they have their daily routine work, because of which they are unable to give time for these things. They think that it’s not part of their KRA and if it’s not their KRA why should they invest time in it? They consider it as fringe work.”

4.5.5 Conclusion

The individual profiles relating to the case are presented in Table 4.5 below. In the table, the participants’ attitudes towards responsibility have been distinguished based on the locus of responsibility, such as have to when it is external and want to when it is found to be internal.

Participants in supply chain roles in this case were found to be commercially driven and considered sustainability as not an immediate priority. It was found that supply chain participants engaged in task-specific behaviours that can be categorised into four main types of behaviours with an intent towards sustainability including: resolving problems, improving operational efficiency, working with suppliers and persuading others. The projects in which they engaged happened to have a sustainability impact, but participants did not necessarily prioritise sustainability in their decision-making.

Both Delta_2 and Delta_3 perceived responsibility towards managing the category they were in charge of in a holistic manner, such that they were required to tackle any risks that their category faced. This was seen in the form of ownership the individuals felt and depicted towards their functional role. Once they identified any issue within their supply chain that affected their performance, they immediately took care of it. A few

examples of the issues mentioned were child labour, pollution, pilferage, regulation changes, etc.

As such, participants did not engage in championing such initiatives because that was handled by the sustainability team. Sustainability being a corporate function had a big role to play in driving such initiatives on a larger scale in other areas of the company. This was evident from the way Delta_4 was found to drive other departments to obtain the sustainability inputs/information to feed into the GreenCo rating project.

Participants have a limited involvement when it comes to sustainability, even though the potential to engage in a project like the above was massive. This case implies a lack of inclusion of supply chain staff in greening initiatives and not necessarily a lack of opportunities for them. There seemed to be a gap in the way that purchasing staff perceived their requirement to engage in sustainability and what the sustainability department expected them to do, which could be an area that needs gap closure.

Table 4.5 Delta participants' profile summary

Delta Company Profile Country: India; Industry: Steel; Year found: 1939; Employee strength: 32000; ISO 14000: 2001				
Participants	Delta_1 Senior manager (Business performance enhancement & Logistics) Tenure in Org: 3yrs Tenure in current role: 8 mos Age: 30-50 Gender: M	Delta_2 Procurement manager Tenure in Org: 2yrs 7mos Tenure in current role: 2 yrs Age: <30 Gender: M	Delta_3 Procurement manager Tenure in Org: 3yrs Tenure in current role: 3 yrs Age: 30 Gender: M	Delta_4 Senior manager CSR Tenure in Org: 29yrs Tenure in current role: 6 yrs Age: >50 Gender: M
Project	Digitization of invoices	Packaging change	Tackling polluting suppliers	Green co rating
Project motive	Reduce manual handling, printing cost, manpower cost, etc	Address pilferage issues of wooden packaging; anticipate government ban wood	stop plant from polluting the city	All round environmental excellence in the plant
Driven by sustainability	No; sustainability seen as side benefit	No; address future regulations and packaging improvement	No; stop plant from shutting down and maintain quality of production	Yes; provide a report of performance on various sustainability criteria
Executed behaviours with an environmental outcome	-Resolved technical problems -Involving in operational improvements with a sustainable side benefit -Collaborated with cross functional teams	-Involving in operational improvements with a sustainable side benefit	-Resolved pollution problem -Involving in operational improvements with a sustainable side benefit	-Persuading others to co-operate towards sustainability
Attitude towards responsibility	No external mandate (Don't have to): No perceived responsibility to engage in sustainability aspect of the project Somewhat internal (Want to): Internally felt responsibility towards	Somewhat internal (Want to): Feel ownership as custodian of the category; duty to address any kind or risk including sustainability	Somewhat internal (Want to): Feel ownership of the category therefore, address sustainability risk also beside other risks Perceived it as part of the role to initiate any improvements be it sustainability related	Externally assigned (Have to): Part of the job Self-realized (Want to): self-motivation to drive sustainability improvements

	expected impact on reducing environmental footprint from the project			
Enablers	Top management support; timely reviews Teamwork	-Management support -Support of the teams and other company	Presence of internal expertise to solve the problem; teamwork helped; collaborate with other functions and suppliers	Self-motivation to drive sustainability; gaining knowledge about sustainability concerns
Outcome expectations	Cost saving Reduce carbon footprint	Cost saving Meet future regulatory requirements	Cost savings	Moving beyond compliance and towards innovation
Barriers faced	No inclusion from sustainability side	sustainability not a priority	Sustainability not a mandate	Faced challenges from other departments in terms of getting their cooperation especially middle management

Chapter Five: Cross-case analysis

This chapter presents the cross-case analysis to identify patterns (i.e., differences and similarities) between case individuals and examines the different supply chain employees' green behaviours (SC EGBs). In this research, I have explored the individual level engagement of employees towards sustainability in supply chain functions. The key research questions were "How and why do SC employees engage in environmental behaviours? Hence, the various EGBs are explained first. The key characteristics of behaviours emerging from the analysis are explored, and then clustered as '*proactive green behaviours*' (PGBs) and '*compliance green behaviours*' (CGBs). Next, the engagement process is covered by identifying the relationships between various antecedents and feelings of felt responsibility leading to different EGBs. Individual- and organisational-level drivers and their effect on various EGBs are covered next. Finally, the barriers and challenges faced by employees during their engagement are presented.

The emergent antecedents are introduced together with examples of their empirical underpinning, and their influence on felt responsibility is presented. After this, the key areas of interplay and the mechanisms underpinning the relationship between internal and external felt responsibility are presented. Next, all employees are grouped into clusters, which are then discussed in terms of their engagement in green behaviours (CGB or/and PGB) and process of behaviour implementation with respect to each of the behavioural types are discussed in turn next.

Appendix 3 shows the results of the iterative process of coding, categorical aggregations, mapping patterns, and reading and rereading transcripts until the themes emerged. These themes were helpful when identifying the final version of the analytical findings. The detailed process of how themes emerged from the categorical aggregation and direct interpretation using Stake's (1995) phases of data analysis is provided in section 3.6 of the methodology and Appendix 7, 8. The subsequent section provides a cross-analysis of each theme, which aims to answer both aspects of the research questions: 1) how and 2) why. Finally, a summary of the important findings is presented.

RQ1a: How do supply chain employees engage in green behaviours?

The first research question aimed to explore how SC employees engage in greening behaviours. Therefore, the analysis is more descriptive than explanatory. An inductive approach was used to answer this question. It was compared with what were found in the literature to be the greening behaviours or prospective greening behaviours of employees towards environmental management.

A total of 24 case individuals from five case companies showed different levels of proactiveness towards environmental behaviours in the projects they executed with a sustainability outcome. The types of engagement in greening behaviours ranged from no engagement to less proactive or compliance greening behaviour (CGB) such as meeting the organisation's sustainability targets by improving operational efficiency, following EMS and sustainability policy, and liaising with others, to very proactive greening behaviours (PGB) such as assuming additional roles, taking charge to change existing policies and processes, influencing and educating others, and knowledge acquisition about the green concept.

5.1 Employees' engagement in compliance green behaviours

In this research, compliance green behaviours (CGB) mean behaviours that employees carried out to comply with and fulfil the organisation's sustainability objectives and meet certain requirements from government, customers, etc. For example, Alpha had a policy to allocate 10% weightage to sustainability criteria in all tenders. Similarly, Gamma employees followed the world-class manufacturing framework which required them to conform to certain laws and regulations. Another example is, procuring energy-efficient equipment as a standard practice among participants across the different case companies. Moreover, certain behaviours that occurred in accordance with the social norms of the organisation, for example, liaising with sustainability department to meet green targets, can be found to be integrated in their functional role. The CGBs were similar to the concept of task-related employee green behaviour performed within the context of employees' required job duties by Norton et al., (2015) (see also Bissing-Olson et al., 2013). Such behaviours are required of employees by their employer and contribute either

directly or indirectly to the core business (Borman and Motowidlo, 1993). An example of this behaviour is interpersonal liaison, which was again very common as it was necessary for employees to participate in such behaviour because they were required to work together. This is because it depicted efforts to collaborate between purchasing and sustainability departments and was also found to exist between employees from different organisations. This is a similar practice to one of the popular interventions of redesigning work wherein groups (referred to as continuous improvement teams and quality circles), comprised of volunteer employees, meet in off-the-job teams to address local problems and to improve processes (Cordery, 1996).

Through their engagement in this way, employees perceived that they were conforming to their organisation's policy and the environmental laws faced, getting reputation gains and making cost savings, etc. This was evident in the way they anticipated such outcomes from their engagement in CGBs, and employees perceived that these behaviours were compulsory. All the CGBs depicted by employees are summarised in Table 5.1 below.

Table 5.1 Summary of Compliance green behaviours depicted by case individuals

Types of compliance green behaviours (CGBs)	Description	Characteristics and Examples	Case individuals
Involving in improving operational efficiency	This behaviour is referred to performing certain green supply chain management (GSCM) practices that help improve operational effectiveness	-Whole life costing -Vendor risk management -Recycle, Reuse, reduce -Resolving technical issues	Alpha_1, Alpha_3, Alpha_6, Beta_2, Beta_4, Gamma_1, Gamma_3, Gamma_4, Gamma_5 Omega_1,2,3, Delta_1,2,3
Following EMS and sustainability policy	This behaviour comprises of behaviours that depict commitment towards fulfilling requirements and obligations set by the policy and EMS and contribute towards fulfilling environmental targets organisation has committed to and are considered mandatory to carry out	-10% towards sustainability -Complying with customer's sustainability requirements -Sustainability performance reporting -Committing towards meeting green targets	Alpha_1,2,3,4,5,6, Beta_1,2,3,4, Gamma_3,4,5, Omega_1,2,3,4, Delta_4
Cross functional liaison to implement sustainability aspects	This type of green behaviour relies on relationships between different members of the supply	-Active co-operation of employees with each other to find solutions, meet targets,	Alpha_1,2,3,4,5, Beta_1,2,3,4

	chain as well as takes into account the expectations of stakeholders in the broader network, and the relation between the supply chain function and environment function, suppliers, etc. This requires them to work in liaison between different teams so that they can collaborate on greening the supply chain. Characterised by consultation tactics.	etc., by collaborating within and outside organisation -Creating an interpersonal dynamic between employees from same/different organisation -Working collaboratively with colleagues or supply chain partners to find solutions, meet targets, manage expectations, etc. -Working as a team with common objective	Gamma_1, Gamma_3, Gamma_4, Omega_1, Omega_2, Omega_4, Delta_1,2,3,4
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5.2 Employees' engagement in proactive green behaviours

I found PGBs to be self-initiated as well as influenced by others, change-driven behaviours aiming at improving the existing situations that can improve the environmental sustainability implementation and impact, such as influencing/educating others, taking charge, assuming additional roles and acquiring knowledge. In the literature, the definition of proactive behaviours is *“anticipatory, change-oriented and self-initiated behaviour, specifically engaged in the workplace, with the aim of improving current circumstances or creating new ones that will benefit future demands”* (Bindl and Parker, 2010, p. 567). The participants' engagement in environmental behaviours supports this, as the following paragraphs will explain.

PGBs were pursued in addition to CGBs among employees in my data. Employees engaged in PGBs that comprised of taking charge to change existing policies and processes to embed sustainability aspects in them or influencing others to commit to greening initiatives, etc. There were some employees who gave environmental issues a high priority and went beyond basic CGBs. Therefore, realising that giving sustainability a priority in their job role makes it easier for them to contribute towards sustainability goals and proactively involved in green behaviours. As evident from the data analysis across the different case individuals who displayed take charge behaviour, they were seen to improve the existing ways of doing business by making environmental integration more robust. These participants were found to contribute towards bringing a constructive change in the existing supply chain practices by leading projects such as updating the

supplier framework to include more sustainable suppliers (Beta_4) and updating tender documents to add meaningfulness to sustainability-related entities (Alpha_4), etc.

Some of these employees were influenced by deeper perceptions associated with the way of doing business. They felt the need to challenge the status quo, either by changing the existing processes or proposing the need to update the policy in order for their organisation to become a market leader. This was demonstrated by the procurement head of Beta, who took up the responsibility to update the company's sustainability strategy. Therefore, some participants depicted a greater degree of proactivity towards environmental risks as compared to those who merely depicted CGBs. This notion is consistent with existing literature on proactive behaviours, where behaviours such as 'take charge' and 'personal initiatives' imply an active approach towards work (Frese et al., 1997; Parker, 2000) and aim at improving given work methods and procedures as well as developing personal prerequisites for meeting future work demands.

The interesting aspect of these PGBs that I found is that they were engendered from greater role breadth perceptions, meaning these behaviours arise from having a perception of being responsible for a wider set of activities beyond the core job (Parker et al., 1997). Morrison (1994) defined role breadth as whether one regards behaviours associated with a particular class of organisation citizenship behaviour (OCB) as part of one's job. These perceptions arise from different factors, for example, from organisational norms making employees perceive them as a part of the job. In other words, these behaviours were represented by employees who are actively engaged in broad open-ended and interdependent roles, for example, employees who proactively use their knowledge and display personal initiative (Frese et al., 1997), and who have interpersonal skills and work collaboratively (Borman and Motowidlo, 1993; Parker et al., 1994).

In my data analysis, using personal knowledge and the ability to work interdependently were found to exist in participants with a 'proactive motivation' depicted by self-drive to bring change. As such, the grand theme that emerged from this investigation was that employees' engagement in green behaviours ranged from compliance to proactive behaviours which are depicted at an individual level to contribute towards the overall sustainability attainment in their organisation. Proactive ways to engage were depicted in

the form of knowledge acquisition and exchange, taking charge, assuming additional roles and influencing others. Liaison is required for most EGBs.

Table 5.2 Summary of proactive green behaviours

Type of proactive green behaviour (PGB)	Description	Characteristics and Examples	Case Individuals
Assuming additional roles	This behaviour is referred to performing multiple roles or set of additional activities towards the achievement of organisation's environmental objectives and therefore comprises of traditional SCM activities as well as green leadership type activities within and outside SC function.	<i>Taking on environmental responsibilities on top of core jobs</i> -Running sustainability workshops on top of tenders -Looking after supply chain and environmental functions at the same time -Assuming environmental responsibilities for new facilities being set up for the organisation in other locations	Beta_4, Gamma_4, Omega_1, Omega_2
Taking charge	This behaviour aims at evolution in business practice and processes to address concerns beyond the economic sphere, namely environmental and social issues, over a long-term orientation which requires challenging the existing practices and implementing improved ones.	<i>Challenging the status quo by proposing and implementing changes in process or policy</i> -To bring a massive change in the business or its processes -Updating tender documents to make them more comprehensive and fit for use -Changing policy to initiate active involvement from passive	Alpha_2, Alpha_4, Beta_4, Omega_2
Influencing others to collaborate	This behaviour is aimed at gaining buy in of others by educating them about the environmental objectives by communicating the relevance of those activities to them as part of the organisation. Characterised by various types of influence tactics such as legitimizing, coalition, inspirational appeals, etc.	<i>Using different tactics to gain commitment of others while working on environmental aspects</i> -Taking extra efforts to explain the benefits of the project -Encouraging others to adopt sustainable alternative -Consulting others to make any important decisions -advising others to adhere to the norms -Educating others to increase their awareness about sustainability	Alpha_1, Alpha_3, Alpha_4, Beta_1, Beta_2, Beta_3, Omega_1, Omega_2, Omega_4, Delta_4
Knowledge acquisition and exchange	This behaviour is aimed at taking efforts acquiring additional knowledge and skills that might help an individual towards improving the environmental impact of the supply chain. It is focused on personal development by educating themselves before deciding how to act. This is also associated with exploring best practices in other organisations/	<i>Developing skills and gaining relevant knowledge for developing new concepts for greening or implementing a new technology</i> -Learning about best practices of different organisations -Exchanging knowledge with suppliers and purchasing managers of other companies	Beta_4, Gamma_1, Gamma_3

	companies to learn and strategise how to best improve environmental sustainability of their organisation.	-Learning about cheaper and greener alternatives to replace non-renewable material	
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In summary, PGBs increasingly need employees to carry out a range of activities that comprise either all or some of the above types of behaviours that are proactive, interpersonal, and integrative in their nature. Parker (1998) provides a list of illustrative tasks that include solving long-term problems, designing improved procedures, setting goals and targets, resolving conflicts, presenting information to colleagues, and meeting with customers and suppliers as proactive behaviours among employees. Even though the four behavioural themes represented proactive behaviours that overlapped with each other in many ways, they had a distinct characteristic, as per the data analysis. Table 5.2 presents the characteristics and definition of each type of PGB depicted by the employees from all the five cases.

RQ 1b: How is SC EGB similar to or different from existing conceptualisations?

Building on the key characteristics of SC EGBs identified in the previous section, it is possible to show that SC EGBs share some characteristics with traditional OCBs but differ when it comes to context and implementation. This section examines how EGBs of supply chain personnel are similar and different in terms of their conceptualisation and implementation from other greening behaviours (OCBs) that have been linked or treated as synonymous. Specifically, employees' general corporate greening behaviours can be misinterpreted as being EGBs that employees in supply chain functions carry out. In addition, environmental behaviours as a concept is also being used interchangeably with organisation and individuals' greening behaviours. To avoid further confusion, the differences, similarities and the interconnection between these concepts is reviewed in this section.

Overlaps between EGB and OCBs

From the definitions, it appears that SC EGBs can be viewed as an added dimension of traditional OCBs, as will be explained in this section. For example, many aspects of taking charge behaviour seem comparable to Morrison and Phelps's (1999) definition of take charge, which is as follows: "*voluntary and constructive efforts, by individual*

employees, to effect organisationally functional change with respect to how work is executed within the contexts of their jobs, work units, or organisations” (Morrison and Phelps, 1999, p. 403). Similarly, interpersonal liaison is similar to helping and sportsmanship OCBs that are considered essential for stimulating collaboration in the search for ecological solutions or the implementation of preventive measures (Boiral, 2005). However, SC EGBs can have additional dimensions to the existing concepts, and which can be extended with regard to their application. Therefore, from the analysis of the definitions presented in the literature, such as by Boiral and Paillé (2012) and Ones and Dilchert, (2012), it is possible to conceptualise their possible application in the supply chain context as summarised in Table 5.3 below.

Table 5.3 Comparisons of the main categories of OCBs in SC EGBs (Adapted from (Boiral., 2009)

Main dimensions of OCBs (Organ et al., 2006)	Main current applications of OCBs	Possible application in ESCM
Helping	Altruism at the workplace; voluntary actions aimed at helping other employees, supporting or encouraging other persons; efforts to avoid interpersonal conflicts; promotion of cooperation among employees; helping others in case of absence or work overload; technical support to co-workers or clients; etc.	Encouraging other employees to act for the environment, influencing them to prioritise sustainability in decisions, helping to resolve environmental issues, collaboration with other departments to incorporate sustainability criteria, educating the subordinates or suppliers the importance of sustainability
Sportsmanship	Tolerance of organisational difficulties, inconveniences, and co-worker behaviours; accepting work related problems without complaining excessively; positive attitude; etc.	Including tolerance for difficulties related to environmental initiatives and acceptance of additional work and time required to perform supply chain activities with environmental consideration (doing tenders including sustainability criteria of suppliers)
Organisation loyalty	Defence of the corporate image to stakeholders; positive representation of the company to various communities; efforts to improve corporate reputation.	Support for the organisation’s environmental policies, participation in pro-environmental events involving the organisation and positive representation of the organisation in public debates, communicating sustainability commitment and expectations to suppliers and stakeholders
Organisational compliance	Respect for explicit and implicit organisational rules; respect for deadlines, punctuality; adherence to the value of the organisation; etc.	Include compliance with explicit or implicit organisational values and rules relating to environmental concerns in any business and supply chain activities
Individual initiative	Internal involvement; sharing ideas and opinions; making constructive	Internal involvement and participation in integrating

	suggestions; sharing information and knowledge to improve practices; open questioning of the status quo and inefficient management habits; etc.	environmental consideration in supply chain activities, including making suggestions to improve operational efficiency by reducing environmental impact, sharing knowledge and seeking to update existing policy and processes to become proactive rather than compliance oriented
Self-development	Voluntary behaviours to develop personal knowledge, skills, and abilities that could contribute to organisational functioning.	Self-development might involve the development of personal knowledge likely to improve the integration of environmental issues within the supply chain, using the tacit supply chain knowledge to apply it to environmental improvements (e.g., using networks to gain knowledge about best practices)

Along the same lines as how Boiral (2009) defined OCBE, Norton et al. (2015) give a new name to these greening behaviours of employees. They conceptualise these greening behaviours and differentiate between those EGBs that are extra-role, i.e., not part of the formal job, voluntary green behaviours (VGBs), and those that employees perform as part of their jobs, required green behaviours (RGBs). The RGBs are similar in one aspect to EGBs of operations and SC employees, but in other ways they are different. The commonality that exists is that, similar to RGBs of regular employees, SC employees perceive their CGBs to be a part of the job which contribute to the core tasks (for example, running tenders with sustainability integration). As per the Norton et al. (2015) classification, RGBs include adhering to organisational policies, changing methods of work including choosing responsible alternatives, and creating sustainable products and processes. They compare these RGBs with an existing conceptualisation of task performance (Borman and Motowidlo, 1993), which refers to “*behaviour required of employees by their employer and contributes either directly or indirectly to core business*”. Although the CGBs identified in this research overlap with the existing activities of RGBs, there are found to be additional activities for CGBs which involve making operational improvements such as assessing the sustainability risks associated with suppliers, green supplier development, or liaising with cross-functional teams to improve the sustainability outcome, etc.

However, there are two main difference that are found to exist with the SC CGBs which are related to the perception of these behaviours, as well as the nature of these behaviours. Firstly, CGBs within supply chain functions contribute towards achieving the operational sustainability implementation which involves integrating sustainability consideration in the way operational activities are conducted. Although they are perceived to be RGBs, there is no explicit accountability towards them in their supply chain function or a reward/punishment associated with their fulfilment/violation. It was found that the decision to consider an EGB of either type as part of the job or not depends on the employees' perceived role breadth, as some employees from the same organisation are not even aware of the required sustainability criteria to be followed while doing tenders, as seen in the case of Alpha_7 and Alpha_5. Therefore, its implementation, for example, the sustainable procurement strategy, is still underway and is not equally prevalent for all SC employees. The differences in characteristics of SC PGBs against OCBs and EGBs are explored in the next section of the review when discussing their nature and aspects that have prevailed in research to date.

No EGBs

In addition to the different types of engagement in EGBs there were also instances of no green behaviour. Although, those instances are found to be few (two SC employees) but they are worth noticing. These employees depicted a very passive involvement. Also, they didn't believe that sustainability was anywhere related to their role and showed no interest towards it. Their disengagement from sustainability has been elaborated in section 5.4.1 in much detail.

Differences in EGBs/OCBs versus SC PGBs

The issue pertaining to the nature of employee engagement in green behaviours, notably the distinction between explicit job requirements and voluntary initiatives, is rarely clarified in organisations (Boiral, 2009). The employees' engagement towards environmental management is sometimes regarded as a moral principle, without specifying whether it is a question of behaviour resulting from environmental management systems in place (procedures, job descriptions, etc.) or extra-role environmental OCBs (Boiral, 2009). Although the characteristics of SC EGBs in the

existing literature on EGBs/OCBs/OCBEs are unclear, the existing literature on proactive workplace behaviours as described by Parker et al. (2006) resonates naturally with SC EGBs more than the other conceptualisations, as presented in Table 5.4.

Table 5.4 Nature of employee engagement towards PGBs in SC roles

Type of behaviours	Main current applications	Application in ESCM context	E.g. articles
Assuming additional roles	For individuals, this entails changes to employees' existing job duties, additional position requirements, but also the creation of entirely new occupational opportunities	This SC PGB comprise of wearing multiple hats in the organisation by performing multiple roles or set of additional activities towards the achievement of organisation's environmental objectives and therefore comprises traditional SCM activities as well as green leadership type activities within and outside SC functions.	Hofmann et al. (2003); Morgeson et al. (2005); Parker et al., (2000); Morrison, (1994)
Taking charge	Putting efforts to change the existing systems and processes by proposing improved ways of managing environmental impact	This SC PGB aims at evolution in business practice and processes to address concerns beyond the economic sphere, namely environmental and social issues, over a long-term orientation which requires challenging the existing practices or policy and implementing improved ones.	Crant, (2000); Morrison and Phelps, (1999)
Cross functional co-operation	Gaining support of other employees and functions to fulfil sustainability targets and requirements of the organisation	PGB in a SC relies on the relationships between members of the SC as well as takes into account the interest of stakeholders in the broader network, and the relation between the supply chain function and environment function. This requires them to work in liaison between different teams so that they can collaborate on greening the supply chain.	Boiral, (2005); Steg and Vlek, (2009); Gattiker and Carter, 2010; Scott-Young and Samson (2008);
Influencing others	Convincing others to comply with a request, persuade others to buy in a certain project or activity, educating others by sharing factual information to seek their engagement, seeking expertise of others to make better decisions	SC PGB is aimed at gaining buy in of others by influencing others, educating them about the environmental objectives or by communicating the relevance of those activities to them as part of the organisation.	Gattiker and Carter, 2010; Ones and Dilchert, 2012

From the data analysis, I have identified additional dimensions to the already existing categories of OCB-Es and found two new types of greening behaviours such as '*assuming additional roles*', '*knowledge acquisition and exchange*'

It is established in the existing literature that EGBs can be voluntary and required green behaviours in a workplace and may depend upon the organisation's culture,

colleagues, etc., and the relevance of environmental issues in its sustainability strategy to determine them (Norton et al., 2015). Unlike corporate greening behaviours, which are frequently extra-role behaviours, meaning that they are not formally required for an employee's job (Mischel, 1973; Shamir et al., 1993), Boiral (2012) highlighted that, with the development of preventive approaches, employee participation and voluntary EGBs in the workplace have become indispensable in reducing pollution at the source (Hanna et al., 2000; Florida and Davison, 2001; Boiral, 2005). However, their participation depends on a voluntary commitment not entirely formalised or imposed by managers or by management systems in place. Participation of employees in sustainability has been widely recognised to be indispensable. However, there is still a gap of understanding about the best ways to engage people within organisations in sustainable practices (Murphy et al., 2019). To address this gap, this research has examined the processes that explain why and how SC employees engage in different types of EGBs.

The next section covers in detail why SC employees choose to engage or not engage in sustainability.

RQ 2a: Why do supply chain employees engage or do not engage in greening behaviours?

The previous section discussed various environmental behaviours in which employees engaged which depicted varying levels of proactiveness towards environmental behaviours within their supply chain functions. This section explains why some participants decide to engage or not engage in environmental behaviours and to what extent. There were found to exist different states of 'felt responsibility' which made employees engage differently. These 'felt responsibility' states were developed by antecedents including 'role breadth perceptions', 'outcome expectations' and 'internal motivations' that led to shaping of participants' attitudes around responsibility, making them feel the responsibility either externally, internally or both. The interplay between the two states of felt responsibility along with their interaction with 'perceived role breadth self-efficacy' and 'perceived pro-environmental work climate' determined the employees' level of proactiveness to engage in EGBs accordingly. These antecedents

emerged from role breadth perceptions, outcome expectations and internal motivation experienced by employees. Further engagement was facilitated by individual level drivers contributing to ‘perceived role breadth self-efficacy’ as well as organisational level drivers including ‘pro-environmental work climate perceptions’ that were found to drive SC employees’ PGBs. Overall, the presence or absence of felt responsibility and the interplay between the two states is what determined their EGBs.

5.3 Felt responsibility by employees to engage in greening behaviours

Perceived or felt responsibility here refers to when an individual feels a responsibility to engage such that they feel a reason for engaging in sustainability aspect of the project/job they are carrying out. ‘Felt responsibility’ is a psychological construct reflecting the extent to which individuals feel capable of and compelled to take useful action towards a desired result (Fuller et al., 2006) and is also regarded to be a ‘proactive psychological state’.

In this research, most participants felt a sense of responsibility towards engaging in environmental aspects, while a handful did not. The ones who did feel the responsibility were said to experience it in one of the three ways: externally, internally or both. In most interviews, this theme was mentioned and re-emphasised by participants. It unravelled the differences in employees’ engagement by highlighting how felt responsibility influenced their decision to engage in pro-environmental behaviours. It also explains how employees perceived the responsibility in different ways and how feelings of responsibility were unfolded in terms of whether responsibilities are ‘*externally assigned*’/ ‘*have to*’ or ‘*self-assumed*’ or ‘*want to*’. Further, why employees do or do not feel the responsibility for implementing sustainability in their respective projects are also explained. Basically, participants felt the responsibility to engage in green behaviours with an expectation to achieve certain goals since they believed that,

“We have certain responsibilities that we have to do in the lifetime of the contract that ensures we are both [contractor and him] trying to work towards our objectives.” (Alpha_1)

Those employees who felt the responsibility externally mentioned that they have to engage, for one of the three reasons: (1) they perceived it as a part of their job because of the organisation norms, (2) they were being asked by the supervisor, or (3) they were being influenced by the organisation or colleagues. Therefore, those who perceived the responsibility from external sources, stated the reason to be their job requirement, being answerable for a particular outcome, being audited for it, being asked to do it by their supervisors, or perceived it to contribute towards their KPIs indirectly by meeting overall green targets. This finding established that these participants integrated sustainability by perceiving broader role perceptions because it made them feel responsible for a wider set of responsibilities or an additional responsibility towards sustainability. This is in line with the existing definition of role breadth perception which defines it as “*whether one regards behaviours associated with a particular class of OCB as part of one's job*” (Morrison, 1994; Bachrach and Jex, 2000). The majority of employees who engaged in one or more PGBs (see table for various types of EGBs) perceived that they were assigned the responsibility externally that made them take the responsibility to integrate sustainability aspects in the project in which they were involved.

In contrast, some participants, including Alpha_7, Gamma_2 and Omega_3, did not perceive any responsibility towards sustainability, for different reasons, for example, no communication from the top to engage in sustainability, or it not being a part of the job. Sustainability managers particularly concurred with this and believed that purchasing and supply managers may not be directly accountable and may not be evaluated for environmental activities; thus, they do not make it a priority. Some supply chain managers even mentioned that they did not feel an explicit responsibility towards sustainability aspects; for example, Delta_1 accepted that,

“I haven't been involved in any projects which are completely towards sustainability, which is completely in the line of sustainability only” and gave higher priority to his functional objectives because, “the primary objective is to reduce the cost or to improve the efficiency.” (Delta_1)

Each of the factors discovered as sources leading to feelings of responsibility are termed antecedents and are discussed in detail in the next sections.

5.3.1 Antecedents to felt responsibility: Role breadth perceptions, outcome expectations, internal motivations

The cross-case examination of the case individuals from all the five case studies led to identification of a series of antecedents that influenced felt responsibility to engage in EGBs. In line with the adopted inductive research approach and method, these antecedents have emerged through the implementation of Stake's analysis techniques, as explained in detail in Chapter 3: Methodology (section 3.6). In this respect, while prior literature has proposed several factors (individual, organisational, contextual) that influence the EGBs (section 2.10.3), this study goes further by exploring the influence of antecedents on different types of engagement behaviours and corresponding level of proactiveness. Hence, the discussed antecedents arise from the analysis of the empirical evidence rather than from prior knowledge. Nonetheless, various individual, organisational and contextual factors discussed in the literature have been considered as possible relevant 'concepts' in the theory building process (Eisenhardt, 1989).

This section first presents the encountered antecedents, which comprise role breadth perceptions, outcome expectations and internal motivations. For this purpose, Appendix 3 indicates the resulting description for each antecedent and the case individuals in which the factor's influence plays a relevant role in explaining the empirical observations; and provides some examples of participant quotes that are associated with the factor. These quotes aim to illustrate each factor's inductive underpinning and to exemplify how these are discussed by participants. Therefore, they have been selected following a logic of clarity and usefulness for the reader and are not intended to represent the data sample that has contributed to the full understanding of the antecedents. Having done this, the influence of each of these antecedents on felt responsibility to engage is subsequently discussed in detail in the main text. Finally, a summary of the analysis of each type of felt responsibility to engage (internal or external) is offered in the following sections.

Perceived outcome expectations and their influence on felt responsibility to engage in EGBs

Outcome expectations refers to when employees anticipated benefits of engaging in sustainability-related aspects of the project. Participants were found to link sustainability integration in the project with a responsibility to fulfil the anticipated outcomes, as

Omega_1 mentioned, *“I was central coordinator for the project and responsible for [the] outcome”*. It was found in the data analysis that the participants tended to feel responsibility to engage (be it external or internal, as discussed later) due to the anticipation of favourable outcomes for the organisation in the form of benefits. This indicates that individuals expected favourable results from engaging in sustainability, which had some influence on their commitment towards it. Therefore, employees who anticipated those favourable outcomes also felt a sense of responsibility towards engaging in those behaviours, as seen in the quote below:

“And then benefits with the organisation such that you know if we don't do this then we're just not going to have access to the same things that we have been able to have access to in the past. So, we know that if we don't sort of work towards a sustainable end game then it's going to mean big trouble for all businesses.” (Beta_3)

These expected outcomes play out in the engagement process to have a combined effect along with either role breadth perceptions or internal motivations for the employees to feel responsibility to engage either internally or externally. Thus, this antecedent is found to exist alongside other antecedents and to have an effect on an individual's intention to engage in environmental behaviours, but never on its own, as employees mostly anticipated benefits only after they felt an internal or external responsibility to engage, as if it acted as motivation in the subconscious and played out as a combination. This is similar to the argument that a person's attitude towards a behaviour is personal and captures her or his positive or negative evaluation of performing the behaviour (Fishbein and Ajzen, 2011). Thus, outcome expectations served as another motivation towards the engagement which arises from the participants' deliberation to attain a *“good outcome”* for their organisations or towards the processes.

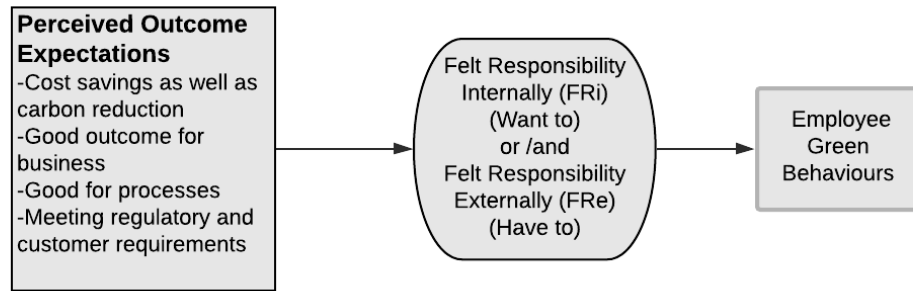


Figure 5. 1 Perceived outcome expectations as an antecedent to felt responsibility

Participants often expected multiple outcomes from the project simultaneously. As such, these expected outcomes can be regarded as part of the engagement process. The ability to envision the likely outcomes of prospective actions was an implicit way in which anticipatory mechanisms regulated their motivation and behaviour, as shown in Fig 5.1. Below are discussed the expected outcomes for participants from the projects across the five cases.

Good for business and reputation

In all the examined case studies, participants universally associated green activities as having a positive effect on their respective organisation. Many participants from supply chain functions anticipated certain benefits in terms of the positive image of the organisation to which they belonged, as their supply chain practices were said to affect their brand image. Delta employees were very committed to the community and believed that their organisation is recognised as a responsible organisation, so they expect to maintain that reputation. According to Beta participants, their organisation's practices needed to be aligned to their image as they were the leaders that others followed. Therefore, their engagement in sustainability projects was supposed to have a positive effect on their image and reputation. Participants from Beta were particularly keen to serve their customers and be trusted for their products and services. They believed it to be important for the longevity of the business and that, through their involvement in greening activities, the organisation would be able to access greater benefits in terms of reputation. This perception among the employees also indicates that they participate in, are involved in, or are concerned about the life of the company (Podsakoff et al., 2000).

Cost savings as well as carbon reduction

All interviewed participants except the sustainability managers (Alpha_1, Beta_1, Gamma_5, Omega_1, Delta_4) and two SC employees (Alpha_4, Beta_2), (as their respective projects were tender and policy update), expected cost savings to be the primary outcome from the project. Participants often linked environmentally friendly alternatives to cost savings, be it in terms of energy efficiency (Alpha) or in terms of packaging material (Gamma) which also reduced their carbon footprint. Similarly, Delta participants expected that reducing the use of non-renewable resources (for example, coal, wood, etc.) would not only save them in terms of cost as there existed cheaper alternatives to replace them, but also reduce pollution.

Supply chain participants expected to derive significant cost savings from the projects in which they were involved, as this was a significant aspect of their KPI. Therefore, their engagement towards greening behaviours was driven by favourable outcomes in terms of saving cost while improving operational efficiency, reducing damage and improving customer satisfaction, as they believed everything to be linked. As Alpha_3 observed: environmental savings and cost savings go hand in hand. This finding aligns with the literature on environmental behaviours which deduced that employees make reasoned choices and choose alternatives with highest benefits against lowest costs (e.g., opting for energy-efficient equipment), as per the theory of planned behaviours (Ajzen, 1991).

All supply chain participants generally aimed to achieve greater cost savings from their project. This was most often their main priority, irrespective of their attitude towards sustainability, as employees from purchasing functions have cost savings as the primary KPI. Due to this, they had competing priorities as they often faced conflicting objectives because, on one hand, they wanted to encourage green alternatives, but on the other hand that increased the cost. Thus, they were driven by alternatives that were not only environmentally friendly but were also cheaper, as employees in Delta were found to do (Delta_2 and Delta_3). However, those interested in maximizing the sustainability outcome of the project, often considered the trade-off between cost and benefits. They had to justify cost and even lower the spending incurred in the organisation as they were constrained by budget and limited funding in the case of public sector companies.

Participants from Alpha and Beta often justified saving cost by considering whole-life cost instead of unit cost, therefore saving money in the long term.

In the data, motivation for SC employees towards implementing environmental measures is often restricted by the logic that first of all any measure has to make economic sense and that is how they justify it. For example, Omega's procurement manager believed that through the acquisition of new, more efficient machinery Omega would reduce the cost of breakdowns in the production process, thus cutting expenses on maintenance and shut-down costs; moreover, it was expected to reduce "*hassles*". Also, Omega's cement production processes had hazards which exposed the location in an environmentally sensitive way; thus, it required them to be careful with their production processes. Therefore, investing in good equipment was a driver for them to reduce energy consumption and emissions while also saving on the break-down cost as a justification for cost savings. On the other hand, Delta participants saw the improvement through operational efficiency as an environmentally responsible behaviour which aligns with their organisation's core value of a "*culture of improvement*", even though what really drives them is cost saving, which is given the highest priority. For Delta participants, cost savings and reduced consumption of fossil fuel, as well as environment protection are internal motivators. These ethical values and the drive for better-quality products are consistent throughout the participants.

Meeting regulations and customer requirements

This was another commonly observed expectation among most employees: to meet the environmental norms and regulations from different case companies, especially for the employees in manufacturing sector companies as their organisations were regularly audited for sustainability. Hence, laws and regulations were regarded as crucial for their organisations and employees took them very seriously. On a higher level, meeting regulatory requirements related to sustainability was considered to be an indispensable deliverable of the project. However, it was observed to be an organisational responsibility and not always perceived to be an individual's responsibility; therefore, it was implied to be fulfilled collectively. The reason for it being widely recognised was the risk of non-compliance, due to which they had no choice but to follow the regulatory norms and that is why they expected to meet them while carrying out the projects.

It appeared to be important for all participants, including the ones who otherwise did not engage, such as Gamma_2, who expected the organisation and the supply chain partners to meet government norms, rather than this happening through his own engagement. Among others, it was reflected in their engagement, as they expected to meet the regulatory norms by ensuring the necessary steps were taken to achieve them during the course of the project. Specially, participants in Omega strived to make their plant capable of meeting future environmental changes imposed by the government. In this, they were similar to Alpha and Beta participants, who also expected to avoid any legal risks that might arise from not doing things the right way (as per the norms), and therefore maintained the stance of delivering on the sustainability aspects through the project on which they worked. For one participant, Omega_3, in addition to the government norms there were increased environmental and social requirements imposed by customers. Thus, sustainability became an order qualifier for such participants who were faced with direct requirements from their customers. A few times, customers demanded that sustainability dimensions were incorporated in the products and processes the company offered. Due to this, participants were compelled to respond accordingly. Delta_3, for example, reacted to the demand from their vendors to introduce transport pallets made out of recycled material instead of wood. Similarly, Omega_3 responded to the demand of his customers by providing greener transportation to supply cement as he expected to fulfil the emerging requirements from the customers end.

Good for process/task improvements

This particular outcome was not as commonly highlighted as the other outcomes discussed earlier. It was only found to exist for participants in cases Alpha and Beta. Some purchasing employees from these cases showed a heightened awareness of corporate social responsibility and environmental concerns which made them embed sustainability in the processes. Alpha_4 particularly felt dissatisfied with the existing tender documentation and felt that, if they did not integrate sustainability in the processes, “*what value is it adding?*”. Moreover, they anticipated risks and therefore felt an implicit responsibility towards integrating sustainability aspects to add value and meaningfulness with an expectation of improving their processes and decision-making while selecting the

right suppliers. Similarly, Beta's purchasing head said that they expected to achieve consistency in their actions to manage their function better.

The next section covers in detail how participants perceived responsibility to engage in environmental behaviours externally

Felt responsibility externally (FRe) due to greater role breadth perceptions and perceived outcome expectation

Some employees felt responsibility to engage in sustainability due to influence from external sources which made them increase their role breadth to integrate sustainability implementation in their roles. These influences arose from either the organisation's norms, through supervisors or influence from colleagues, which made them expand their role breadth by feeling a responsibility to engage in environmental aspects within supply chain functions.

Employees who felt responsibility towards sustainability implementation in the projects due to their increased role breadth perceptions along with certain expected outcomes from their engagement are classified as those who felt responsibility externally. Increased role breadth perceptions to integrate sustainability: In this research, increased role breadth perceptions towards integrating sustainability refers to employees feeling the responsibility to engage in EGBs as a part of the job from either all or some of these sources: due to organisational policy, or due to the direct influence from the supervisor, or due to an influence from other staff including sustainability manager, colleagues, etc. It is evident from the analysis that when participants experienced greater role breadth perceptions it made them feel obliged to engage in EGBs.

Part of the job due to organisational norm/policy: Many SC employees besides sustainability managers believed it was a 'part of the job' to integrate sustainability considerations into their operational duties. They considered sustainability to be a responsibility that was assigned externally (although not explicitly); it acted as a mandate from the organisation to consider sustainability aspects in their functional roles. This made them integrate sustainability into their operational activities because it was

perceived to be embedded in the processes and assumed as a part of the job such that they feel a strong reason for sustainability implementation. This was emphasised by all the sustainability managers from all cases as well as some of the procurement staff who felt a responsibility towards it, as reflected in the following quote:

“It is a part of my job. Initially in this organisation where I am working, ... I was also in charge [of] environment regulations for the organisation. That time I started all these things.” (Omega_2)

Supervisory demand: For some participants, the additional responsibilities in the form of green targets are assigned by the supervisors, which makes employees engage in additional sustainability activities, as in the case of Beta_4, or they are assigned some green targets which compel them to widen their role breadth. This kind of responsibility emerging from the supervisory request also had a strong effect on why the participants took up pro-environmental activities, as seen for Gamma_1, Gamma_3, Beta_4, etc. Even though Gamma_3 knew it was not entirely related to his role, they felt the responsibility as the mandate came from their supervisor.

Influence of sustainability and other staff: Lastly, the responsibility to engage in sustainability emerged as a result of the influence of others in the organisation such as sustainability manager, technical team, colleagues, etc., due to which employees felt the responsibility towards engaging in sustainability practices. This is because, at times, SC employees were approached by the sustainability manager to implement initiatives in supply chains; for example, Alpha_2 was influenced by the sustainability manager to integrate a sustainability agenda into business travel. As seen in most cases, there were sustainability targets to be met which were often communicated by the sustainability manager. They had a positive and significant influence on making SC employees perceive it as a part of their role to engage in EGBs.

Some SC employees had a passive involvement towards sustainability because engagement in environmental behaviours as such was either not entirely monitored, or measured, or not asked of SC employees among case individuals from different case companies. Thus, sustainability/environmental/CSR managers had an important role to play in driving compliance among supply chain staff. Also, that led to task

interdependence, which made supply chain participants somewhat prioritise sustainability and also made them perceive their responsibility for it. It seems that the task interdependence makes them depend on each other for achieving the organisation's environmental goals and support them (Smith et al., 1983). All the case companies in my data had a separate sustainability department and all of them, except for Delta, worked in close collaboration with their supply chain functions. I found that employees from organisation (e.g., Delta) where there was not such a close working relation between them did not consider sustainability to be a top priority in the supply chain functions. This is in line with what was found in the literature: that embedding of routines within operational systems is essential to the successful implementation of any environmental initiative (Jabbour et al., 2013). Moreover, from a managerial perspective, alignment between key functional areas can positively influence environmental sustainability by integrating key organisational practices, leading to a high level of employee engagement (Thornton et al., 2012).

Employees who felt they were externally assigned the responsibility in one of the three ways, along with corresponding outcome expectations, were found to exhibit a felt responsibility towards working for environmental betterment and implementation of green initiatives, as shown in Fig 5.2 below. And it was evident from the way they prioritised sustainability and felt accountable for it, as depicted in the quote below:

"It's led as a supply chain initiative and it will be received by us. Yes, it would be my accountability to kind of sign off that policy." (Beta_2)

An explanation for this observation could be that the conflict between existing business goals and sustainability goals is minimised for an individual when it is perceived to be a part of the job, as Beta_2 explained:

"It doesn't feel different...now some of management is if that process which is your business as usual takes aspects from the sustainability area then it's not two different things."

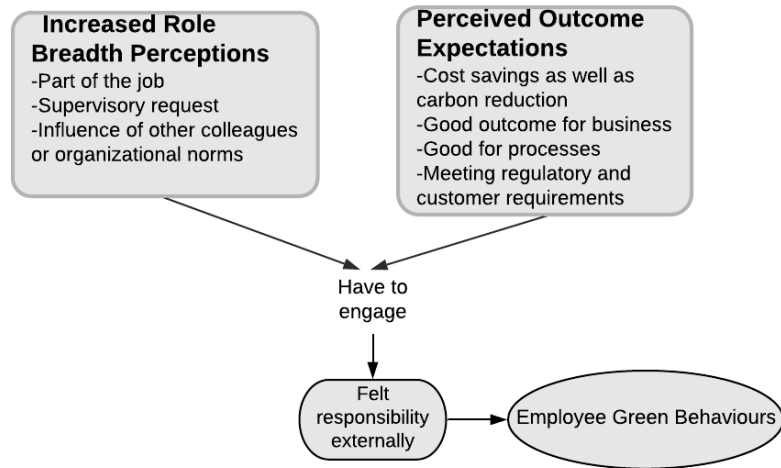


Figure 5. 2 Emergence of externally felt responsibility (controlled motivation)

This way, a felt responsibility towards acting green perceived as a part of the job played a positive role as employees expanded their role breadth; it made them take it as seriously as other supply chain objectives.

Employees who were externally assigned the responsibility in one of the three ways were found to exhibit a strong felt responsibility towards working for environmental betterment and implementation of green initiatives and expected similar outcomes from it. This was evident from the way they prioritised sustainability and from their engagement in compliance and PGBs such as taking charge to update policy and tender documents, etc. On the other hand, there were participants who also felt a sense of responsibility from self/within. The next section covers in detail how participants perceived responsibility internally (by self) to engage in environmental behaviours.

Felt responsibility internally (Fri) due to internal motivations and outcome expectations

This is the other way responsibility was perceived among employees was due to personal/internal motivations which made them take the responsibility to incorporate sustainability, with and without the presence of an external influence. Such individuals

were willing to acknowledge sustainability integration, and they valued it because they favoured sustainability aspects in the projects in which they were engaged. Employees' personal influences were found to arise from different sources such as '*intrinsic motivation or interest in sustainability*', '*moral obligation or believed sustainability as the right thing to do*', '*proactive motivation to create change*', and '*openness to integrate sustainability*'. In addition to internal motivation, the other component which was found to exist was the perceived outcome expectations, which basically comprised the anticipated good outcomes from engaging in EGBs, as depicted in Fig. 5.3 below. Such participants engaged because they perceived benefits such as '*expecting to save cost*', '*meet customer requirements*', '*long-term benefits for the organisation*', etc., from their projects, which made them perceive the responsibility and assume it.

Enjoy doing it: Intrinsic motivation for integrating environmental aspects in their supply chain decisions had a prominent influence on some employees who depicted not just challenging but multiple PGBs simultaneously. This is consistent with the existing literature that emphasises intrinsic motivation (Steg et al., 2014). Regardless of the pressure and difficulty of the task at hand, the drive from the sheer enjoyment they felt from delivering sustainability outcomes was expressed by the employees who felt intrinsic motivation. This was evident in the way Beta_4 linked it to her way of working as she commented, "*For me there's no benefit; in fact, actually it's really stressful. But obviously I must like doing it otherwise I wouldn't continue to*". Others, including Beta_1 and Beta_2, also reflected that they enjoyed working towards environmental management as they had an educational background in it, which helped, in addition to having an interest in the field. Similarly, Alpha_3 expressed a sense of enjoyment as it made him feel good when he engaged in influencing others towards sustainability.

Moral obligation: Participants from case Alpha (Alpha_3 and Alpha_5) took it as a personal value to "do things right". This depicted a sense of conscientiousness towards including environmental requirements in the tenders. In all these examples, participants seem to align business goals with environmental goals in ways that would serve both purposes, for example, purchasing energy-efficient equipment and evaluating the equipment based on whole life to justify the cost as well as reducing the impact on the environment. Participants including Alpha_3, Beta_1, Beta_3 also depicted this by

adhering to ethical values by conducting business in a way that takes into account environmental concerns as much as possible. These employees believed that integrating sustainability is the “*right thing to do*”; as a result, they felt the duty to work towards making environmental improvements through their business operations.

Proactive motivation: is a sense of self-drive that some employees depicted towards engaging in environmental initiatives by acting proactively for their organisation by anticipating future risks in terms of legal risks (Alpha_4, Omega_1), and climate change risks (Beta_3), etc. and identifying opportunities. These employees had an anticipatory and future oriented mindset to predict and prevent threats, risks and uncertain critical events from environmental issues for their organisations. As a result, their motivation towards sustainability to prioritise it in their decision making was high. Thus, they showed proactiveness to avoid and prevent the negative consequences for the organisation by considering environmental concerns beforehand. For example, Omega_1 depicted proactiveness to install emission reduction technology in the plant and Beta_2 updated the sustainability strategy making it more inclusive of sustainability in supply chain operations.

Openness towards sustainability: This type of motivation was found to exist among two employees who did not face an external mandate or influence for implementing sustainability in their supply chain roles. However, these employees perceived an ownership towards every aspect (including sustainability) of the category because they felt that they were in charge of it. This depicted an openness towards the idea of implementing sustainability in their attitude. Therefore, it is similar to the dispositional concept of openness to experience (Barrick and Mount, 1991). This attitude didn't affect their actual engagement towards sustainability due to the ‘commercial bias’s they face.

In this research, this attitude depicting openness to sustainability is considered different from role breadth perception because though these employees showed openness to engage but did not necessarily prioritise sustainability in their roles. Firstly, they did not treat sustainability as important as other operational duties because they have a greater discretion as well as accountability towards the commercial aspects in any project; however, they showed willingness to engage if they feel they are faced with situations

where they need to address sustainability issues. An accountability towards implementing sustainability is close to the concept explained by Frink and Klimoski (1998), who found it to emerge from social influences within an organisation.

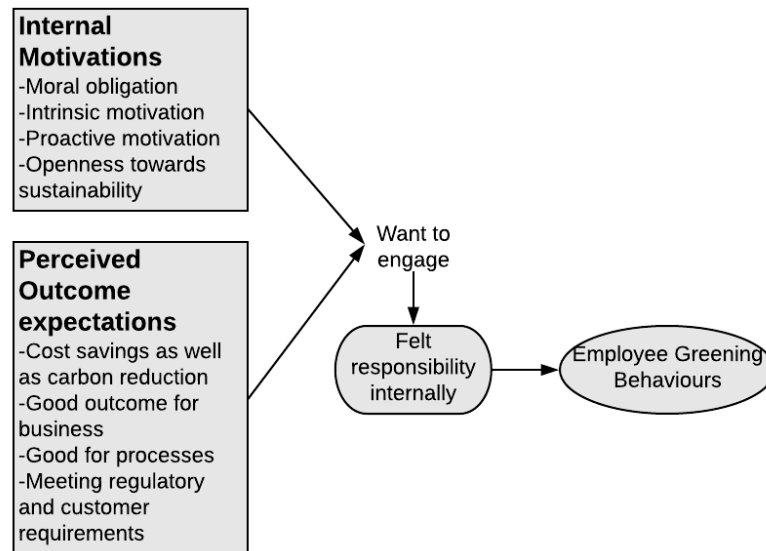


Figure 5.2 Emergence of internally felt responsibility (autonomous motivation)

This was the case for Delta_2 and Delta_3, who believed that sustainability is just another aspect in their function and, being the owner of their function, they are responsible for committing to initiating any sustainability initiative if identified/needed. Secondly, because this engendered autonomously from an internal feeling of complete ownership for every aspect of the category as they considered themselves to be a ‘custodian’ for it depicting a kind of ‘psychological ownership’ towards their role. The concept of psychological ownership is introduced by as “*the state in which individuals feel as though the target of ownership or a piece of that target is theirs*” (Pierce et al., 2001, p. 86)

This way, individual motivations along with certain perceived outcome expectations played a vital role towards perceiving the responsibility to engage in environmental sustainability internally, although not all who perceived the responsibility internally acted in the most proactive manner when there was no externally assigned responsibility on them to do so. However, they did support its implementation in the wider organisational

context, for example, by co-operating with the sustainability team in the implementation of their initiative.

Interaction between external and internal felt responsibility leading to PGBs

Externally felt responsibility was found to be highly conducive to green behaviours (both CGB and PGB), especially when accompanied with internally perceived responsibility, such that the resultant engagement was on the higher levels of proactiveness towards greening. It was noticed that some of the managers (such as Omega_4 and Gamma_4) who actually perceived it to be a part of the job felt that it had become an integral part of the way they work, such that they no longer view it as an obligation. This almost seems like internalisation of the green behaviours concept in the literature (Green-Demers et al., 1997). Their long tenure in the respective organisations, evolving organisation culture, could have an implication on the way they internalise it. Nevertheless, it provides an impetus to say that, when the externally assigned responsibility prevailed for a long time, it had a tendency to convert into an internally felt responsibility which no longer required an external source to trigger the green behaviour, as evident from the following quote from Gamma's quality head, who has been working in the same organisation for 20 years,

"[There is] no binding force on us but, yes, it is [the] culture of the company. It is something cultural inherited right from day one: the safety of employees, safety of machinery, safety of people around, that has to be the prime concern. While we are reinforcing safety, environment comes there by default."
(Gamma_4)

The same occurred for those participants whose supervisors asked them to engage, as it initiated from the responsibility being externally assigned but then they took ownership by wanting to engage proactively, as seen for Beta_4, Gamma_3 and Omega_1. This finding resonates with the quote from Alpha's sustainability manager:

"I think the success in the past on relationships and having somebody who was interested in it (sustainability). So, I think that helps, if somebody has an interest in sustainability and has been given a task to champion, they have also been given a little bit of time to do it." (Alpha_1)

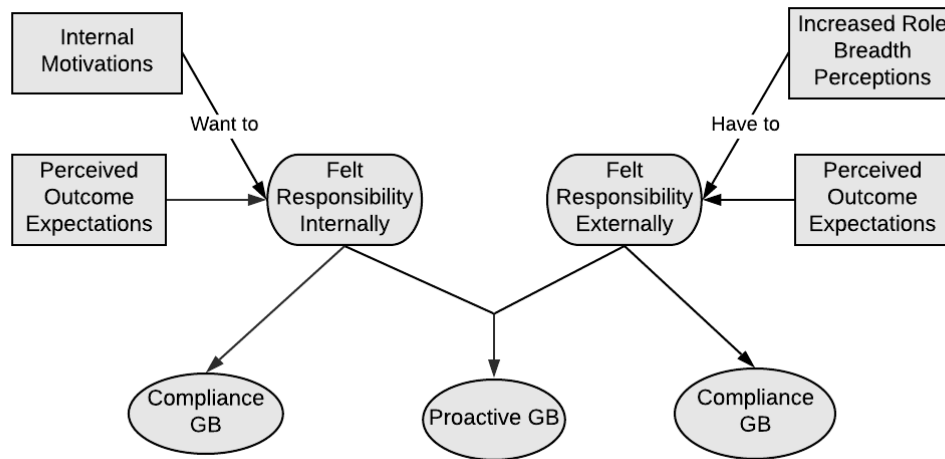


Figure 5.4 Interaction between the two states of felt responsibility

After the process of their engagement is established, it is clear that employees depicted varying types of engagement behaviours as a result of different antecedents they experienced. Based on how they engaged and which types of greening behaviours they performed, all the participants can be categorised as per the next section.

RQ 2b: Why do employees engage in varying levels of greening behaviours?

5.4 Types of employee engagement and respective EGBs based on felt responsibility

In this section, I discuss how responsibility felt externally, internally or both influenced the greening behaviours of SC employees within their respective projects. I also discuss how the presence or absence of externally assigned responsibility affected an individual's engagement in greening behaviours. I further classify the individuals based on their felt responsibility from either external sources or internally into four distinct groups to understand their characteristic behaviour towards environmental sustainability.

Participants were found to engage in different types of proactiveness towards environmental behaviours depending on whether they perceived responsibility towards sustainability or not and also how they perceived it. Also, their engagement relied on the

source of such responsibility arising either or both (internally, externally). Based on this, their engagement can be classified into four types: ‘*not engaged at all*’, ‘*want to engage*’, ‘*have to engage*’ and ‘*have to as well as want to engage*’.

5.4.1 Type 1 – No perceived responsibility

Did not engage in environmental behaviours

No engagement was found among two participants who depicted the lowest level of proactiveness. These were SC employees who perceived no responsibility towards sustainability in their projects, neither formally assigned nor mandated to them. Also, they did not feel the responsibility to engage internally or by themselves. This can be compared with ‘amotivation’, or a lack of motivation to engage in EGBs (Gagné and Deci, 2005).

These participants often responded by complaining, giving excuses about not having enough time in a typical manner indicating that they had to do something they did not want to do, as evident in the case of Gamma_2. Gamma_2 also believed that incorporating sustainability requires extra budget, indicating that the other reason for this negligence is ‘cost bias’, as they focused on the ‘cost’ of ecological services that can come in as a bias, expressing concerns by using phrases like “*cheapest option*”, “*pure commercial*”, “*budget*”, etc.

Thus, the reason for the absence of perceived responsibility by the employees from the same organisation is primarily dependent on the individual and their role perceptions. For Alpha_7, this narrow role perception arose due to the project’s budget. As he was engaged in a high-budget project, Alpha_7 was not involved in the project’s sustainability-related decisions. Hence, he did not perceive a reason to widen the role breadth, as the sustainability aspects in the project were entirely handled by the sustainability team. Therefore, Alpha_7 was under no obligation to engage in or integrate sustainability consideration into his project. Another reason for Alpha_7 was the lack of communication from the top towards incorporating sustainability rigorously in tenders, which made him see sustainability as not being a priority.

While most of the procurement managers emphasised lack of time as a common reason for not engaging, what I gathered from sustainability managers was that there was a “*gap of ownership*” on the part of the procurement staff which engendered “*pockets of resistance*” within organisations, at least for Alpha. This resulted mostly from external factors such as no evaluation criteria allocated towards sustainability, leading to the “*gap of ownership*” as stated by Alpha_1, “*lack of accountability*” as per Gamma_5, and “*not their KPI*” as per Delta_4. As a result, these employees did not consider sustainability incorporation to be as important as other KPIs.

This, along with the absence of internal motivation and lack of outcome expectations from sustainability activities, resulted in a lack of willingness to invest time in considering sustainability. Not only did they disregard sustainability as a part of supply chain function, they were almost unapologetic about their lack of involvement in sustainability activities. A predominant perception among Type 1 participants was that sustainability goals did not come under their purview or were simply “*not part of their job*”, hence their narrower role breadth perception (Parker, 2000). This attitude depicts a lack of perceived accountability and a narrow attitude towards expanding the role breadth, leading to a lack of involvement in EGBs.

This answers the question posed by the thesis concerning why SC employees might not engage in environmental behaviours at all. There was a lack of certain conditions and some challenges faced by the two employees who did not engage in greening behaviours. Both of the employees depicted a passive attitude towards sustainability, and they did not perceive any responsibility whatsoever to engage. Since both Alpha_7 and Gamma_2 felt the absence of an external push that their top management neither emphasised sustainability in their respective functions nor imposed any such requirement on them, consequently, they did not feel the need to engage in or incorporate greening considerations into the project.

Gamma_2 was rigid towards not investing any time towards sustainability and even believed it to be outside his job role. For Gamma_2, a misconception about sustainability-related activities was that they are limited to community service, such as education for

the under privileged, planting trees, etc., and something that was separate from his functional performance, while Alpha_7 was only willing to engage as much as the management required. In a way, both of them implied they needed an external push in the form of emphasis from the top management for them to incorporate sustainability into their respective functions. This thinking could have emerged from their belief that the organisation does not recognise or require their involvement in sustainability, leading to a perception that it is entirely voluntary, which is a dominant view in the existing literature about EGBs (Daily et al., 2009). This indicates that some individuals need that extra push in the form of accountability, or a strong leadership which can lead to a shift in attitude.

5.4.2 Type 2 – Felt responsibility internally only

Want to engage (compliance green behaviours)

The second type of engagement in this research was depicted by SC employees that made them exhibit only CGBs. Type 2 engagement was seen among those participants who reported that they were not formally assigned or being asked to involve themselves in any sustainability activities, albeit they felt the responsibility by themselves. They believed environmental considerations were not a determining factor, nor did they affect the end result of their project but depicted some personal motivations and openness towards engaging in them. This type of motivation to engage in EGBs is similar to ‘autonomous motivation’. Sheldon and Elliot (1998) defined ‘autonomous’ goals as those that reflect personal interests and values, whereas ‘controlled’ goals reflect something one feels compelled to do by external pressures.

For example, Delta_1 anticipated benefit for the organisation and environment in the form of a reduced carbon footprint in the long run by reducing paper consumption. On the other hand, Omega_3 wanted to meet customer requirements if they made such demands. Such beliefs made them engage in compliance behaviours. Similarly, Delta_2 and Delta_3, despite possessing a receptive attitude, did not prioritise sustainability but considered it was a by-product of conducting the project in a compliant manner. Many studies on environmental behaviours regard ‘autonomous motivation’ as a strong motivation for individuals to engage proactively towards environmental behaviours,

although this relationship has not been examined for SC employees before (Hicklenton et al., 2019). Han et al. (2019) also agreed that environmental activities triggered by autonomous motivations are consistent with the individual employee's values, goals and interests.

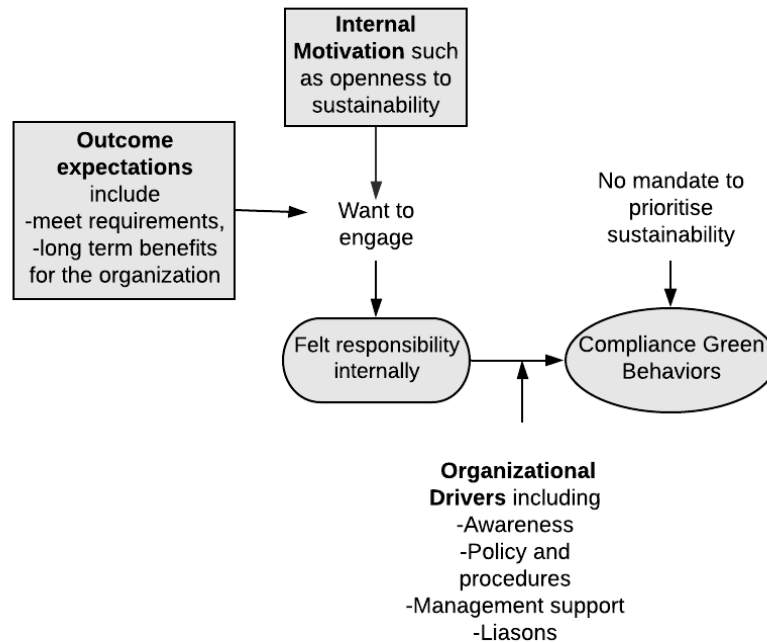


Figure 5. 3 Autonomous motivation' to engage in CGB

The involvement was quite passive among some of the employees, for example, Omega_3, who felt it would help him comply with his customer requirements. The engagement was limited, as in such a scenario the participant succumbed to the conflict relating to priorities and complied with the existing norms and did not go beyond compliance. However, what compelled him was customer demand. Liaison with and support of other departments helped in contributing towards operational efficiency or achieving the expected outcomes of the project. Both employees who showed willingness to engage felt that they did not have a mandate from the top to integrate any sustainability consideration into their projects (Omega_3, Delta_1); yet they felt a responsibility towards sustainability for different reasons. For Delta_1, it was the perceived benefit of making a considerable impact that could be achieved from engaging in sustainability aspects. Delta_1 felt there was no reason to undertake sustainability because that was not the immediate objective of the project. In contrast, Omega_3 was flexible towards

engaging in compliance behaviours but only if there was a demand for it or if they were assigned a responsibility. The participants with this engagement depicted an awareness of what the organisation's sustainability goals and related benefits are, but they lacked opportunity due to not being included, and showed some ambiguity regarding prioritising sustainability. These participants did not engage in PGBs, although they both showed willingness to contribute and depicted active compliance.

There was a lack of inclusion from the sustainability department as stated by Delta_1, or a lack of emphasis about sustainability issues in their function. According to Delta_1, the procurement team had no role to play as far as implementing sustainability initiatives was concerned, even though the idea for the digitisation project had been developed by the procurement team. This is another example of how some employees are not given the opportunity to increase their role breadth. In this case, it was specifically because there was no mandate to engage in sustainability aspects for them in the purchasing function. This is examined by Unsworth et al. (2013): that an employee's broader goal hierarchy will depend upon the degree to which it is self-concordant. Self-concordance means the degree to which the pro-environmental behaviour expresses any of the employee's stable interests and values (Sheldon and Elliot, 1998).

5.4.3 Type 3 – Felt responsibility externally only

Have to engage (compliance green behaviours)

“Have to” engage attitude was found among participants who felt the responsibility towards incorporating sustainability from external sources only. This was widely true for sustainability managers because they were inherently accountable for sustainability outcomes of their organisation as it was a part of their job. Therefore, this type of motivational state can be called a ‘controlled motivation’ to engage. As Gagné and Deci (2005) described, *“the degree of one’s controlled motivation reflects the degree to which one feels coerced or seduced by external contingencies or by their introjected counterparts”*.

However, there were several SC employees too who perceived it as a part of the job because they felt obligated to engage in greening behaviours as a result of organisational norms, supervisory demand, influence of others, etc. The commonality for these participants was that they only perceived a responsibility towards sustainability from the external sources and expected to see benefits as usual in the form of good outcomes for the organisation/business but did not really possess an internal motivation to engage. This in a way inhibited them from engaging beyond compliance as the personal motivations to align sustainability with the job were absent or unexplored. This finding resonates with Gattiker and Carter's (2010) conclusion about SC employee's that regulation can force organisations to implement various measures but is not enough when it comes to gaining buy-in at the level of an individual actor within an organisation. This result illustrates how the organisation can hire, develop and incentivise supply managers to best enable organisational sustainability objectives.

Furthermore, I found that, when participants felt responsible to engage in certain sustainability objectives by perceiving them as a '*part of the job*', they only engaged in compliance behaviours and not so much in PGBs. The belief that sustainability is a part of their job made them take organisational sustainability norms, such as considering 10% criteria towards sustainability in tenders, using responsible alternatives, whole-life costing, etc., seriously, but they were unable to look beyond that as they lacked a proactive motivation. They did not look for opportunities to integrate sustainability considerations; they only did what they felt was mandatory in their job, as concurred by employees from different case companies.

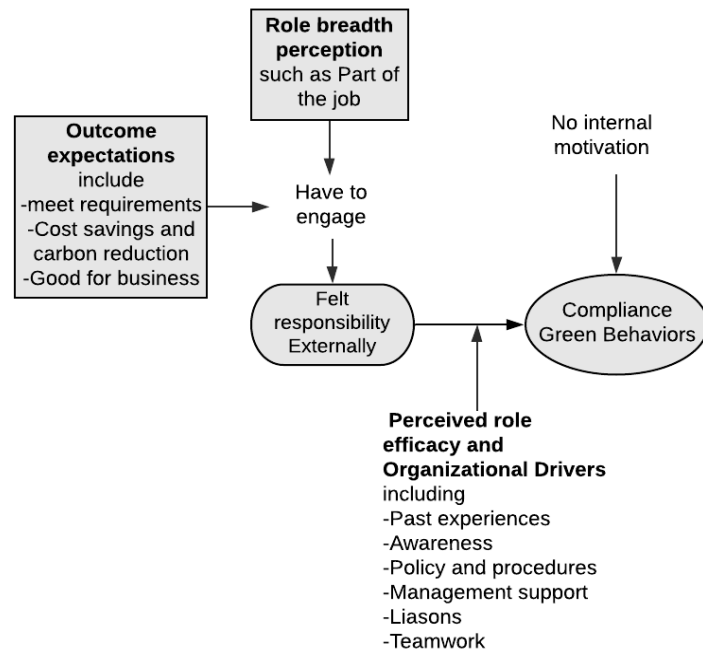


Figure 5. 4 ‘Controlled motivation’ leading SC employees to engage in CGB

From the data, however, these employees’ felt responsibility states can be distinguished from the “*want to*” and “*neither have to nor want to*” states in terms of role clarity experienced by “*have to*” employees. Participants understood the organisation’s core values and respected them, since most of these employees felt the responsibility by perceiving it as a ‘*part of the job*’ and not just a voluntary activity due to organisational influence. This contrasts with the prevalent view that greening behaviours carried out by employees in the organisation are mostly voluntary (Boiral, 2009).

Moreover, they felt responsible for this engagement as they believed it to affect their KPIs (key performance indicators) leading these individuals to be more concerned with output quality which they believe to be directly linked to the job. This was seen, for example, in Gamma_1 who, while focusing on improving the product delivery, gave equal importance to packaging improvement for achieving the desired results and associated greening activity with the job evaluation criteria indirectly. This aligns with the most prominent discussion of felt responsibility in job characteristics theory by Hackman and Oldham (1976), as they argued that felt responsibility for one's output would lead individuals to be more concerned with output quality. Perceiving a link

between sustainability improvement and the operational improvements indeed worked as a motivator for SC employees to engage in EGBs.

Perceived role breadth self-efficacy towards sustainability

Some employees perceived various factors (both internal and external) to feel capable to engage in CGBs. Parker et al. (1998) introduced this concept to capture “*employees’ perceived capability of carrying out a broader and more proactive set of work tasks that extend beyond prescribed technical requirements*” (p.835). This was found to exist among employees who felt enabled due to their organisational climate (in the form of management support) or personal capabilities to integrate sustainability into their supply chain activities which helped them carry out EGBs. For example, some employees possessed awareness about the prevalent environmental issues; obviously, sustainability managers were highly aware, but some SC employees were quite aware from their past experience of working on sustainability, as seen for Gamma_1. Others, including Alpha_5 and Alpha_6, also found that the directions from the policy enabled them to incorporate sustainability into their purchasing decisions.

The data analysis shows that this combination of perceived role breadth with moral or intrinsic motivation rarely occurred for some employees, which limited their engagement, thereby decreasing their likelihood of aligning individual preferences with organisational objectives, limiting their engagement in CGBs. For this group of participants, the responsibility to engage was perceived to arise from their increased role breadth perception influenced by organisational norms. However, it was not a priority for them as it was just one of the many aspects that was taken care of in the course of the project (for example, if it affected their core activities such as production, delivery, lead time, etc.)

Therefore, the barriers for them arise due to sustainability not being their priority. For example, for Alpha_5 and Alpha_6, the challenge is the time, as they are allowed very little time in certain government projects to find the right suppliers that are capable of meeting the requirements, which are preferably the right technical specs for the equipment and then the sustainability requirements. They did want to follow the rules, but Alpha_5 felt there was not enough information from the sustainability side about the

exact timelines, and there was not enough emphasis on sustainability aspects. Delta_2 experienced some challenges in implementing the sustainable packaging because of the vendor pushing the wooden packaging. This conflict of interest between them can be a challenge when there are other prominent considerations for the purchasing employee which need to be considered first. Additionally, they did not share information about any internal motivations to play a role or that affected their engagement.

5.4.4 Type 4 – Felt responsibility both internally and externally

Not just have to but want to engage (proactive green behaviours)

Proactive engagement in greening behaviours was found to exist for participants who felt responsibility as a combination of ‘*have to*’ or ‘*controlled motivation*’ as well as ‘*want to*’ or ‘*autonomous motivation*’ to engage in EGBs within their respective projects. This was depicted through their behaviours that showed efforts to change existing policies and processes in the organisation, as well as in the form of influencing and educating others and acquiring knowledge themselves about sustainability. These participants felt responsibility to emerge from different sources such as perceived role breadth expansion due to influence from others, such as colleagues, supervisors or the organisation in general.

However, the most effective and strong source for employees to actually engage in PGBs was found to be supervisory demand; in other words, being asked by the supervisors to do it, which made them see the instrumentality of sustainability as it came from the top. Also, being picked to champion a sustainability initiative led to greater accountability and task interdependence among them, which further facilitated the trust from the management, adding to the responsibility felt for it. This explanation is in line with the study by Smith et al. (1983) which hypothesised that employees would engage in more supervisor-reported citizenship behaviours if they were task interdependent with others. Further, Conger and Kanungo (1988), Kanter (1983) and Spreitzer (1995) emphasised the importance of supervisory behaviours such as open communication, goal setting, non-bureaucratic and non-hierarchical approaches, openness to employee participation in

decision-making, feedback on performance and goals, and exposure of employees to learning opportunities.

Among other participants who considered broadening their roles felt a sense of responsibility towards green targets that came from the organisation's environmental behaviour and existing sustainability policies. This is along the lines of Hansen et al. (2016) and Rupp et al. (2006) assertion that employees respond positively to the CSR activities of their employers (i.e., their perceptions of the organisation's environmental reputation and behaviour). This is specifically observed when individuals realise that certain projects are very intrinsic to environmental impact. This was found to be vital for participants who believed that the scope of the project matters, for example, Alpha_2, who engaged in a high level of proactiveness to have an updated procurement strategy to integrate environmental thinking in the way decisions are made for business travel in the organisation. Other participants who engaged proactively were those who perceived responsibility to integrate sustainability dimension as a part of the job. However, this approach to engage must be distinguished from the '*have to*' engagement previously discussed because, in the employees depicting type 4 engagement, there was found to exist an internal motivation concurrently.

Also, the employees were certainly aware of the conflicts regarding priority but managed to overcome the conflict in their own ways. These employees perceived an accountability towards sustainability and did not think of it as separate from their job requirements, similar to type 3 engagement. However, the difference is that it was found to exist along with internal motivation, which made them give high priority to sustainability. As a result, they depicted higher proactiveness towards greening behaviours and consequently engaged in PGBs, as shown in Fig. 5.7 below. They were found to be driven by both individual and organisational factors which contributed to their engagement towards integrating environmental consciousness in the supply chain processes. Among those who expressed a strong belief in contributing towards the society and the country, for example, Omega_1 and Omega_2, when engaged in the project they perceived an accountability for and were engaged in proactive behaviours because they were also assigned the responsibility externally.

The interaction of autonomous and controlled motivation on an individual's performance is criticised in the psychology literature and is considered fundamentally problematic, as self-determination theory argues that autonomous motivation and controlled motivation are both intentional and together, they stand in contrast to amotivation, which involves a lack of intention and motivation. However, in this research I did not necessarily find a counter observation because, when they perceived an externally assigned responsibility (controlled motivation), employees with autonomous motivation aligned with it, which led to them internalising the motivation.

These employees preferred to be held accountable and recognised it as important (suggested by all sustainability managers along with supply managers including Beta_2, Gamma_4, etc.) because it made them feel influential when working with others such that they could exercise authority and get things done. The presence of both types of motivation in a way facilitated them to engage proactively towards greening. This resonates with the findings of Graves et al. (2013), who found that employee environmental protection behaviour results from a combination of autonomous motivations and external motivations.

This view is supported in another recent study, by Hicklenton et al. (2019), who investigated the potential impact of two aspects of work climate (i.e., pro-environmental climate and employee autonomy support) on employees' autonomous and controlled motivation for engaging in pro-environmental behaviours. They found that the combination of pro-environmental climate and autonomy support was associated with increased autonomous motivation for pro-environmental behaviour, whereas pro-environmental climate alone appeared to be sufficient for higher levels of controlled motivation to emerge. In this research, it was found also to be true because, apparently, employees with autonomous motivation when given the opportunity to engage in improving environmental sustainability seized the opportunity and pursued the EGBs quite proactively.

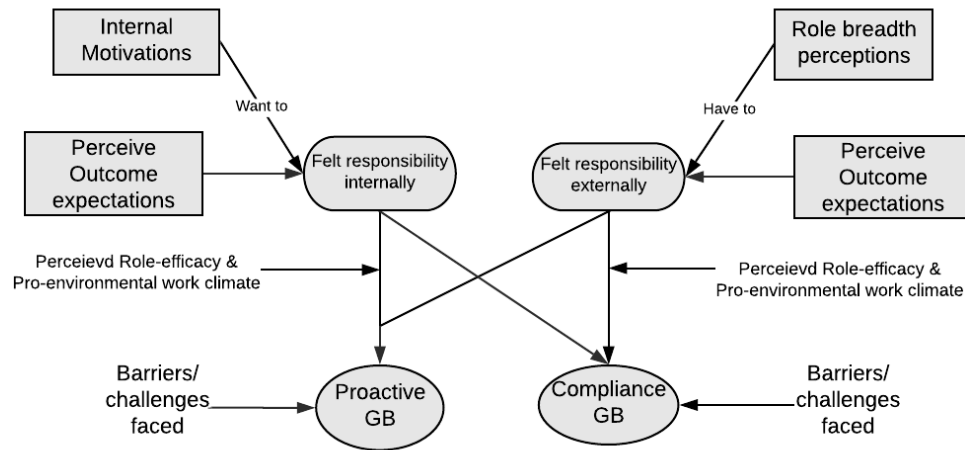


Figure 5.5 SC employees' engagement in PGBs: When 'autonomous motivation' interacts with 'controlled motivation'

SC employees categorised as 'proactive' depicted varying levels of proactiveness compared with sustainability managers and other supply chain managers in terms of the number as well as the impact of their PGBs. However, they have all been classified as proactive for the simple reason that they all depicted proactive EGBs in their projects and had clearly defined goals and priorities which are important for them to achieve sustainability outcomes.

In this research, most sustainability managers are found to be proactive because they took charge to improve existing situations to improve the sustainability performance of their respective organisation in the present. However, they depicted a long-term vision to make sustainability a mainstream activity because, as Delta_4 pointed out, employees believe it is not their key result area (KRA) and consider it to be 'fringe work'. However, Gamma_5 was found to be only driven by legislation and concerned about meeting the regulatory requirements without any long-term vision for the organisation, unlike other sustainability managers, who depicted thinking about the future and worked towards developing proactive solutions. Although, the overall commitment from sustainability managers was high and this type of behaviour on the part of the individual indicates, "*that he/she responsibly participates in, is involved in, or is concerned about the life of the company*" (Podsakoff et al., 1990, p. 115).

RQ 3a: How do individual factors drive supply chain employees' greening behaviours?

5.5 Perceived role breadth self-efficacy (RBSE) enabled proactive green behaviours

There were found to be certain individual factors which led to the feeling of RBSE specific to employees (such as awareness, green knowledge, etc.) which made them feel capable and driven in carrying out some highly proactive environmental behaviours along with CGBs. I found employees in my data to experience certain individual drivers that made them perceive the ability to engage in PGBs. Since these factors that enabled employees to incorporate sustainability in the way they performed their roles in their supply chain functions were partly found at the individual level, I adapted the original definition to fit with the findings of my research by naming it as role breadth self-efficacy perceived towards environmental sustainability or RBSE-E.

Those employees who engaged in sustainability integration in their projects proactively were found to mention these individual level drivers that led to their feelings of RBSE-E, including past experience, knowledge, awareness, perceived autonomy and ability to influence.

Past experience making the employees feel capable to implement sustainability

This was found to be a great source of developing self-efficacy towards becoming inspired about environmental improvements in their existing supply chain and logistics. Among these employees are Alpha_3, Alpha_4, Gamma_1 and Gamma_3, who believed that their experience of working in previous organisations (for example, MNCs) enabled them to engage proactively towards sustainability implementation by increasing their knowledge, for example, being familiar with green practices, prevalent green technologies, etc.

Advanced understanding of environmental issues through awareness

Purchasing managers' awareness was seen in their basic understanding of environmental issues and how they affected their supply chain performance. Sustainability managers across the cases emphasised awareness of the environmental issues as well as the

organisational policy among supply chain staff, not only for managers but also shop floor staff, to address the particular issues. However, an advanced understanding of environmental risk management is what equipped certain employees to tackle sustainability issues on behalf of the organisation, for example, the perceived risks of not doing things properly and not being transparent to their suppliers was mentioned by Alpha_4, not being responsible towards the environment and community by Beta_2, etc. The awareness about the prevalent issues in the industry is what enabled some of them to challenge the status quo and propose changes to procurement processes and even policy within the organisation. Heightened awareness of legal risks, environmental risks, etc., catalysed their engagement by making them act in a proactive manner, as Alpha_4 and Beta_4 highlighted how their awareness regarding environmental issues made them anticipate risks for the sustainability of the business. However, some purchasing managers were often not familiar with the environmental policies and environmental objectives to which their organisation had committed. As a result, they did not recognise the environmental impact of their decisions due to their lack of awareness. This also emerged to be a barrier among a few employees, such as Gamma_2.

Technical skills of purchasing professionals relating to environmental sustainability: Knowledge

Employees knowledge relating to environmental issues as well as the impact of their operations was another significant factor contributing towards perceiving RBSE-E which enabled them to depict PGBs. Similar to Kollmuss and Agyeman (2002), green knowledge and awareness emerged as two sides of the same coin for some of the participants in supply chain functions. This is because their awareness about environmental issues made them receptive to acquiring further knowledge as well as gave them an impetus to use that knowledge in purchasing decisions. Literature has identified that action-based environmental knowledge and awareness of behavioural consequences both positively contribute to the prediction of private and public pro-environmental behaviours (Liobikienė and Poškus, 2019).

Along the same lines, the knowledge and skills possessed by managers enabled them to evaluate the alternative materials or technology (Gamma_1), or certain best practices that were well suited to their organisation (Beta_4, Gamma_3) and implement them to become more sustainable. Technical know-how and skills were important for purchasing

personnel who depicted proactive behaviours for developing green concepts, as shown by participants such as Gamma_3, Omega_1, Omega_2 and Beta_4. This is because integrating environmental aspects in purchasing decisions is not straightforward and requires knowledge and skills to make sound decisions including life cycle assessment, cost benefit analysis, vendor risk assessment, collaboration with supply network, etc. The projects in which they engaged required them to gain senior sign-off; therefore, it was important to have the relevant skills to carry out these activities effectively. Similarly, Omega_1 had a forte in process optimisation as he was a certified energy manager, which drove him in his project aimed at reducing emissions.

Perceived ability to influence

This played a crucial role towards developing the feelings of RBSE towards sustainability implementation in the project because it made them, as Beta_2 mentioned, “*be heard*”, and even exercise a certain level of authority, as Beta_4 observed. This is crucial for obtaining the co-operation and commitment from others involved in the project. Literature emphasises the need to have leadership skills to be able to influence others in favour of sustainability (Graves et al., 2013), and my data does show support for this argument as these employees did depict leadership by driving sustainability in their respective projects.

Perceived autonomy

Perceived autonomy existed where an individual felt more freedom over his or her behaviour. Parker, (2000) argues that task, role and organisational requirements constrain workplace behaviour. Participants from cases Omega and Beta felt that the freedom they received from the top management to carry out the necessary tasks related to the project was what encouraged them towards sustainability while executing their projects. The autonomy they felt their supervisors gave them made them feel the accountability to deliver on the project. However, this also made them feel good in engaging in it, because they felt the freedom to take the required time (Beta_4) and also the freedom in taking the decisions and carrying out the tasks required for the execution of the project (Omega_2).

RQ 3b: How do organisational factors drive supply chain employees' greening behaviours?

5.6 Pro-environmental work climate perceived by supply chain employees

Organisation culture is a group-level phenomenon; it influences individuals' perceptions, values and behaviour, especially with respect to social interaction (Maznevski et al., 2002). Certain organisational-level drivers (management support, liaisons, teamwork, communication and detailed policy) that employees experienced made them perceive a pro-environmental work climate to engage in PGBs. Pro-environmental work climate involves employees' perceptions of the organisation's environment and its priorities. Work climate refers to policies, practices and procedures that guide employee behaviour by indicating an organisation's priorities (Norton et al., 2014). Many case individuals from each of the five case companies reported that management support played a crucial role in driving them to engage. This observation is centred on the idea that there are typical organisational factors that serve as a pro-environmental work climate for SC employees to manage the green supply at a macro level and facilitate them significantly towards achieving the overall environmental objectives. This resonates with previous research, as scholars in the field have suggested systematically promoting an organisational environment that encourages employees to act on their intrinsic interest for a particular extra-role or prosocial behaviour (Ramus and Killmer, 2007). The qualitative analysis found that a key source affecting managers' intentions to engage beyond compliance in the four levels of PGBs were the certain organisational drivers discussed next:

Top management support

Employees across the cases mentioned this as a driver towards their involvement in sustainability in both compliant and proactive ways. Even though management did not assign responsibilities to everyone in the same way, the culture within the respective companies enabled the participants to perceive a responsibility to engage in environmental behaviours. Participants from Gamma and Delta who had received this support gave credit to the culture of the organisation that supported greening initiatives. This support helped participants to prepare their organisation for future regulations, as

found for Omega_1 and Delta_2. Also, the leadership from their supervisors had a very positive influence on Omega_1 and Beta_4 to actively engage in the sustainable change that their companies went through.

The support from the senior management instilled confidence among participants who engaged in proactive behaviours such as taking charge to improve processes with a long-term perspective. Similarly, participants from Alpha also found their management to be supportive to a great level, as they approved their requests relating to sustainability integration and welcomed such requests. However, the top management at times looked for commercial benefits from the project, which is what led them to support and encourage the supply chain staff to engage in environmental initiatives. This was noticed in Omega's case where the top management did not allow Omega_2 to continue the project unless there was an assurance that it would give them commercial benefits. Therefore, management support was found to be important to drive their employees' engagement in sustainability.

Liaisons between purchasing and other functions: Communication

Communication that facilitated liaisons was highlighted among many employees, which facilitated cross-functional team collaboration occurring within the organisational boundaries. It has earlier been hypothesised that cross-functional teams may facilitate the introduction of a product stewardship approach (Hart, 1995). This was especially true for SC employees, as they had to liaise with multiple departments to implement an initiative. For example, Gamma_3 gave an example of executing his project that required changing the entire lighting of the plant to energy-efficient LED lights, which required facilitation from multiple departments. Gamma_3 and Delta_1 gave credit to working with cross-functional teams and vendors, as that facilitated knowledge exchange, which was crucial to develop new concepts within the company. In case 4 (Omega), liaisons between departments such as technical and procurement helped them in identifying the specifications of the best-suited equipment, keeping its running cost in consideration.

This sort of task interdependence between functions was crucial to gather information from various departments to curate the appropriate equipment with the required specifications which was suitable for installation in the plant to improve efficiency, as

also highlighted by Omega_4. This also helped them overcome any confusion regarding the sustainability aspects that needed to be considered during the course of the project, as there was regular exchange of information and requirements between the participating individuals. Although this driver was highlighted across the cases, Beta emphasised it slightly more than others as they had multiple stakeholders to whom they were answerable. This was a particularly important driver, as one of the projects in Alpha solely failed because of lack of liaison, as mentioned by Alpha_5.

Collaborative or ‘partnering’ approach with supply chain: Teamwork

Communicating accurate technical requirements within the organisation was one driver but communicating expectations such as introducing sustainability or sustainable practices into the supply chain and managing sustainability with partnering suppliers was another kind of driver that helped employees to achieve their business and environmental goals in an integrated way. Although this also required collaboration, it went beyond the boundaries of the organisation by engaging suppliers and other stakeholders outside organisation. This allowed the buyers to understand their supply base better. It was repeatedly emphasised by the participants that the business needed to re-evaluate their suppliers periodically to assess whether existing suppliers were meeting their sustainability expectations, and also to identify where the risks were within the supply chain.

For example, Beta_1 highlighted that their performance depended greatly on the performance of their suppliers, as it required them to collaborate with their suppliers for help in the areas where they needed support. This seemed to drive many participants across the companies, especially those who had a long-term perspective to make their suppliers capable of working with them by meeting the company’s environmental standards, instead of just getting rid of them. Gamma_3 further emphasised the importance of collaboration with his team for the emission reduction target that they together achieved by working for a common objective. Working with suppliers to achieve environmental improvement has also worked in the other direction. In Alpha, it was found that suppliers collaborated with buyers to help them deliver on their environmental targets too.

Detailed purchasing policies and procedures: Environmental policy and standards

In all five case companies, legislation played a crucial role. Regulations put great pressure on the companies (Sarkis et al., 2010) and ultimately employees in terms of the legitimacy perceived among managers from both Indian and UK companies. However, what made them feel capable of executing the sustainability practices in their supply chain network was the policy clarity. This acted as one of the strongest drivers for most participants who did engage in either or both greening behaviours as it delineated the targets to be fulfilled by employees. Alpha has a sustainable procurement standard to set sustainability targets for procurement staff. Beta refers to their document as a sustainable procurement strategy. Gamma has a world-class manufacturing framework to guide and strategise their supply chain activities. In Omega, they have a comprehensive set of assessment criteria and recommendations for supplier selection. Finally, Delta has a responsible procurement policy to outline their business practices. Therefore, having an environmental policy was an effective driver to increase their engagement and lead to feeling empowered, as mentioned by Alpha_3.

However, despite the presence of a comprehensive policy, SC employees struggled to engage in environmental practices that were not in line with or directly relevant to purchasing function. Beta_2 mentioned about buyers complaining and not being willing to read these detailed documents, and therefore realised that their policy needed to be updated and translated in a way that it aligned with supply chain function, as pointed out by the procurement head. The essence is, these formalised systems and procedures act as a key resource for making a green supply chain effective. They allowed environmental issues to be built into existing structures rather than being 'add ons' and facilitated the integration of environmental issues into the strategic supply process, as mentioned by Gamma_4 previously.

There were found to be several overlaps with regard to the challenges faced by the case individuals within and across case companies with differing levels of proactiveness depicted; however, there were some commonalities in them.

RQ 3c: How do different individual and organisational barriers affect EGBs?

Operational barriers faced by supply chain employees with PGBs

The barriers varied for participants in proactive engagement behaviour. However, the commonality was that this group of employees faced mostly operational barriers in terms of lack of budget, lack of co-operation from others, and speed at how things worked within the organisation, while some employees in this group did not face any barriers at all, such as Alpha_2.

One of the prevalent barriers for this type of engagement was lack of co-operation from other supply chain staff. Beta_2 felt that having a vague policy around sustainable procurement makes it difficult to make the supply chain staff read the policy, understand the supply chain risks that are associated with sustainability issues, and implement it while decision-making. Also, making them prioritise sustainability is another challenge, because it is a kind of unforeseeable risk for the employees that they do not readily accept. To overcome these issues, both Alpha_4 and Beta_2 made efforts to make changes to the wording of the tender documents and sustainable procurement policy respectively to make them easier for buyers to understand. Also, communicating about sustainability inclusion to employees is very important so that they can reevaluate their priorities based on this information.

The challenge Beta_3 faced was the bureaucracy within the company as it caused frustration and difficulty in integrating sustainability. As she mentioned, *“Every now and again you do get frustrated with... you know if you feel a little bit ‘brick walled’ by bureaucracy within the company”*. Beta_4 felt that it was difficult to make others including purchasing staff and suppliers realise the importance of integrating sustainability. Moreover, they felt that it was not easy to drive change and it took a great deal of time and effort to do so. Gamma_3 felt the challenge was what Gamma_4 highlighted: that they still face lots of technological issues, but they are improving gradually.

Participants including Alpha_3 and Omega_2 faced challenges with regard to increasing cost and lack of budget. Therefore, *“the major challenge here was one cost is increasing and definitely we have to take lot of approvals from finance and from our budget team”*. Similarly, Alpha_3 found that this was a challenge because, *“There's a gap between what the government will give and what things cost”*. Similar to Beta_4, the challenge for Omega_4 was found to be initial involvement of people, and the way to overcome it according to him is green leadership, because employees follow what the senior management tells them. Therefore, they should lead by example.

Barriers faced by sustainability managers with PGBs

Lack of co-operation from supply chain staff faced

All sustainability managers experienced a common barrier in terms of getting the supply chain staff to co-operate on meeting the sustainability aspects of the projects. Alpha_1 mostly experienced a barrier in terms of some supply chain staff creating conflicts by discarding the sustainability consideration in purchasing decisions because of their lack of ownership towards sustainability. He also explained that he had a limited level of influence on them, especially in low- and medium-risk projects. Beta_1 commented that *“the biggest challenge that everybody has is time”*. Thus, even though the staff were supportive they could not spare enough time to make any inputs towards sustainability. Along the same lines, Gamma_5 highlighted that the supply chain staff's prioritisation was for something else that comprises their actual key performance indicators. As there is a lack of accountability on their part towards sustainability as such, they do not prioritise it. Similarly, Delta_4 agreed that it is not their key performance indicator, which is why they do not make it a priority. Omega_1, on the other hand, believed that he faced a challenge in getting the senior staff on board, so he had to convince them a lot.

5.7 Summary of supply chain employees' engagement in EGBs

Four distinct types of engagement scenarios among employees were identified: first, who felt responsibility to engage both internally and externally (in other words, as a result of both autonomous and controlled motivations respectively); second, who felt responsibility only internally; third, who felt responsibility only externally; and, lastly,

those who did not feel any responsibility to engage. This suggests that SC employees may choose to not engage in green behaviours if they do not perceive the responsibility to engage in them. Therefore, certain strategies (in the form of assigning sustainability related targets to employees) by the organisation can evoke a sense of responsibility in them to make them engaged. However, merely assigning sustainability responsibility as a mandate is not enough to make employees engage proactively as it requires facilitation. It is clear that there is a striking contrast between how those who perceived environmental behaviours as a part of their job approached green behaviours compared to those who were asked to undertake green initiatives by their supervisors.

The differentiating aspect is that the former was driven by external factors such as fulfilment of job requirements only. For them, what it really comes down to is that they are just there to “do” their job (by following the norms) and are not really in touch with their personal reason(s) for doing so. Moreover, these behaviours were perceived as involuntary – that only existed for the given job. Furthermore, the proactive engagement comes about as a result of both internal motivation (moral obligation, intrinsic motivation, etc.) and external factors such as role breadth perceptions and outcome expectations that go beyond mere job fulfilment. And it is found to be driven by RBSE perceptions which arise from individual-related factors that make them feel capable. Moreover, the PGBs depicted not just job fulfilment or compliance but self-led initiatives as they felt capable to do so.

Table 5.5 classifies all the four types of employee engagement in greening behaviours and their reasons to engage or not engage. I found that supply chain managers who internalised the motivation towards sustainability (through the interaction between controlled motivation and autonomous motivation) depicted high levels of PGBs as opposed to employees with only one type of motivation who only depicted CGBs. In contrast, employees without any motivation did not engage in any green behaviours. I also found that not all sustainability managers depicted proactiveness, despite having green behaviours as part of their job (for example, Gamma_5).

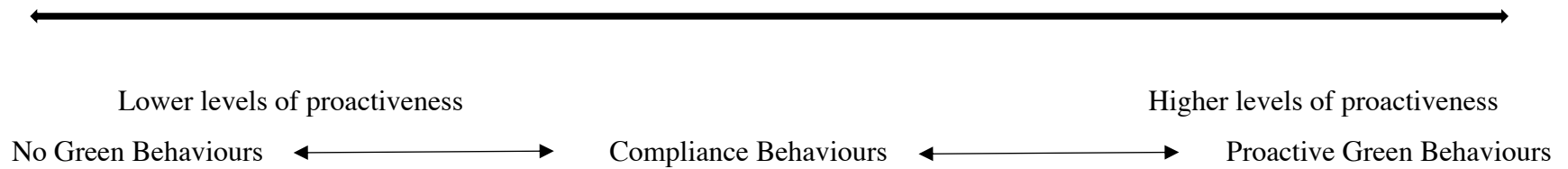
Another observation was that all the SC employees from Beta were proactive while none of the SC employee from Delta were. I further investigated the reason for this

observation and found that, during the time at which the interviews were conducted, Beta was going through the process of transformational change by updating their sustainable procurement strategy. This could have had an influence on the perceptions of employees regarding the priority given to sustainability issues, especially among supply chain staff. On the other hand, in Delta the reason was the positioning of the sustainability department, which was a corporate function, and the structure of the organisation was highly centralised. As a result, Delta had sustainability as a corporate function; therefore, the organisation did not engage SC employees in sustainability aspects directly.

Table 5.5 Types of engagement depicting levels of proactiveness

Type 1: Neither have to nor want to	Type 2: Want to	Type 3: Have to		Type 4: Both have to & Want to	
No felt responsibility at all No Green Behaviours	Only responsibility internally: no mandate but willingness Compliance green behaviours	Externally assigned responsibility only: Part of the job but not the main priority Compliance green behaviours		Felt Responsibility both externally and internally: Answerable to outcome, Audited, contribute to their KPI, and Being asked to do so as well as driven by some internal motivations Compliance green + Proactive green behaviours	
Supply chain managers	Supply chain managers:	Supply chain managers	Sustainability/ CSR Managers	Supply chain managers:	Sustainability/ CSR Managers
Gamma_2: No time; Not a priority	Delta_1: Believes sustainability to yield long term benefits but no mandate to do it	Alpha_5: wants to follow the regulations but lack of information and clarity	Gamma_5: Part of the job	Alpha_2: opportunity to improve sustainability [Cost as well as carbon reduction]	Alpha_1: Part of the job; Contributing to target of the organization [Good outcome for the org]
Alpha_7: Message Not being pushed from above but is aware of the importance	Delta_2: Believed he is the custodian of his function therefore, responsible for all aspects but cost savings is the priority	Alpha_6: believed it to be part of the job but cost is major priority		Alpha_4: Anticipated legal risks and for doing things right [Add meaningfulness to documents]	Beta_1: Part of the job Contributing towards green organization change
	Delta_3: Ownership of the category but sustainability is not the priority	Omega_3: Have to meet customer requirements if organization decides to		Alpha_3: Part of the job and believed in environmental issues	Omega_2: Part of the job and interest in it
		Gamma_1: believed it to be part of the job as indirectly contribute to their KPI		Beta_2: Accountable for the sustainability improvements and possessed strong personal	Delta_4: Part of the job and self-motivation to drive sustainability improvements

				motivation for sustainability	
				Beta_3: Believed in the issues of climate change as well as perceived it was part of the job	
				Beta_4: Was asked to do it by supervisor and possessed self-drive to engage	
				Gamma_3: being asked to do it by supervisor and felt capable	
				Gamma_4: Believed it to be part of the job	
				Omega_1: Commitment to norms, regulations	
				Omega_4: Commitment to norm, regulation also being audited	



5.8 Conclusions

Employee engagement towards EGBs is depicted in four ways among the participants across the cases in this research who perceived responsibility to engage in environmental activities. Such engagement behaviours depict varying levels of proactiveness and are subject to change depending upon the presence or absence of specific types of felt responsibility.

Felt responsibility was found to be important and appears so, in regard to answering the most critical research question. Felt responsibility is found to be perceived by the individual as well as depending upon the larger organisation context, which makes individuals from different organisations perceive it differently. However, there is a sense that externally felt responsibility is also important for intrinsically motivated employees to internalise the responsibility and accordingly align their actions.

The presence of outcome expectations from environmental behaviours among the participants from the five cases was found to be linked to the benefits in terms of reducing carbon footprint, reducing cost, etc., which led to an overall good outcome for the organisation. In comparison to other outcome expectations, cost saving complements SC employees' KPI along with the larger sustainability objectives such as reduce scope 3 emissions and use greener packaging, etc. Its commercial and sustainable viability makes it attractive to employees in supply chain functions.

Sustainability managers and similar green leaders in other roles help the supply chain staff to understand the sustainability policy to integrate sustainability in their functional decisions. They are also a medium for interaction to obtain specific help or advice while working on projects in order to deliver on the sustainability aspects.

The barriers faced due to lack of communication (not enough emphasis on greening in certain departments) leading to a gap of ownership in relation to environmental behaviours are the most crucial to address, as this can have a tendency to nullify the efforts of the organisation to become proactive. In addition, it makes SC employees neglect and disregard their instinct to act green.

The following chapter discusses the research findings in the light of previous research to demonstrate this research' contribution. It presents the contribution to theory, practice as well as the limitations and some suggestions for future research.

Chapter Six: Discussions

6.1 Introduction

This chapter reflects on the study's findings, underlining how these address the three proposed research questions and explaining their implications and their relation to prior knowledge. Firstly, employee engagement in different green behaviours depicting varying types of proactiveness is discussed. The influence of a range of antecedents, both internal and external, upon employees' "felt responsibility" to engage in various EGBs is covered next. Then, the interplay mechanisms as well as the key factors and interactions are discussed, along with their effect on the type of EGB for the SC employees. This is followed by a discussion of how the previously introduced types of EGBs are affected by the multi-level drivers and barriers experienced by employees. In addition, the discussion of the analysis leads to the development of a theoretical framework (Fig 6.2) based on key insights throughout the chapter. In this regard, the thesis is set out to make new contributions to the knowledge around SC EGBs.

The following sub-sections discuss the findings of each research question in turn.

6.2 EGBs of supply chain employees

This research aimed to explore the greening behaviours the SC employees engage in while performing their functional activities. By exploring the ways in which behaviours are carried out, it was found that the greening behaviours for SC employees in their respective roles are diverse and can vary between compliance and proactive types of green behaviours.

6.2.1 Conceptualisation of EGBs

The conceptualisation of EGBs has been constantly evolving ever since researchers identified and differentiated general pro-environmental behaviours from those that employees carry out in workplaces (Boiral et al., 2009; Mesmer-Magnus et al., 2012;

Paillé and Boiral, 2013). To date, EGBs have been analysed through two perspectives: the first focuses on identifying the critical role played by employees and their EGBs as part of the larger organisation's environmental practices (Hart, 1995; Shrivastava, 1995). The second, more recent, stream of literature is rooted in industrial and organisation psychology and focuses on voluntary and individual initiatives in the workplace (Boiral and Paillé, 2012; Hahn and Lülfs, 2014; Lamm et al., 2014). However, Ones and Dilchert (2012) argued that EGBs can fall under both in-role and extra-role behaviours, including counterproductive ones (Ones and Dilchert, 2012). Additionally, Ones and Dilchert (2012) proposed a comprehensive taxonomy of EGBs based on five main categories: avoiding harm, conserving, working sustainability, influencing others and taking the initiative.

Although their conceptualisation is comprehensive, it poses a limitation since they regard EGBs as 'scalable' or 'measurable', which only seems to account for behaviours that can be quantified, scaled and compared at the employee level. This is because many EGBs, such as 'influencing others to collaborate', can be subsumed in collective actions whose contribution to corporate greening cannot necessarily be traced back to individual actions and assessed at the individual level. Similarly, educating others or sharing tacit knowledge are socially complex and causally ambiguous, and cannot be easily measured. Therefore, even though Ones and Dilchert (2012) provide a comprehensive taxonomy of EGBs and define them as measurable but they may not offer the insights required to understand the EGBs of SC employees as the dimensions to measure them might be too restrictive.

Later, Boiral and colleagues critiqued Ones and Dilchert's (2012) taxonomy of EGBs and emphasised the fact that there are more EGBs that are voluntary in nature as compared to required; therefore, environmental behaviours can be considered as OCB-Es (organisation citizenship behaviours towards environment), and proposed a new taxonomy by categorizing the greening behaviours of six forms (also presented in the cross-case chapter in comparison to EGBs found in this research). The other definition of EGBs is given by Mesmer-Magnus et al. (2012), who define EGBs as "*behaviours that are volitional, intentional, and entirely under the control of individual*" (p.109). However, their definition is too restrictive, because many EGBs are not necessarily

discretionary as they depend on organisational practices and procedures. This indicates that Mesmer-Magnus et al. (2012) ignore the various prescribed and task-related environmental actions. On the other hand, the definition of eco-initiatives given by Ramus and Steger (1990) that “*any action taken by an employee that she or he thought would improve the environmental performance of the company*” (p. 606) suggests that EGB should include all types of voluntary or prescribed activity undertaken by individuals at work that aim to protect the natural environment or improve organisational practices in this area. However, it can be criticised as far as its implementation is concerned based on the following:

Scope and diversity: Environmental behaviours are not necessarily restricted to employees’ actions that are under their full control and can be measured or produce measurable results. They can include various pro-environmental actions taken by employees and managers alike and focus on organisational practices or more informal initiatives.

Voluntary or prescribed nature: Environmental behaviours can be based on discretionary, individual and non-rewarded initiatives (OCBs) or, conversely, on prescribed tasks and procedures. Other researchers have also differentiated EGBs based on whether the behaviours fall within or outside the boundaries of an employee’s core job tasks, and conceptualised the engagement of employees in environmental behaviours as ‘required’ and ‘voluntary’ (Norton et al., 2015). However, Cantor et al. (2012), in the context of SC employees, deduce that environmental behaviours can be regarded as an integral part of one’s job or as a voluntary activity, depending on the work context.

Scholars also suggest that corporate greening depends on employees coming up with creative ideas and innovations (Ramus, 2001). These eco-initiatives or eco-innovations (Ramus and Steger, 2000; Ramus, 2001; Ramus and Killmer, 2007) can be based on behaviours intended to reduce environmental impacts, solve environmental problems, or develop more eco-efficient products or services. However, eco-innovations have been found to depend on the discretionary initiatives of environmental champions in workplace studies (Andersson et al., 2005; Gattiker and Carter, 2010; Zibarras and Ballinger, 2011). The champions are able to challenge the status quo and inspire other employees through

transformational leadership and environmental initiatives which tend to be emulated inside the organisation (Drumwright, 1994; Walley and Stubbs, 2000). The literature shows that organisational norms related to protecting the natural environment, particularly as demonstrated in top management behaviour and organisational policies, are positively related to individual motivation to engage in corporate greening behaviours (Ramus and Killmer, 2007). However, Swaim et al., (2016) in their study on supply chain managers, found from their focus group members that often the ultimate decision to include and determine the relative importance of environmental criteria in sourcing decisions was subject to the managers' own personal interpretation, without impactful guidance from the organisation.

In this research on SC employees, it is found that ESCM activities do not occur inside boundaries (as in they are not necessarily role prescribed). Additionally, I found that EGBs of both a required and a voluntary nature can be perceived by employees to be a 'part of the job'. For example, sustainability managers within the organisation are required to take environmental initiatives as a part of their core job tasks. On the other hand, some SC employees perceived their actions towards sustainability within their organisation, such as 'influencing their suppliers for sustainability adoption', as required behaviours on the job. In contrast, some employees do not engage in any green behaviours (meaning they do not integrate sustainability consideration while performing supply chain activities), believing it is not a part of their job. In this vein, this research has found that some SC employees may view their role towards sustainability as an integral part of the job, while others may see EGBs as separate and not engage in them at all. This finding confirms the existing claims in the literature that some SC employees find it hard to commit to environmental sustainability initiatives (Swaim et al., 2016) and therefore may not incline towards integrating environmental thinking in supply chain decisions.

Therefore, there is a need to rethink about what EGBs actually comprise and how SC employees perceive sustainability aspects within their functional role, as the way SC employees construe the boundary of their role determines the way they engage towards sustainability activities. In this research, it is found that employees perceive their engagement in green behaviours as a part of the job, because they have assumed the

responsibility with or without being asked to do so, yet their behaviours could theoretically be called voluntary green behaviours.

Therefore, there is need for an alternate conceptualisation of EGBs based on how proactively employees engage and not just whether they are prescribed or not, as organisations can benefit from more proactive engagement of employees towards greening rather than them simply fulfilling the minimum requirements for sustainability. Therefore, this research developed the conceptualisation of EGBs in an SC context with respect to the nature of these behaviours primarily because of the differences in contexts of where these behaviours take place.

6.2.2 Proactiveness among supply chain employees towards EGBs

The previous classification, though helpful in envisaging what the SC greening behaviours may look like, does not necessarily clarify the motivations of SC employees to engage in EGBs given that their greening behaviours can be interpersonal and integrative, which does not occur inside boundaries. Instead, it is found that EGBs in an SC context can occur at varying levels of proactiveness, from compliance to highly proactive behaviours sometimes perceived to be required and sometimes as voluntary due to differences in employees' role breadth perceptions and internal motivations. Therefore, the types of EGBs found among SC employees in this research are classified as CGBs (compliance green behaviours) and PGBs (proactive green behaviours). CGBs include improving operational effectiveness, conforming to EMS or sustainability policy or environmental laws of the organisation, and involvement in cross-functional liaisons. All the different CGBs are found to be directed towards others and the organisation. CGBs are observed when employees perceive a responsibility to engage in green behaviours to conform with the existing environmental management norms and co-operate towards meeting environmental objectives of their organisation. In other workplace contexts it is presumed that environmental behaviours are made up with extra-roles (Ramus and Killmer, 2007; Daily et al., 2009) which can take employees away from their core job responsibilities. In contrast, when SC employees engage in EGBs it leads to integrating the sustainability aspects into their core jobs.

Proactive green behaviours (PGBs) comprise employees taking charge instead of just following and anticipating rather than reacting to environmental requirements. This is a similar conceptualisation to that of Griffin et al. (2007), where taking charge behaviours such as challenging the organisational status quo and suggesting organisational improvements (Crant, 2000; McAllister et al., 2007) are examined for proactive work performance. PGBs may be self-initiated or influenced by others in a supply chain context, but there is an element of being proactive and acting ahead of anticipated risks and identifying opportunities which makes these EGBs proactive. The other types of PGBs found are assuming additional roles, influencing others and assuming additional responsibilities.

In this research, PGBs towards environmental management were depicted by SC employees beyond (and in addition to) compliance to improve the existing situations by incorporating sustainability aspects into the process, products and policy. These PGBs ranged from taking charge, assuming additional roles, acquiring knowledge and extending it by influencing others to collaborate. Proactive involvement of employees by taking charge was found in this research as an opportunity perceived by employees for changing the existing ways of working. As also found in the literature, taking charge is *“the effort by individuals in the workplace to protest and/or to change the organisational status quo because of their conscientious objection to current policy or practice”* (Graham, 1986, p.2).

Other PGBs, such as knowledge acquisition and exchange, involved developing ideas into green concepts after gathering information from suppliers as well as purchasing employees from other companies by influencing them and gaining collaboration. Cantor et al. (2012) have identified a similar class of proactive behaviours including promoting an environmental initiative and innovative environmental behaviours which they found to exist among SC employees. Employee participation is necessary not only to develop innovations based on personal suggestions and initiatives but also to implement cleaner technology, change existing ways of working and develop new knowledge (Boiral et al., 2015; Murphy et al., 2019), which needs proactiveness on the part of the SC employees. This is more so in the context of SC employees, as they make decisions and implement

initiatives that can have a direct impact on the natural environment (Jira and Toffel, 2013; Poveda and Young, 2015).

This conceptualisation of the PGBs overlaps with existing research by (Marshall et al., 2005; Bissing-Olson et al., 2013) but is not exactly similar, as they argued that PGBs are entirely voluntary, which is not found to be the case for SC employees in this research. Instead, it is found that they are not entirely discretionary because SC employees perceived a responsibility towards them in different ways. This finding is consistent with (Grant and Ashford, 2008) study, which argues that proactive behaviours can occur both in-role and extra-role. Also, the mechanisms of the proactive behaviours were found to be different, as will be discussed later. There are two reasons for the redundancy of categorizing SC EGBs as RGB or VGB: firstly, because SC employees are evaluated for tasks and not necessarily task-related EGBs; as a result, they may be reluctant to prioritise sustainability in their supply chain roles. Therefore, the task-related EGBs may be more appropriate for employees doing primarily environmental jobs (such as sustainability managers/CSR managers) or working in environmental-focused organisations (green industry).

The second reason is that, in the absence of clear guidelines about which green behaviours are task-related and which are not, the SC employees face confusion about how to incorporate environmental goals into supply decisions. Swaim et al., (2016) have identified the reasons for disengagement among supply chain managers in sustainability to be the lack of clear organisational leadership and confusion about how to incorporate environmental goals into supply decisions. Therefore, classifications of RGB and VGB in organisations are rarely ever specified (Boiral, 2009) and, similar to other workplace behaviours, may depend on how employees construe the boundary of their role (Morrison, 1994). Therefore, applying the passive-proactive continuum to delineate the greening behaviours is more meaningful in the SC context, as it provides a better alternative to understand how SC employees construe their roles. This is because, depending upon individuals and their contexts, some employees may view their role more broadly than others and tend to redefine their role to encapsulate new tasks and goals (Frese and Fay, 2001).

Based on a review of proactive behaviours on the job, Crant (2000) has grouped them as general constructs designed to broadly capture four elements (proactive personality, personal initiative, role breadth self-efficacy, and taking charge) and six context-specific proactive behaviours (socialisation, feedback seeking, issue selling, innovation, career management, and stress coping). Therefore, the present research contributes to the Crant (2000) study in two ways. Firstly, this research has examined the proactive behaviours in the context of greening as well as in a different setting to the general workplace by investigating greening behaviours of SC employees; and, secondly, by exploring new elements of proactive behaviours towards greening including taking charge, assuming additional roles (builds on role breadth self-efficacy), knowledge acquisition and exchange, and influencing others to collaborate (builds on issue selling).

Bissing-Olson et al. (2013) is the only study to have examined proactive behaviours in the context of environmental management at an employee level. The authors regard PGBs as one-dimensional (focusing on 'personal initiative') and consider them as entirely extra-role. However, the findings of this research show that that PGBs in the context of SC employees are defined by the employees in terms of how they construe the boundary of their role. The findings also provide the conceptualisation of PGBs and the added dimensions which has implications for theory as, in the workplace literature, proactive behaviours have often been debated in terms of whether they are in-role or extra-role (Crant, 2000; McAllister et al., 2007). Thus, the findings of this research agree with Morrison's (1994) take that proactive behaviours depend on role perceptions, and contribute to the existing knowledge with regard to the nature and scope of these behaviours by providing evidence as well, and extend the dimensions of PGBs in comparison to the existing literature, as discussed in the next paragraphs.

Taking charge

Taking charge is the original form of proactive behaviour identified by Morrison and Phelps (1999), which has been adapted in the environmental management literature and called taking the initiative/personal initiative in the OCB-E literature. The findings of this research have added to this form of greening behaviour that not only involves offering suggestions and initiatives but, going beyond that, it identifies certain initiatives that change the current practices to bring about a long-term impact. While regular employees

may not find the opportunity to engage in such impactful green behaviours frequently and therefore are classed as ‘extraordinary’ (Bissing-Olson et al., 2013), in contrast, SC employees are faced with many opportunities to exhibit ‘taking charge’ while carrying out their functional roles, as they anticipate risks and recognise opportunities to change the antiquated supply chain policy, processes and practices by integrating sustainability dimensions. Therefore, the finding of this research distinguishes the PGBs of SC employees from the Bissing-Olson et al. (2013) conceptualisation of PGBs, as they describe it to be the extent to which employees take the initiative to engage in environmentally friendly behaviours that move beyond the realm of their required work task.

Assuming additional roles

The next PGB is assuming additional roles and it has not been identified in the literature before (neither environmental nor proactive), although a similar form of personal disposition towards proactive behaviour has been identified by Crant (2000), referred to as role breadth self-efficacy (RBSE) given by Parker (1998). However, Crant (2000) identifies it as an element to capture the behaviour and does not necessarily call it a behaviour because it is an employee’s “*perceived capability of carrying out a broader and more proactive set of work tasks that extend beyond prescribed technical requirements*” (Parker, 1998). However, in this research, ‘assuming additional roles’ is a behaviour in which SC employees engaged even though it was executed by those who did perceive RBSE. Therefore, it aligns with the existing research on proactive behaviours, as in this behaviour the SC employee does take up an additional more proactive set of work tasks that go beyond technical requirements but are not ‘core jobs’.

Influencing others to collaborate

The next PGB that emerged in the findings of this research is influencing others to collaborate and it does overlap with the existing classification of environmental behaviours by (Ones and Dilchert, 2012), who classified it as an indirect behaviour and called it a social behaviour directed towards others to spread sustainability behaviours among others. This is especially relevant among SC employees as they operate in a network and get opportunities to exercise a great deal of influence in the network. This can also be compared with ‘issue selling’, which is a special type of proactive behaviour

(Crant, 2000). The concept of issue selling (e.g., Dutton and Ashford, 1993; Ashford et al., 1998) involves middle managers actively shaping the strategic planning process by calling attention to particular areas of interest. In a similar way, SC employees engage in upward ‘issue selling’ such that they engage in influencing the senior staff to get them on board while implementing a sustainability initiative. Additionally, SC employees do engage in influencing their subordinates, educating the ground staff as well as the suppliers, to gain their co-operation (Gattiker et al., 2014).

Knowledge acquisition and exchange

Knowledge acquisition is another type of PGB found among SC employees in this research, which is similar to ‘self-development’ by Boiral (2012) and ‘goal orientation’ by VandeWalle and Cummings (1997). Similar to the Boiral (2012) application, in a green context it can comprise gaining a better understanding and integration of environmental concerns, acquisition of environmental information, etc. This was found to be a prevalent behaviour among SC employees in this research and involved behaviours such as developing competencies by acquiring new skills (such as learning a green technology, green design, etc.).

The varying types of engagement towards EGBs among SC employees seen in the form of CGBs and PGBs due to differences in individual attitudes around responsibility were reflected in their priority towards sustainability in supply chain activities. The reason for this variance is found to be the difference in employees’ perceptions around responsibility and the way they view their role towards sustainability implementation with regard to their personal and organisational context. It is obvious that sustainability managers within the organisation are required to take environmental initiatives as a part of their core job tasks. However, SC employees perceived responsibility to engage in EGBs differently within their respective functions because sustainability objectives are neither the same for all functions (particularly different for supply chain and CSR/sustainability functions) nor always explicitly mentioned in their job requirements. Consequently, the existing conceptualisation by Norton et al. (2015) was not best suited to understand what SC employees may or may not consider as a ‘required green behaviour’. This was a telling finding and adds a new level of understanding to the

literature which classifies EGBs as required and voluntary (Bissing-Olson et al., 2013; Norton et al., 2015).

In the present research, SC employees depict EGBs – for example, sustainable procurement, finding responsible alternatives, etc. – not only because they think it is important for their company or society, but also because they find it to be linked to their functional roles. In addition, they believe that, being in a functional role such as purchasing, manufacturing, logistics, etc., for the organisation, they are in a position to make important decisions that impact the environment directly, which makes them prioritise sustainability and engage beyond compliance greening behaviours. This also depends on the scope of the project as it determines how much impact they can make. The heightened awareness and understanding about their responsibilities depict an evolution of their attitudes around sustainability and an increased contribution towards minimising the impact of supply chain activities on the environment. This has emerged to be a positive change as a result of the emphasis in the supply chain literature on the importance of environmental management issues (Handfield et al., 1997). The findings suggest that, when SC employees believe their job functions can contribute to good outcomes for the company and environment, they are more likely to engage more proactively in EGB. This indicates that SC employees tend to strike an alignment between operational and sustainability objectives by assessing the scope of the project, which affects their level of proactiveness in EGBs.

Over the past two decades, literature has reported a disconnect perceived by employees between supply chain activities and sustainability and that operations managers/value chain managers fail to see the link between their jobs and the natural environment (Gattiker et al., 2014; Swaim et al., 2016). The researchers in this domain have implied the need for operations management and value chain managers to reevaluate their actions because of the link between value chain activities and a company's environmental footprint (Hart, 1997). Specifically, Pagell and Wu (2009), from their case studies on exemplar firms, suggest that, when the employees have a way to think about sustainability that is compatible with business goals, it is possible for sustainability to become part of the day-to-day conversation. In order to do that, they propose that the responsibility for the non-economic components of sustainability has to be shared across all employees and

not be regarded as the job of a single function or individual (Pagell and Wu, 2009). Therefore, the findings of this research provide supportive evidence that unravels the engagement of SC employees in environmental improvements within their roles.

The EGBs for SC employees can be mapped, ranging from employees depicting low levels of proactiveness or giving low priority to sustainability and vice versa in their respective projects, as shown in Fig. 6.1 below. The proactiveness of the employees increases as the responsibility they perceive increases, making them give a higher priority to sustainability in their roles (the motivational processes for the emergence of responsibility are discussed in the next section, 6.4). Based on this, the employees who do not perceive a responsibility do not see it as a part of their job, and hence do not engage. Next, are those who perceive a sense of responsibility (either autonomous or controlled) to engage in sustainability and consider sustainability as a part of the job, which makes them engage in at least CGBs. The highest level of proactiveness is depicted by supply chain and sustainability managers who felt the greatest responsibility (both autonomous and controlled motivation) and believe sustainability is a significant part of the job, and thus prioritised it in their projects and engaged in both CGBs and PGBs. Therefore, the way employees perceive responsibility towards sustainability in their functional role while working on a project imparts better understanding about their engagement in EGBs.

Evident from this research is that employees engaged in various EGBs while working on their projects, which is consistent with the argument that many green behaviours relate to EGBs directed at enhancing the environmental sustainability of work products and processes, both as part of task performance and citizenship behaviour (Ones and Dilchert, 2012). The first conclusion from the results obtained in this research indicate that employees tend to engage in PGBs regardless of whether they belong to sustainability function or supply chain function, but more so in the sustainability function, implying that the latter perceive a greater responsibility as well as considered sustainability as a 'significant part of the job'. Consequently, the low levels of proactiveness towards EGBs among supply chain staff was higher as compared to sustainability managers. Overall, it was found that the EGBs for SC employees ranged from low to high levels of proactiveness depending on their "felt responsibility" towards prioritising sustainability.

Such that, the greater the SC employee perceives the responsibility to engage, the higher priority they assign towards sustainability and the more proactively they engage towards EGBs (depicted in Fig. 6.1 below).

In sum, although there are many ways of thinking about EGBs, as well as many relevant concepts across different domains, a useful approach to follow in the supply chain domain is to consider proactivity among SC employees that involves thinking ahead to take charge of a situation and to bring about change in that situation or in one's self. Most fundamentally, it is the attitude that 'makes sustainability a priority', whether that be to change the existing process, the broader supply chain sustainability policy and strategy, or one's knowledge about it, or to increase others' environmental knowledge. I now turn to the core of the chapter, which provides a deeper understanding of the antecedents, processes and resulting EGBs relevant to SC employees.

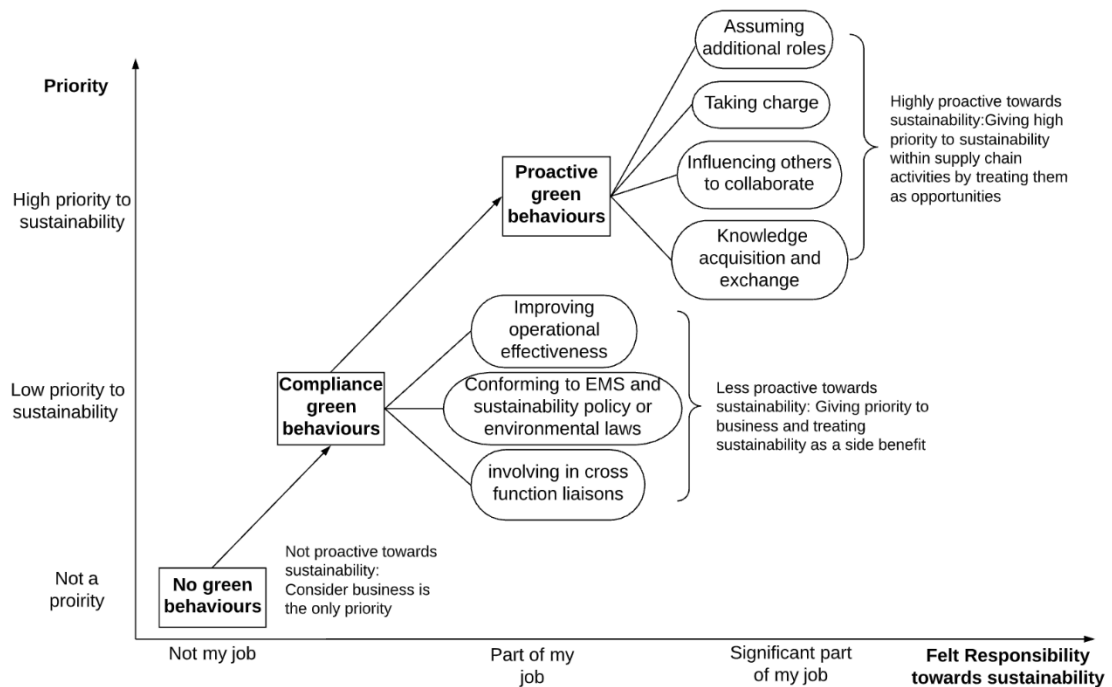


Figure 6.1 Levels of proactiveness towards pro-environmental behaviours

6.3 Antecedents, Processes and Employee Green Behaviours

Fig. 6.2 shows a model that integrates relevant antecedents, EGBs and underpinning processes of supply chain EGBs. Role breadth perceptions (part of the job, supervisory demand, influence of others), individual motivations (moral obligation, intrinsic motivations, proactive motivation and openness towards sustainability), as well as outcome expectancy perceptions have been identified as predictors of EGBs, all independent from each other, as well as in interaction with one another. These role breadth perceptions, individual motivations and outcome expectation perceptions form the antecedents of EGBs (primarily CGBs). They appear to, at least in part, have their effects through more cognitive-motivational processes (interaction between states of felt responsibility – “have to”, “want to” and role breadth self-efficacy – “can do”) and pro-environmental work climate that influence engagement in EGBs. The antecedents have been further linked to either or both types of green behaviours among SC employees (CGB and PGB) in regard to the motivational processes. The three motivational processes are discussed at length in section 6.4.1 onwards, based on the evidence from the data analysis in the light of existing theories, thereby providing a theoretical grounding for a better understanding of the dominant factors that motivate SC employees to engage in EGBs

The theoretical framework from this research extends (Parker et al., 2010) earlier model that also showed antecedents and processes of proactive work behaviour in employees. In contrast to Parker et al., in this framework, the interactions between antecedents are indicated to influence “felt responsibility states”, which are differentiated from the antecedents and also consider the “can do” process which drives employee engagement towards PGBs.

Table 6.1 Psychological antecedents of “felt responsibility towards sustainability”: Construct descriptions, typologies and key references (Adapted from: Curcuruto et al. (2016))

Dimension	Antecedent description	Antecedent typology	Key references
Perceived role breadth towards sustainability	Perceiving their behaviour to engage in sustainability as a part of the supply chain role-tasks	“Have to” motivation	Morrison (1994); Bachrach and Jex (2000); McAllister et al. (2007)
Individual motivations towards sustainability	Individual motivation to engage in sustainability because it is interesting, moral and to prevent threats, risks and uncertain critical events for the organisation	“Want to” motivation	Amabile et al. (1996); Parker et al. (2010)
Perceived outcome expectations from sustainability	Perception of subjective outcomes and relevance of own contributions to environmental management processes, improvement initiatives of others or self	“Want to” motivation	Vroom (1964); Ramus and Killmer (2007)
Role breadth self-efficacy towards sustainability	Perceived confidence in own abilities to carry out a broader and more participative role in organisational environmental processes, going beyond the formalised supply chain role-tasks	“Can do” motivation	Bandura (2001); Katz-Navon et al. (2007); Parker et al. (2010)
Pro-environmental work climate	Perceptions of favourable formal organisational policies, procedures and practices that support environmental sustainability, as well as what is typically observed among co-workers	“Can do” motivation	Schneider et al. (2013); Norton et al. (2014)

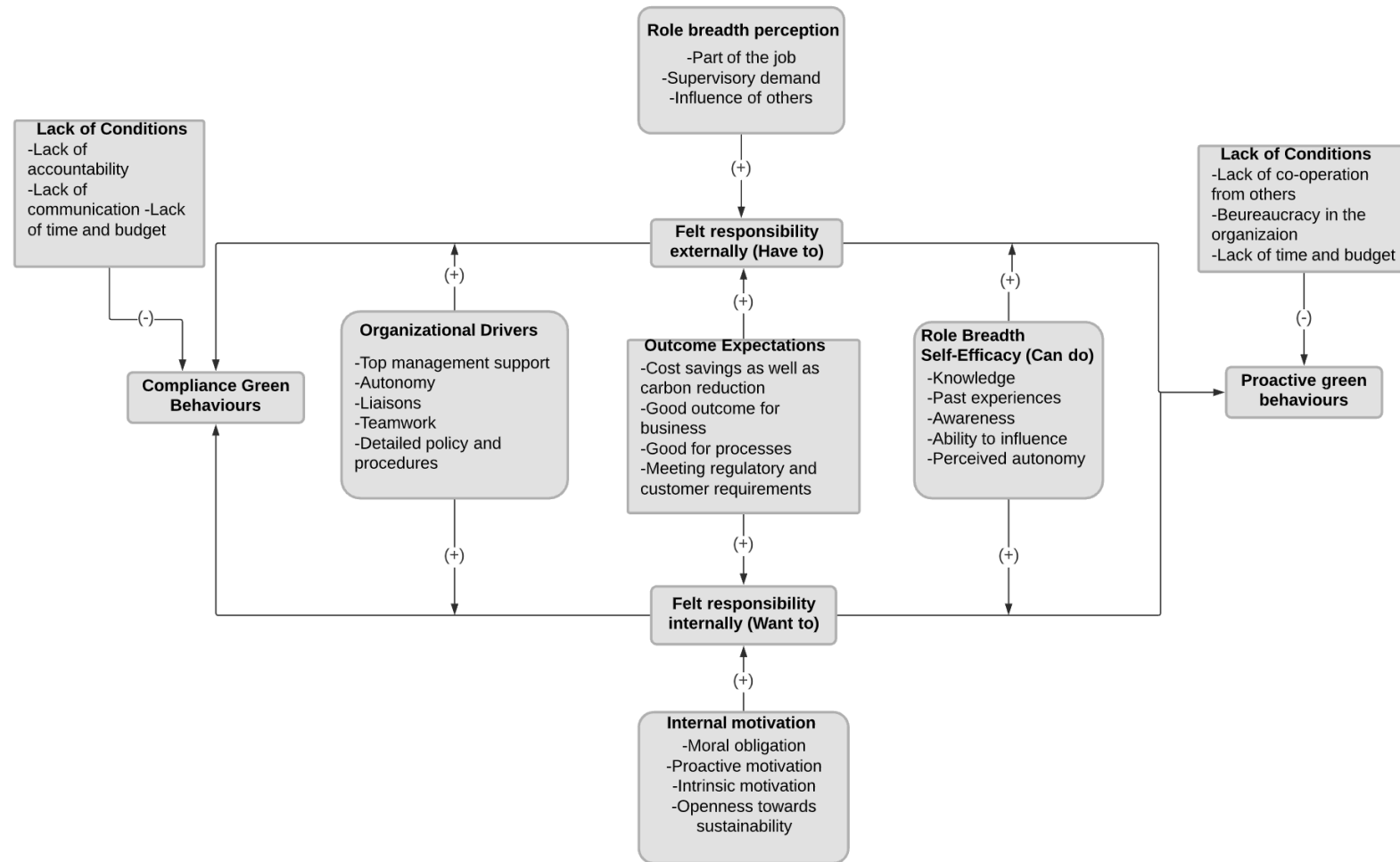


Figure 6.2 Theoretical Framework

6.4 Motivational processes among supply chain employees that lead to felt responsibility

I start the discussion of my theoretical framework (Fig. 6.2) by depicting the motivational processes that underpin EGBs because it is these processes that are the most direct in their influence. Specifically, I report evidence suggesting the importance of “felt responsibility” as a key mechanism for employees to engage in different EGBs. Felt responsibility as a psychological state is fundamental to personal work outcomes such as motivation (Morrison and Phelps, 1999), job satisfaction, etc. Felt responsibility has been proposed by several scholars (Morrison and Phelps, 1999; Fuller et al., 2012) as an important antecedent of personal initiative and taking-charge behaviours, in terms of “reason to” motivational mechanisms (Parker et al., 2010).

The findings of this research suggest that employees’ felt responsibility towards engaging in EGBs as a result of different motivational processes leading to the emergence of varying levels of proactiveness among SC employees towards sustainability. In doing this, the antecedents (outcome expectations, role breadth perceptions, internal motivations) that determined the extent to which SC employees felt the responsibility to engage in EGBs (by complying or acting proactively to contribute towards environmental sustainability goals) have been delineated to explain each of the motivational pathways. Borrowing from the existing models, this study contributes to current research in the field of SC by analysing motivational states employees experience in a supply chain context towards engaging in EGBs. The dominant perspective found from the data analysis is that EGBs are motivated, signalled and outcome directed. Thus, to understand what prompts, stifles and shapes EGBs, one can look at motivation theories, particularly to role theory (Katz and Kahn, 1978), which in turn draws on other theories such as expectancy theory (Vroom, 1964) and self-efficacy theory (Parker et al., 2006).

The ‘motivational states’ of employees in this research can be compared with what Parker et al.’s (2010) study on proactive behaviours refers to as ‘reason to’ (or cognitive-motivational) and “can do” (or efficacy-related) processes. SC employees in this research were found to experience two motivational states of felt responsibility towards sustainability: a) “have to” and b) “want to”, which are similar to Parker et al.’s (2010)

“reason to” motivation in terms of cognitive motivational states (e.g., role orientation) towards the organisation’s environmental targets, good outcomes, etc., making employees feel responsibility towards it. Lastly, there is an interplay mechanism with c) “can do”, which is similar to Parker’s et al. (2010) “can do” motivation, which depicts motivational states of perceived self-capability, like self-efficacy and perceived control.

6.4.1 “Reason to” motivation due to internal motivations and outcome expectations

“Want to” felt responsibility

Parker et al. (2010, p. 1) have conceptualised proactive behaviour as ‘making things happen’, ‘preventing problems’ and ‘seizing opportunities’, which is a goal-driven process involving both setting of a proactive goal and striving to achieve that proactive goal. In accordance with this, they applied a goal setting theory that argues that individuals anticipate desired future states or outcomes and develop strategies to reach those goals (goal generation), and then mobilise and monitor their day-to-day behaviours to attain their goals (goal striving). Therefore, it is worth exploring if the goals have a similar effect on the motivation as ‘expected outcomes’ have in the context of SC employees. There is wide evidence that proactivity can enhance workplace performance (for a meta-analysis, see Fuller and Marler, 2009) as well as generate positive outcomes. Parker et al. (2010) do recognise that it is relevant for employees to expect outcomes; however, in their study they lean towards ‘goals’ and focus on explaining ‘goal striving’.

However, in the context of this research, it is found that, when SC employees engage in sustainability during the course of their projects, they do have goals from the overall project, but they do not necessarily have sustainability-specific goals, nor are those goals drawn out beforehand by employees; although employees in a sustainability function can have a goal-driven approach to act proactively towards sustainability as that is the main focus for them. Instead, for the SC employees, sustainability outcomes are more meaningful and relevant, which they expect to achieve besides other objectives including saving cost. Therefore, it can be concluded that for SC employees the expectancy of the outcomes is a more relevant process that develops the state of feeling the responsibility

towards the outcomes in them. In my data analysis, SC employees were found to engage proactively towards greening as they anticipated opportunities of improving the sustainability by taking proactive actions, which also involved perceiving good outcomes from sustainability for the business/organisation.

The next step is to understand the “reason to” state, which maps onto theories based on why people engage (in green behaviour), or valence (e.g., Do I want to do this? Why should I act?) (Ramus and Killmer, 2007). Therefore, the motivational process, specifically, the “want to” motivation found among the SC employees in this research, adds knowledge to the existing literature on ‘internal motivations’ that act as a compelling reason for them to engage in EGBs. Parker et al. (2010) have argued that, if an individual believes that one can implement an improved work method and has a strong reason to do it, they are likely to engage proactively towards it. This explanation is valid for SC employees who act proactively towards sustainability due to internal motivations. The “want to” motivational state was found to arise from an internal motivation primarily because of three antecedents: intrinsic motivation towards sustainability or moral obligation or proactive motivation to engage in EGBs.

I found that, when employees possessed an internal motivation to engage, they felt an added responsibility through the “want to” motivation, which gave them a compelling reason to act as well as be proactive towards sustainability. This also has a relation with whether an employee finds that activity interesting or uninteresting, moral or unmoral, etc., as not everyone is equally passionate about the environment. Graham (1986) argued that the decision to respond to an issue of principle is heavily dependent on perceived responsibility, and Frese and co-authors (1996) proposed that felt responsibility relates to employee initiative.

Others have also emphasised that it is not enough for individuals to believe that they can achieve an outcome; they also need to have a reason to do it: *“Even if people are certain they can do a task, they may have no compelling reason to do it”* (Eccles et al., 2012, p.112). Hence, there is a need to focus on the ‘why’ of green behaviours. Employees in my data were found to give many such reasons to justify the green behaviours they engaged in, using terms like for the ‘larger good’, ‘long-term improvement’, etc.

Therefore, this theme fits with broader motivational theories such as SDT (Deci and Ryan, 1985) and expectancy theory (Vroom, 1964). I draw on Graves et al.'s (2013) study on Russian employees, as they confirm the positive influence of internal motivations towards employees' environmental behaviours, because they agree with the findings of the large body of literature on motivation which generally supports the benefits of internal motivation across cultures, including cultures that are hierarchical and collectivist such as Russia (Deci et al., 2001; Chirkov et al., 2003). The mechanisms of this motivation are also well established in the existing literature.

Apart from this, a second motivational process underpinning EGBs is that one believes the 'reason to' motivation is from external influence, as discussed next.

6.4.2 "Reason to" motivation due to perceived role breadth and outcome expectations

"Have to" felt responsibility

From a motivational perspective, most attention has been given to two cognitive-motivational processes that underpin green behaviours: first, one's perceived capability of engaging in green behaviours (Ramus and Killer et al., 2007), and, second, one's wish to, or interest in, performing green behaviours (Graves et al., 2013; Gagné and Deci, 2005). Engaging in green behaviours also involves a deliberate decision process in which the employees assess the likely outcomes of their behaviours (see Vroom, 1964). Similarly, in this research, some SC employees were found to associate their intention to engage in EGBs depending on whether they perceived the 'reason to' engage in the EGB as well as perceived benefits in the form of outcomes from their EGBs.

The 'reason to' motivation as per Parker et al. (2010) answers the 'why is someone proactive?' question, including reason flowing from the 'intrinsic motivation'. However, in SC employees, it was seen that, besides the 'reason to' motivation arising from the internal motivations (intrinsic motivation, moral obligation, proactive motivation), employees also had another 'reason to' motivation arising from the influence of others

who the employee finds influential, which makes the employee expand their role breadth to take up a greater responsibility. Parker et al. (2010) agrees that broader social processes, such as group norms, and normatively framed feedback have received less attention in the proactivity literature thus far and have not been greatly explored. However, this has received a great deal of attention in the environmental behaviours literature in the form of 'subjective norms', which have been recognised to create an obligation as well as a willingness to engage among employees. The 'subjective norms' are formed from the individual's willingness to comply with their perceptions (accurate or inaccurate) of the beliefs that are important to others (Ajzen, 1985, 1991). The sources of environmental subjective norm can be many, ranging from supervisors, co-workers and family to politicians, celebrities and media, etc. (Swaim et al., 2016). The literature, specifically the theory of planned behaviour (TPB), has recognised a strong effect of 'subjective norms' on employees' motivation to engage, especially in environmental behaviours. Subjective norms normally originate from perceived social pressures or an attempt to choose a behaviour thought to be approved by others.

Although the literature has largely not explored the effect of subjective norms on employees' motivation to engage in greening behaviour that is proactive and beyond compliance, the findings of this research provide evidence that has some implications for the role of subjective norms. Parker et al. (2010) argue that employees play an active role in shaping and influencing their environment. For example, employees can set goals for themselves and create their own rewards (Crant, 2000; Frese and Fay, 2001; Grant and Ashford, 2008), although this may not always be achievable in the context of greening because the engagement in greening still greatly depends on the organisational climate as well as on the social support (Norton et al., 2014) employees receive to execute PGBs. This is unlike general proactive behaviours, which are solely self-driven. Grant and Ashford (2008) provide a clear "reason to" motivation arising from accountability for employees to engage in proactive work behaviour arising externally from the organisation or management. Grant and Ashford (2008) explain that employees find it safer to take risks (as proactive involvement can involve taking risks) because they are accountable for it anyway. Thus, when the employee takes an initiative it is in a way approved by others (supervisor, colleague or organisation) and they are motivated by the perceived image benefit more than the perceived image cost. In a similar way, some employees in

my data, when they felt a “have to” felt responsibility state arising from the influence of supervisors, organisational norms and even colleagues, were ready to expand their role and prioritised sustainability as they felt it was supported by the others and even appreciated. On the other hand, employees who felt that sustainability is not mandated were reluctant to engage proactively as they did not feel a strong ‘reason to’ engage. Therefore, in support of Grant and Ashford’s (2008) study, the findings of this research affirm that an external motivation does not always have a counteractive result, but it can actually have a positive effect on employees’ motivation towards EGB.

Therefore, the findings contribute to the existing studies that regard subjective norms as significant, besides providing an explanation of how subjective norms may not be as effective as deployment of accountability from the supervisor. This is because the influence from the supervisors and colleagues is much more supportive and targeted than the subjective norms, which may be quite ambiguous, to make SC employees expand their role breadth perceptions to engage proactively towards greening. The “reason to” or “have to” motivation found among employees in this research contributes to both the proactivity literature, which has not explored social processes or ‘group norms’ to impact proactive mechanisms, and the studies that have identified ‘subjective norm’ as an important mechanism but have not investigated its relation with proactivity.

The motivational process can be further explained by the role theory by Katz and Kahn (1966) that acknowledges norms of reciprocity and is more capable of explaining the finding of this research. I found that role expansion occurs when individuals choose to incorporate a broader set of responsibilities into their personal definitions of their roles, treating these responsibilities as expectations rather than discretionary activities (Morrison, 1994; Parker et al., 1997). This is because SC employees in the data analysis concurred that they engaged in sustainability when they perceived it was an organisational norm or when they were being asked by their supervisor or when somebody influenced them to engage. This indicated that the employees felt the responsibility towards sustainability due to the entity (either organisation, supervisor or colleague) that introduced it to them, which made the individual feel that they “have to” engage, and therefore they expanded their role.

The role theory constitutes a social exchange involving an exercise of dyadic influence, as the sender is attempting to persuade the receiver to accept the role (Graen and Scandura, 1987; Ilgen and Hollenbeck, 1991). This motivational process that explains ‘role perceptions’ of employees has not received much attention in the existing literature on EGBs. Especially, the classic insight from role theory on role definitions and role expansion towards engaging in sustainability has received little attention in existing research on green behaviours. In order to understand the “have to” motivation which arises from an obligation towards either the organisational norms, supervisor or a colleague, it is important to understand the interpersonal influence dynamics of role definitions, as it is critical to focus on the exchange between the sender and the receiver (Hofmann and Grant, 2011) when one tries to influence the other. The perceived outcome expectations fit well with the expectancy motivation as well, because employees expect to achieve favourable outcomes when they decide to expand their role by engaging in greening which is expected to yield them desirable outcomes.

The perceived outcome expectations also help understand the “reason to” motivation state, which maps onto theories focused on expectancy, such as self-efficacy theory, in which the main question is, “why should I do this?” This is because expectancy-theory-based models explicitly consider the selection of one action from a set of possible actions. It is the decision-making process that occurs for employees to take up responsibility and prioritise sustainability integration by allocating their time and resources accordingly in the supply chain processes. This is in line with expectancy theory, as it suggests that it is important to believe that the behaviour will lead to the desired outcomes in addition to giving confidence in specific and relevant activities (Vroom, 1964). However, when the employees perceived responsibility only due to “have to” and lacked the “want to”, they did not act very proactively. The reason for this could be that SC employees follow a rational approach to expand their role, such that they are able to fulfil what is required of them but, because they lack self-interest, they do not go beyond that.

6.4.3 “Can do” motivation due to perceived role breadth self-efficacy and pro-environmental work climate

“Can do” as a driver among employees to engage more proactively

As discussed previously, I found in this research that SC employees perceive responsibility in the form of “have to” for engaging in CGBs because they feel a mandate to engage, and in turn they expect to achieve outcomes that they consider favourable for the organisation (such as save costs as well as reduce carbon footprint). It also provided an explanation as to why employees who feel that they “have to” engage in sustainability perceived the responsibility. Basically, “have to” motivation reduces the confusion and ambiguity in terms of responsibility, thereby serving as a motivation for them to carry out the supply chain processes in a compliant manner (by integrating sustainability), leading them to engage in CGBs. In some employees, however, there was found to be an alternative or an additional motivation, which is depicted by the “want to” motivational state and which helped them to exhibit PGBs. This was because it served as an additional reason to feel the responsibility by those employees who were internally motivated.

The felt responsibility is further seen to be driven by “can do” motivation which arises from an employee’s perception of their capability to do it (role breadth self-efficacy) and a pro-environmental work climate which leads to a more proactive engagement in the form of PGBs. Therefore, this is the strongest type of engagement found among SC employees towards the PGBs, which results from the “reason to” motivation of both types – “have to” and “want to” – and its interaction with “can do” motivation, which drives employees to engage proactively. This type of motivation can be compared with Parker et al.’s (2010) “can do” motivational state, which they describe as the perceived ability to engage in a behaviour or accomplish goals. This motivation helps clarify and reduce the ambiguity related to employees’ self-efficacy perceptions such as “Can I do it?” and “How risky is it?”, besides the other main motivation covered earlier, which is “Why do I want to do it?” Since the theories that recognise both “can do” and “reason to” motivational states are relevant and applicable in this situation, there is a relevance for expectancy theory and self-efficacy theory which help explain these findings. In this research, I found RBSE for different employees to arise from either knowledge, past experience, awareness, ability to influence or perceived autonomy. It was found that,

when employees felt they had the knowledge about implementing sustainability or were aware about environmental issues, it made them feel capable to carry out the sustainability aspects in the project. Firstly, this was because they could develop the ideas from their knowledge as well as influence others to collaborate by explaining and communicating the benefits of following a sustainability approach. In this regard, perceived control has been recognised by the literature examining green behaviours to affect engagement. Perceived behavioural control reflects an individual's perception of the ease or difficulty in performing a behaviour (Ajzen, 1985). Although there was no direct evidence of employees' perception of a difficulty to engage, employees' 'perceived autonomy', which has a similar effect on their capability to execute green behaviours, was relevant. Basically, when employees felt a greater sense of autonomy from the top they engaged more proactively, as that made them feel that they were in charge of the situation, so they felt able to take the decisions. Additionally, the employees with RBSE perceptions felt driven to engage in EGBs when they perceived a pro-environmental work climate.

Norton et al. (2014) examined a similar relationship and proposed differential effects of green work climate perceptions on EGB: that employees' injunctive norms (i.e., what the organisation approves of) are positively related to task-related EGB, and that descriptive norms (i.e., what is typical among co-workers) are associated with proactive EGB. Similarly, I found that the employees who pursued CGB behaviours were driven by the existing policy and procedures. However, employees who engaged in PGBs were critical of the organisation's policy and procedures but were not found to act on the basis of descriptive norms, as such. Management support has been the most widely emphasised indicator of pro-environmental work climate and is always linked with EGBs of employees. I found other factors such as teamwork and liaison, which have not been given enough consideration but were found to be important drivers for EGB in SC employees.

The motivational processes discussed above suggest that a SC employee's engagement in EGBs is contingent upon enforcing responsibility towards sustainability as it can be a 'potent lever' for inducing 'proactive behaviours' among SC employees with an existing internal motivation. The present study contributes to the literature by providing empirical evidence that identifies aspects of proactive environmental role orientation (by expanding roles) resulting in green behaviours through "have to" motivation. The supply chain job

roles are contextually different from the traditional job roles because, in the general work tasks, there is a clear boundary between what an extra-role is and what goes beyond the boundary of prescribed requirements when undertaking those tasks. However, in supply chain functional roles, the environmental sustainability integration is concurrent to the job in itself and so an employee may not be prescribed but still expected to engage in EGBs. Therefore, it makes sense that employees with a broader role perception who feel ownership towards sustainability will take up proactive actions by going beyond a narrow job attitude (for example, by educating others about sustainability, updating policy), and hence are more likely to focus their effort towards achieving these goals than individuals who consider these aspects as ‘not part of my job’ (Parker, 2010).

6.5 Theoretical framework

Drawing from the preceding discussion of the empirical results, a theoretical framework is put forth (Fig. 6.2). The framework provides a theoretical grounding for a better understanding of the dominant factors that motivate SC employees to engage in EGBs. This is done by integrating the findings that relate to each of the study’s three research questions to provide a comprehensive view of the relationships between the two motivational states (felt responsibility: “have to” and “want to”) as a result of antecedents: role breadth perceptions, internal motivations and outcome expectations, as well as drivers including role breadth self-efficacy perceptions (“can do”) and pro-environmental work climate perceptions resulting in different types of EGBs and barriers that have a negative effect on EGBs. The antecedents, drivers and barriers that describe each relationship, and the direction of these relationships are also indicated in the Fig. 6.2, to enhance its usability. In this manner, the framework might be leveraged by practitioners to inform EGB decisions, and also serves to clearly pinpoint avenues for future research. Now that the motivational processes are clear and the theoretical framework has been explained, next I discuss the relevant antecedents that were found to make the employees feel the responsibility to engage in EGBs in the following sections.

6.6 Antecedents of felt responsibility

Perceived outcome expectations from engaging in sustainability, role breadth perceptions towards sustainability integration, internal motivations held by employees

This research adds to the sparse literature on EGBs in SC employees by exploring potential antecedents of felt responsibility to result in employee-level EGBs, including perceived outcome expectations, the role breadth perceptions and employee motivations. This is one of few studies to include the full set of EGBs – PGBs and CGBs – and no GBs in SC employees. Another contribution is the consideration of both internal sources of felt responsibility (motivational and perceived outcomes) and external sources of felt responsibility (role breadth perceptions) as antecedents of EGBs. This is important, because researchers presently do not know whether both types of antecedents play a unique role or their relative importance on employees' felt responsibility to engage (Swaim et al., 2016). Therefore, in this research, the impact of interplay between different types of felt responsibility, and the effect of organisational/individual drivers and barriers on EGBs have been uncovered in the SC employee context.

The SC employees who participated in this study engaged in CGBs and PGBs and some did not engage in any EGBs. It was found that internally felt responsibility (want to) was positively related to PGBs in the presence of externally felt responsibility (have to), while either of type of felt responsibility in isolation was found to make employees engage in CGBs and did not influence PGBs. However, in the presence of perceived role breadth self-efficacy (RBSE) and perceived pro-environmental work climate, their felt responsibility to engage in PGBs also increased, such that the employees internalised the extrinsic motivation. In this case, external motivation only was found to influence their felt responsibility to engage in CGBs, but the combination of autonomous and controlled motivation was positively related to PGBs as well as CGBs. Although the methodology of this research limits the ability to attribute causality, the findings provide some support for theorising the antecedents of EGBs in SC employees.

Therefore, this section explains the importance of the identified antecedents and offers theory regarding their links to SC EGBs. In developing my theory, I incorporate

information pertinent to the SC context. Fig. 6.2 provides an overview of the relationships.

6.6.1 Perceived outcome expectations from sustainability integration leading to internally felt responsibility

Outcome expectations towards sustainability are delineated in the form of multiple outcomes that SC employees perceived from engaging in sustainability, such as cost savings, carbon reduction, meeting requirements, etc. The influence of outcome expectations on employees' motivation to engage in greening behaviours has been widely studied (e.g., Ramus and Killmer, 2007; Chinander, 2001). According to expectancy theory, employees choose to invest effort in courses of action by weighing their relative utilities – i.e., their probabilities of achieving desired outcomes (Vroom, 1964). Porter and Lawler (1968) argue that motivation or effort is a function of three beliefs: expectancy (effort will lead to performance), instrumentality (performance will lead to outcomes) and valence (these outcomes are important or valued). These beliefs are thought to interactively influence effort, such that, if any one of the beliefs is missing, the course of action will not be selected.

Along the same lines, SC employees in this research seem to relate their engagement in EGBs to expected outcomes, and this served as a supportive motivation besides the felt responsibility from other antecedents to engage in sustainability. This in a way addresses the suggestion by Ramus and Killmer (2007) that researchers should ascertain which outcomes are important to the employee to understand their motivation to engage in EGBs. I found in my data that many SC employees attached a common set of desirable outcomes, such that they placed cost savings on top, which was often linked with carbon reduction, and later other favourable business outcomes by considering sustainability aspects in their projects. This indicates that they give priority to sustainability concurrently with economic benefits. This implies that there must be available ways to achieve a balance between the two aspects (economic and environmental) in order to get SC employees interested in sustainability, as I found that employees mainly looked to achieve that balance when they made decisions.

Chinander (2001), based on expectancy theory framework, highlighted the gaps at employee level that adversely affect the firm's environmental performance that are very significant to discuss in comparison to my findings. Chinander's study pointed out that one of the biggest challenges organisations face in regard to implementing sustainability is *"assigning and pushing down accountability and awareness and clearly defining responsibility for every individual in terms of the environment"* (p.282). She identified that, despite the efforts of the organisation to link individual outcome to performance related to the environment, there appears to be a gap perceived by employees in terms of their accountability towards environmental performance. Chinander, (2001) argued that many of these challenges stem from the possible ambiguity in the link between one's actions and environmental consequences.

Therefore, the findings of this research add to the existing research by providing evidence for the competing perspectives about expectancy theory that are relevant to understand the perceptions related to 'expected outcomes' that employees have from engaging in sustainability. This is because the findings of this research agree with Parker et al.'s (2010) critique of the expectancy theory that the employees are not necessarily motivated by outcomes in the form of the rewards and outcomes allocated by the organisation. This finding also draws upon the problematic nature of rewards, especially in the context of greening behaviours, as the organisations often assume employees passively receive and accept goals give to them (Crant, 2000), while it is important to recognise the role that employees play in actively shaping and influencing their environment because they set their own goals and define rewards for themselves (Parker et al., 2010). For example, SC employees appreciate outcomes that help them achieve their sustainability targets while caring for the environment, which motivates them to act responsibly. Therefore, even though expectancy theory helps highlight employees' perceptions towards expected outcomes, it is not the only motivation for employees "want to" motivation to engage. This is because employees' internal motivations also play an important role as they act as the "reason to" motivation for them to engage more proactively.

The literature has also recognised the relevance of expectancy and its influence on employees to adapt their behaviours (Berg et al., 2010). Therefore, employees in a way

use expectation as self-regulation, which helps them maintain focus on the expected outcome (Frese and Fay, 2001). Vroom's (1964) expectancy theory framework has received considerable attention in regard to explaining employees' involvement in environmental management (Chinander, 2001). Chinander (2001) is a prominent study that applied the expectancy theory framework to show that an important driver of employees' behaviour towards the environment is the value they attached to expected outcomes of non-compliance with operating procedures, or bad outcomes.

In this research, expected outcomes are found to affect an individual's motivation towards engaging in an environmental behaviour as a form of 'reason to' motivation which assists them decide if they "have to" or "want to" perform a certain behaviour. To a large extent, when SC employees in my data associated an expectation to achieve good outcomes from the projects, they were realistic about fulfilling the expectation as they focused their effort on achieving those outcomes. The way employees align the motivations along with their ability is the basis of expectancy theory. Although behavioural intent models have proven very influential in the study of human action (Ajzen, 2002), and have been successfully applied to environment-related behaviours (Taylor and Todd, 1995; Cordano and Frieze, 2000), they are not sufficient to explain EGBs in isolation. Therefore, this research sought support of other work motivation theories such as 'self-efficacy' and 'role theory' concurrently in order for the other mechanisms to be unravelled. In this vein, I found that, when employees possess the abilities that complement the task (such as sustainability improvement) and they perceive a responsibility towards it, they expand their role to engage towards sustainability more proactively.

In this regard, the empirically and theoretically grounded classification of felt responsibility put forth by this study and the grouping of antecedents into three categories allows one to gather a clearer view of the motivation-behaviour link than prior SC works such as that of Swaim et al., (2016), as they focus only on subjective norms, meaning what SC employees perceive that others expect from them which, as such, may not reflect the complete reality (Ajzen and Fishbein, 1980). This makes sense, as psychologists have argued that expectancies concerning one's outcome are of equal or perhaps greater importance in determining one's behaviour (Lee, 1984).

6.6.2 Broader role breadth perceived towards environmental sustainability integration leading to externally felt responsibility

The literature highlights that the responsibility for a company's environmental performance mostly lies with managers and executives (Ramus and Steger, 2000; Renwick et al., 2013). Parker et al. (1997) argue that some employees define their roles narrowly in terms of completing assigned tasks, whereas others take on broader roles in which they also feel responsible for improving production processes and satisfying customers (Parker et al., 1997). Similarly, in this research, some employees engaged in EGBs while carrying out their functional roles by integrating sustainability in their projects.

Since broadening job roles have several implications for developing proactive behaviours among employees, it is of interest to study what influences these role perceptions (Hofmann and Grant, 2011). In this research, SC employees depicted role expansion towards environmental sustainability due to three factors: (i) organisational norms, (ii) supervisory demand to engage and (iii) influence from other colleagues to engage in sustainability. The findings of this research relate to the existing perspectives on role theory that explain that roles are static objects assigned by supervisors and accepted by incumbents (Grant and Ashford, 2008). Similarly, Hofmann and Grant (2011) have concluded that interpersonal influence processes affect role incumbents' decisions about whether or not to expand a role. Based on these perspectives of role expansion recognised by scholars in organisation psychology, the antecedent of increased role breadth towards sustainability among SC employees can be explained; although the three factors discussed here are external factors that trigger the responsibility among employees to engage in CGBs. However, for employees to engage in PGBs there also exists motivation from oneself; the mechanisms that involve other factors originated from the internal self (e.g., efficacy, internal motivation) that drive this process have been discussed earlier. This section focuses on understanding the individual effects these factors create on employees' perceived responsibility towards sustainability.

Role breadth perception towards integrating sustainability as a part of the job arising from organisational norms

Some SC employees in this research perceived that sustainability consideration was embedded in their supply chain processes based on the environmental norms, and therefore a part of their job. Organisational environmental norms often imply to employees that expanding a particular role is acceptable for a particular reason (Hofmann and Grant, 2011). This can be explained by Hofmann and Grant's (2011) argument that role expansion is not always a proactive process but can be a reactive process whereby employees take on broader roles in direct response to requests from others. This is especially so in the case of passive employees, who do not readily take up initiatives or adopt responsibilities, as found in this research. Hofmann and Grant (2011) suggest that role expansion norms, and the reasons for expansion nested within these norms, are likely to influence both receivers' expectations and senders' presentations in corresponding directions. This is found to exist in the data analysis, as some SC employees considered engaging in sustainability as a 'part of the job' while expecting to achieve certain outcomes that they preferred from it. For example, some of these employees believed that integrating sustainability comprises continuous improvement, which is definitely a part of the job; therefore, they expected to contribute towards the growth of the organisation in the form of 'good outcomes'. This is in agreement with (Denton, 1999), who argues that, in principle, continual improvement should be everyone's job.

Secondly, some of the employees who believed sustainability is a part of the job basically just followed the required environmental norms and procedures while carrying out their core supply chain activities, without giving much thought to going beyond compliance procedural norms by looking for opportunities to improve the sustainability outcome of their projects. This is similar to what Parker et al. (2006) referred to as 'generalised compliance', which refers to "*scrupulous adherence to rules, regulations, and procedures that, although not necessarily helping any specific individual, can help the overall system*" (Podsakoff et al., 2000). However, this antecedent on its own did not make employees engage in greening behaviours as proactively, it still involves going above and beyond what most employees do (Parker et al., 2006) because there is still a sense of responsibility attached to it. These employees felt an external responsibility to follow the

norms to engage in CGBs, as opposed to those who were not considerate of these norms and gave the sustainability manager a 'hard time', in at least executing the project in a compliant manner.

This perception of sustainability being part of the job depicts that employees perceive it as in-role, meaning perceived role breadth towards sustainability is high among them, and thus their likelihood to engage in greening proactively is slightly higher (Mc Allister et al., 2007). Employees with this role breadth perception engaged in CGBs as a 'part of the job' without any other motivation attached to did not make sustainability a priority yet they expected to achieve cost savings and/or meeting requirements. Consequently, their greening behaviours were not as proactive compared to those that arose from the other two sources (supervisory demand and influence of others). This finding indicates that, when SC employees are not told to make sustainability a priority in their core jobs by the management or the supervisors, they tend to digress from it and may perceive it as not valued by their organisation. This finding is in line with the existing research by Chinander (2001) suggesting that the key to employee responsibility is to create and maintain a consistent perception between what management believes they are holding subordinates accountable for and what the subordinates believe they are accountable for.

The other reason for this perception having a low influence on the proactivity of employees could be that it is generated by written rules which exist in the policy but need to be communicated more often to the SC employees, as also emphasised by many employees. While the other two antecedents (such as supervisor, sustainability manager/colleagues) comprised more influential actors in the organisation directly influencing the SC employee which led to greater role breadth perceptions due to an interdependence with them. Thus, they (supervisor, sustainability manager, etc) triggered an accountability towards sustainability in a more visible manner. Therefore, perceiving sustainability as a part of the job can be linked to employees' way of seeing 'role norms' to align organisational sustainability objectives to their role expansion to meet those objectives. Since, organisational norms were not a strong enough motivation to engage more proactively towards EGBs. The reason could be that sustainability does not get a high priority when it is perceived as a norm fulfilment as compared to other more operational responsibilities.

Role breadth perception towards integrating sustainability as a supervisory demand

The second source for the perceived role breadth towards incorporating sustainability was found to arise from the supervisor's request to some of the employees, which in turn led to an obligation to engage in EGBs (more proactive types). As seen from the data, the SC employees perceived an obligation to engage in greening projects and expand their role by, for example, engaging in multiple projects at the same time, assuming additional roles and engaging in development of green concepts, etc. This perceived role breadth towards sustainability had a much stronger effect on the felt responsibility of employees because the demand came from the supervisor or senior management for them to engage in a sustainability-related project. This can be explained by Klieman et al. (2000), who found that job breadth is most strongly, and positively, related to the quality of employee-supervisor relationship.

This is relevant to my findings because, in my data, these employees described that their supervisors showed confidence in them and believed in them, so they trusted them not just during the project but also for the future of the category they handled, which made the employees feel responsible and adopt broader and seemingly more challenging roles. This finding aligns with the exchange perspective emphasised by role theory as Katz and Kahn (1966) recognise that roles are communicated from a sender to a receiver through a social exchange process. The role assignment occurs as a dyadic influence, as the sender is attempting to persuade the receiver to accept the role (Graen and Scandura, 1987; Ilgen and Hollenbeck, 1991). This is in line with the findings of this research, as there were attempts made from supervisors as well as sustainability managers to influence these employees to engage in sustainability-related activities. Klieman et al., 2000) concluded that employees who maintain an interpersonal relationship with their bosses characterised by mutual reciprocity, loyalty and positive affect, are also more inclined to have adopted a more inclusive view of their job definitions. Studies investigating EGBs have found that perceived organisation support contributes to affective commitment and job performance by creating a felt obligation to care for the organisation and meet its objectives (Cantor et al., 2012).

Ramus and Steger's (2000) research which has shown supervisory support to be one of the strongest factors relating to employee eco initiatives and also demonstrates a wide variation in employees' perception of their organisational commitment to the environment. In agreement with Ramus and Steger, 2000 study the findings of this research confirm that the influence from the supervisor as an antecedent of felt responsibility towards sustainability is conducive for the employee's engagement in PGBs. This also contributes to knowledge surrounding the role of supervisors in the delivery of sustainability outcomes by their employees, and the resulting engagement shown by them. Therefore, it is not surprising that some SC employees reported their perceived responsibility to engage proactively to be heavily supervisor/boss dependent. This finding contributes to the study by Cantor et al. (2012) and Ramus (2000) study adding a new explanation to their perceived organisation support (POS) argument that supervisor demand can trigger a social exchange process, such that employees feel they are trusted and valued, and in return they engage in EGB/PGB.

Parker (2000) argued that commitment is often operationalised in terms of a desire to "put in extra effort," but if the direction of extra effort is not considered it could be applied toward relatively passive behaviours. Therefore, supervisors may impart that clarity to employees by making them direct their effort to sustainability by persuading them and through transformational leadership (Robertson and Barling, 2013).

Along the same lines, Cantor et al. (2012) applied the organisation support theory to predict EGBs in the organisation which comprised of both compliance and proactive type behaviours. Based on statistical evidence, they found two specific employee perceptions of environmental management practices (supervisory support and training) to contribute to employee-level engagement in environmental behaviours through the perceptions and attitudes they foster. Similarly, Ramus and Steger's (2000) study emphasised that supervisors can influence subordinates by goal definition (Redmond et al., 1993), which was measured by the item "*involves employees in changes by instilling ownership of problems and responsibilities for solutions in every employee*".

In addition to confirming the earlier claims that supervisors can play an active role in shaping employees' attitudes, this research also makes a suggestion that supervisors must

engage more in deployment of accountability to supply chain managers for environmental performance. This is especially because leaders send expectations to their subordinates based, in part, on their beliefs about the capabilities of those subordinates. To the extent that a supervisor believes an employee is capable, he or she will provide greater discretion and expectation for subordinates to expand their roles (Graen and Scandura, 1987). I found this relationship to work equally well in the opposite direction too, as the employees who were at the receiving end of this responsibility possessed higher levels of RBSE-E which made them go ‘the extra mile’, as they seem to align it with their personal and functional goals. The green behaviours literature has emphasised the role of supervisors and leaders to convince, help and establish a relationship with their employees to make them think and emphasise environmental issues to make them engaged in pro-environmental behaviours (Robertson and Barling, 2013).

Role breadth perception towards integrating sustainability due to influence from colleagues and sustainability manager leading to felt responsibility

The next factor that led to increasing role breadth perceptions towards engaging in sustainability among SC employees is found to be the influence of colleagues and sustainability managers. The role of colleagues to make employees pursue EGB had not received enough attention in the literature, until the seminal study by Gattiker and Carter (2010) examined it and provided concrete support for this argument. Their study found that environmental engineers’ attempts to influence members of the value chain (purchasing managers, operations managers, industrial engineers) to adopt strategic environmental initiatives were successful when they used certain influencing tactics to gain their buy-in. I found support for such interactions in my data as there were some employees who mentioned that they were influenced by their sustainability managers to take initiatives and offered to contribute towards environmental targets.

For example, it was discovered that there was use of ‘influence attempts’ by the sustainability managers on the supply chain staff as well as among supply chain staff themselves when they needed others to liaise in the sustainability project. Influence attempts to gain another’s co-operation and jointly identifying opportunities to change existing situations positively influenced the perceptions of employees around taking more

responsibilities, including environmental aspects. Specifically, for the proactive EGBs such as taking charge, the employees took them up as an opportunity to improve existing processes or policy through collaborative working. Similarly, Swaim et al., (2016) reported that supply chain managers who value the environmentally-oriented opinions and actions of people they respect, may have greater motivation to pursue activities that support the environment. Flannery and May (2000) and Corral (2003) also confirmed a positive relationship between subjective norms and environmental intentions among employees in industrial settings.

The findings in this research show that the sustainability/CSR manager and colleagues are frequently consulted for help in sustainability-related matters such as discussing sustainability criteria in supplier selection, etc., which creates an interdependence leading to feelings of obligation between them. This finding is in line with Pearce and Gregersen (1991) explanation that task-interdependent employees work continuously with other employees who depend on them, and they ought to develop a greater sense of felt responsibility by seeing the direct effects of their own actions.

Additionally, research on management and conservation behaviour (Young, 1993) has shown that helping people to understand the nature of environmental problems, as opposed to using coercive techniques (e.g., social pressure, punishment, or fines), helps them to carry out these environmental behaviours (Pelletier et al., 1998). Although the interaction between the sustainability manager and supply chain staff in some case individuals appeared weak in certain projects. This was evident in terms of the balance of power between the two parties because the proposed sustainability-related changes in the processes or activities are at times disregarded during the course of the project. However, the sustainability manager has some element of influence on driving the implementation of EMS strategy, 'providing a vehicle for employee' EGBs (Robertson and Barling, 2013), which to a great extent mitigates the risks of non-compliance in the supply chain. While this may appear to be supply chain staff dominant and subservient to sustainability managers (Gattiker and Carter, 2010) with the overall engagement from both staffs EGBs lend its benefit to the organisation. Certain benefits to SC employees are also evident through their increased capability to mitigate risks resulting from the poor implementation of the sustainable supply chain strategy.

In the influence literature, researchers have called attention to the tactics that employees actively create and use to influence other people and groups (Kipnis et al., 1980), acting in advance to influence individuals and groups (Kipnis and Schmidt, 1988). In this respect, my findings do support the idea that SC employees are influenced by their colleagues and sustainability manager and are introduced to opportunities with which they otherwise may not be familiar. For example, some employees learnt about certain legal risks that their organisation might be faced with in the future through the exchange of information with their employee network. This is a key advantage of influencing others in different parties and adds to the understanding about liaisons between supply chain and sustainability staff on projects (Teixeira et al., 2016). This played out in practice in the thesis and contributed towards proactive engagement from SC employees' side too.

6.6.3 Internal motivations of employees towards environmental sustainability leading to felt responsibility to engage in sustainability

The next antecedent that led to felt responsibility among SC employees towards engaging in sustainability is found to be the internal motivations they possess. This is another important antecedent to make employees feel the ownership to integrate sustainability. However, in this research, four different types of internal motivations – moral obligation, proactive motivation, intrinsic motivation and openness – towards sustainability have been found to exist which have had varying effects on employees' felt responsibility to engage in either or both types of EGBs.

Moral obligation towards environmental sustainability leads to influence employees' internally felt responsibility to engage in EGBs

Moral obligation, which arises out of considerations of right and wrong, reflects the perceived moral responsibility one feels towards the environment. Schwartz (1977) conceived moral norms as feelings of strong moral obligations that people experienced for themselves to engage in pro-social behaviour. In line with this model, several primary studies provide evidence that moral norms contribute to an explanation of pro-environmental behaviours like energy conservation (Black et al., 1985), recycling

(Guagnano et al., 1995), travel mode choice (Hunecke et al., 2001) and pro-environmental buying (Biel and Thøgersen, 2007). In this research, moral obligation was found to generate the consciousness among some SC employees to ethically manage their operations. This can be explained by the value-belief-norms (VBN) theory, which argues that values influence behaviour by initiating a process of norm activation, and elicit feelings of moral obligation to act upon one's prominent values (Schwartz, 1977). This can be due to obligation to the care provided by the employers (as explained by SET and OST) or individual employees' care of the environment (as explained by VBN). In particular, the breadth of scope and importance of these individual related factors is underlined by Steg and Vlek, (2009), who recognise moral and normative concerns as the cornerstone of influencing human behaviour towards environmental improvements.

In my data analysis, I found some employees linked their moral obligation towards the environment and a sense of "*giving back to the nature*" as the relevant reason to feel responsible to engage in EGBs. However, only a few SC employees depicted this attitude, and they mentioned it as a supporting motivation and not as the sole motivation to feel responsible towards engaging in EGBs. However, this was found have a strong link, particularly with the way they engage in PGBs, especially 'influencing and educating others' towards sustainability. Yukl and Falbe (1990) refer to this way of influencing others as an 'inspirational appeal tactic' which an individual may use to appeal to a target's values, aspirations and ideals. However, Gattiker et al. (2014) found that an 'inspirational appeal tactic' was unsuccessful in gaining the commitment of SC employees in an environmental project probably because the employees did not think environmental concerns were an immediate issue to address. This was identified as a barrier by one SC employee in my data, who believed that there is no link between supply chain operations and environmental impact. Even personal moral obligations have been found to have little importance in explaining intentions towards making ethical decisions, as opposed to financially driven and legal motivations ((Flannery and May, 2000).

Proactive motivation towards improving sustainability or reducing environmental impact led to internally felt responsibility among employees to engage in PGBs

As per Parker et al.'s (2010, p. 1) conceptualisation, proactive motivation is about “*making things happen, anticipating and preventing problems, and seizing opportunities*”, which was also found to be relevant for employees who feel compelled to engage in sustainability improvements and behave proactively. As, these SC employees possessed a proactive motivation, especially towards taking charge to improve existing situations and it involved being prepared for future. Employees anticipated certain risks for the organisation that made them act on them and find ways to overcome any legal or environmental threats they perceived would occur if they did not take responsibility to change the situation.

The proactive motivation paradigm is focused on the degree to which employees develop a proactive orientation towards a specific domain of organisational life on the basis of multiple motivational states (Curcuruto et al., 2016). Proactive motivation has been found to influence employees' intention to engage by assuming personal responsibility for taking action (Seiling, 2001). In this research, some employees were found to have a proactive motivation in the way they approached EGBs, especially PGBs. There are different perspectives of looking at the proactive motivation to engage among employees in my data. Firstly, to explain this way of engagement in PGBs, the view of (Frese and Fay, 2001) can be employed. They argued that it is often negative affect, such as dissatisfaction, that stimulates proactive behaviour. Some employees were found to take initiatives such as updating the tender documents and procurement policy, etc., as they found the existing documents/policy to be vague and unfit for use, which made them take the initiative to incorporate sustainability aspects into the policy to make it robust and fool proof. Therefore, they took a personal responsibility for changing the sustainable procurement policy/document, but it also required a supportive environment for them to execute it.

Intrinsic motivation towards improving sustainability or reducing environmental impact led to internally felt responsibility among employees to engage in EGBs

The other viable means leading to felt responsibility among some employees is identified to be the intrinsic motivation. Intrinsic motivation is an autonomous motivation and “involves people doing an activity because they find it interesting and derive spontaneous satisfaction from the activity itself” (Gagné and Deci, 2005, p. 331). This was found to exist for a few SC employees in my data who engaged in PGBs on top of CGBs in their projects. The relevance of intrinsic motivation and moral obligation towards sustainability is well established in the literature (De Groot and Steg, 2010; Lamm et al., 2014). Felt responsibility by oneself to engage in EGBs has been studied extensively in relation to motivation such as in self-regulatory mechanism frameworks (Tabernero and Hernández, 2011).

Tabernero and Hernández, (2011) used self-determination theory (SDT) to conclude that individuals with high intrinsic motivation will engage in more pro-environmental behaviours than individuals with lower intrinsic motivation. As per SDT, the employees pursue green behaviours because they view sustainability as an important personal value. Specifically, with intrinsic motivation, employees pursue EGBs because they find them to be interesting or pleasurable (e.g., the excitement of designing an environmentally friendly product) (Graves et al., 2019). Having an interest in the area of sustainability was found to be a major source of motivation to feel the responsibility towards sustainability, making them engage in EGBs during their work, as these employees associated their interest with it and derived a sense of satisfaction or ‘feel good’ from engaging in EGBs. Intrinsic motivation as a sole factor has been found to have a strong effect on pro-environmental behaviours in the literature (Tabernero and Hernández, 2011). This was seen from the way employees expressed that it made them “*feel good*” about acting responsibly as well as feel capable of doing something good for the “*larger good*”.

Similarly, Turaga et al. (2010), contend that, to engage employees in EGBs, just like intrinsic motivation, environmental passion has an equal, if not more important, influence. In the same way, an interest in a subject like sustainability influenced employees to act responsibly by considering sustainability aspects within their supply

chain decisions. Intrinsic motivation towards sustainability among employees was found to be an antecedent which was accompanied with the outcome expectation of improving the processes for their organisation that made them feel responsible for implementing sustainability practices.

With respect to employees, based on SDT, Gagné and Deci (2005) argued that work climates that promote satisfaction of the three basic psychological needs (competence, relatedness and autonomy) will enhance employees' intrinsic motivation and promote full internalisation of extrinsic motivation, and that this will in turn yield important work outcomes such as EGBs. This can be confirmed for SC employees in my data analysis, as I found that those SC employees possessing an intrinsic motivation when perceived a pro-environmental work climate (as there was management support, team support), as an externally felt responsibility along with the capability to perform EGBs (which was perceived in the form of autonomy, knowledge and skills) by some employees led to internalisation of the external motivation. This aligns with Ramus and Killmer's (2007) argument that self-efficacy is congruent with expectancy theory, such that a belief in one's own capability to organise and execute the required course(s) of action increases one's effort–performance expectancy (Bartol et al., 2001). Without expectancy beliefs, employees feel that effort is futile; without instrumentality and valence beliefs, employees' question whether performance of the behaviour is worth the effort (Porter and Lawler, 1968b; a).

Openness towards engaging in sustainability led to felt responsibility among employees to engage in EGBs

Openness towards experience is a dispositional concept that determines the attitude of a person towards an experience, such as being receptive to new ideas, etc. (Barrick and Mount, 1991). Openness is also represented as being one of the big five personality traits which is found to be linked strongly with environmental engagement in the literature (Milfont and Sibley, 2012). I found in my data that some employees depicted a willingness to engage in sustainability implementation due primarily to a 'psychological ownership' they experienced towards their job which made them open towards sustainability in their supply chain roles. The openness attitude depicted by employees in

this research has a strong resemblance to flexible role orientation, but it is not because these employees did not act too proactively in EGBs. Hence, this research makes a theoretical contribution to the EGB literature by presenting the subtle differences in the attitudes that employees can have towards feeling the responsibility towards sustainability implementation in their supply chain roles. It is also novel because the detailed ways in which SC employees depict engagement in EGBs depending on their perceived role breadth, leading to different states of felt responsibility, have not been identified in previous research in this area.

6.6.4 Role breadth self-efficacy driving PGBs

As already noted, this research posits that RBSE interacts with SC employees' felt responsibility to engage in sustainability such that it makes them feel capable ("can do") to engage proactively towards greening by increasing their perceived capability to carry out EGBs. Although research on EGBs has thoroughly investigated many individual and organisational factors that can act as drivers or favourable conditions to create positive employee behaviours (Yu et al., 2019), the situational and dispositional antecedents as well as the psychological mechanisms that lead to EGBs at an employee level in the supply chain context are not so evident. For example, the literature has identified that, to increase the engagement of employees towards environmental behaviours, the 'ability', 'motivation' and 'opportunity' must coexist (Yu et al., 2019), but it does not elucidate the effects of the relevant antecedents on employees' perceptions to engage in EGBs. Therefore, this research attempts to unravel those mechanisms by exploring the effect of the individual capabilities (knowledge, experience, awareness, etc.) that have been regarded as important to drive the employees towards EGBs. In this section, I discuss the relevant capabilities or "can do" factors that SC employees have utilised (see Vroom, 1964) in this research resulting in a more proactive engagement towards EGBs. In doing this, the research contributes to research in the existing literature on drivers of environmental behaviours that is yet to investigate the potential effects of individual drivers on the interactions between attitudes and behaviours.

Knowledge possessed by supply chain employees making them perceive RBSE towards EGBs

SC employees in this research were found to apply their supply chain relevant knowledge to develop green concepts or solve environmental issues related to packaging, logistics, etc., in their projects. This may be explained with the help of Parker's (2010) production ownership concept that explains the way employees use knowledge to work beyond their immediate operational tasks (an aspect of role orientation that is referred to as "production ownership") and recognise the importance of acquiring and using a wide range of skills and knowledge to enable them to contribute at a broader level. In a similar fashion, employees were found to be driven by the green knowledge they possessed and to use it towards SC EGB.

Supply chain employees' awareness enables them to carry out EGBs through perceived RBSE

Awareness of environmental issues and impacts from business operations also helped them drive those initiatives in which they engaged (both sustainability and SC employees). Specifically, this helped them manage the impact of the operations since they were in charge and faced with situations where, based on their awareness, they felt capable of making greener choices regarding material or realised the need for an alternate material, determined energy efficiency specifications, etc. This finding serves as an extension to the contribution made by Ramus and Steger (2000) that supports the argument that corporate environmental strategy is a between-persons variable that refers to employees' awareness of and knowledge about their organisation's strategy and approach regarding environmental sustainability. Also, the findings support Norton et al.'s (2015) emphasis upon factors such as internal motivations, knowledge of environmental issues and awareness of environmental impacts that have not received sufficient research attention to warrant conclusive statements. In a similar way past experience of SC employees informed them to carry out sustainability improvements in their projects based on their prior exposure to sustainability. Literature has not identified such a driver, but it works in the same way as awareness towards sustainability.

Ability to influence

Another employee-level driver that was found to have a considerable effect on their perceived efficacy to execute the project was '*ability to influence*'. It was found vital for employees, especially those who engaged in PGBs to drive their engagement as they worked in cross-functional teams and often had to influence others to co-operate in implementing sustainability. These employees explained that it is easy to otherwise not be taken seriously by others. There is limited mention of this driver in the existing literature, except for the seminal study by Gattiker and Carter (2010), who have considered the ability of the project champion to gain others' commitment towards sustainability as significant to influence others. This is a highly relevant factor in the context of SC employees, as it was found that many times, due to their ability to influence, employees were able to propose and initiate the change required in the policy, practice, etc., which otherwise would have been difficult to achieve. In this vein, the findings suggest perceived ability to influence others for sustainability may not only affect the proactiveness of an employee who is influencing (Gattiker and Carter, 2010; Gattiker et al., 2014) but also extend it to others who are being influenced. This supports the theoretical arguments by Gattiker et al. (2014) and answers calls for the exploration of influence behaviour towards greening. This finding also aligns with Hoffman and Grant's (2011) research that confirms that persuasion and social influence are effective ways of triggering role expansion among others.

Perceived Autonomy

Perceived autonomy has been reported to increase efficacy by enabling employees to choose roles, tasks, jobs and relationships that fit their interests and skills (Ryan and Deci, 2000). Efficacy, in turn, increases employees' willingness to anticipate, plan and act in advance in order to obtain desired outcomes (e.g., Stajkovic and Luthans, 1998). Prior research has accentuated the importance of the interactions between individual capabilities in the overall relationship between attitudes and behaviours at firm and SC level (Murphy et al., 2019). Similarly, in this research, SC employees perceived autonomy from their management to engage in sustainability aspects (by acquiring knowledge, taking initiatives). Autonomy was found to affect the efficacy some

employees perceived to engage in multiple PGBs and feel capable to carry out a much broader role, as they felt they had the discretion to invest their time and to take the important decisions to implement sustainability.

6.6.5 Pro-environmental work climate driving CGBs and PGBs

In this research, several organisational-level factors have been regarded as important by SC employees that developed a perception of pro-environmental work climate in their respective organisational context. Most of these factors are common for all employees, perhaps because their organisation characteristics are similar, and these factors are perceived more as ‘hygiene factors’ towards getting sustainability objectives fulfilled at an organisational level, as without these factors SC employees cannot find a foundation to engage in sustainability. Therefore, these factors have contributed equally to facilitate employees’ CGBs and PGBs.

The work climate literature proposes that employee perceptions of organisational attributes influence behaviour by establishing behavioural norms (e.g., Zohar and Luria, 2005). Norton et al. (2017) argue that corporate environmental strategy has an indirect effect on daily EGBs through green psychological climate. Along the same lines, this research has identified certain organisational-level factors, such as liaisons and teamwork that affect SC employees’ perception of pro-environmental work climate by making them feel supported to engage in EGBs. This is because most of the sustainability issues that are implemented by the supply chain function, ranging from equipment purchase to updating policy, are driven by the norms (policy, organisation, group) and require co-operation from different departments (cross-functional liaisons). As Daily et al. (2007) have argued, successful EMS teamwork requires that team members accept responsibility for and make efforts to accomplish not only individual objectives but team-level objectives as well.

In the existing literature, most of these factors are regarded as green human resource management (GHRM) factors, including teamwork, environmental management policy and top management support, which have been regarded as key enablers for employee pro-environmental behaviours (Yu et al., 2019; Renwick et al., 2013; Cantor et al., 2012).

Therefore, this research contributes to the existing literature on GHRM by confirming the relevance and applicability of some of these factors in the supply chain context as well. However, one factor that has not been highlighted in the extant literature but is found to be particularly relevant for the SC employee context is liaison. Liaison is dependent on others' co-operation and the larger execution of sustainability that drives SC employees' engagement in EGBs. Liaison is more about the communication and co-operation that takes place between different members involved in a project. Even though it is an integral part of managing and implementing any operational aspects in a project, it is considered equally important by employees towards implementing sustainability aspects too.

Similarly, the empirical evidence in this research suggests that employees can in fact derive support from the way sustainability aspects are being communicated and regarded in the SC functions (e.g., with green targets and green buy for procurement), and not just promote cost savings that do not underpin the business's green strategy, as suggested in prior literature (e.g., Ashby et al., 2012; Pagell and Shevchenko, 2014). Thus, this finding, 'liaison', is of significant theoretical and practical implications. Also, similar to Wu et al. (2019) the various GHRM factors that have been emphasised as having an influence, such as training and rewards (Daily et al., 2007), were not found to have any significant effect on EGBs of SC employees in this research.

As anticipated, this research's ability to propose an exhaustive set of behavioural drivers is limited; however, the findings are not affected by such a limitation. This is because the critical aspect in this research is the depth of understanding enabled by the adopted method and design, and not the number of differing contexts that have been examined (i.e., sample size). Consequently, this constitutes a final primary contribution of this research.

6.6.6 Barriers to engaging in EGBs faced by SC employees

This research has encountered and discussed empirical evidence against the lack of conditions that have a limiting effect on the engagement of SC employees towards different EGBs. The factors that different SC employees perceived as lacking or which inhibited them or hindered their engagement in environmental behaviours comprise of

lack of budget, lack of communication, lack of mandate, lack of time. While for some employees the lacking conditions can act as barriers, there was no sense of obligation towards sustainability, which made them perceive their supply chain roles very narrowly as only focusing on operational responsibilities. Chinander (2001) has provided a theoretical basis saying that “*many of these challenges stem from the possible ambiguity in the link between one’s actions and environmental consequences*” (p. 282), which also applies to some SC employees in my data who expressed this disconnect from sustainability depicted by them. Alternatively, (Daily et al., 2009) argue that employees may be unclear about their role in environmental improvements and unsure of the rewards associated with them.

However, based on the findings of this research, it can be argued that it is not just lack of awareness about the consequences of one’s actions or the gap between rewards and efforts. There may also exist another reason, which is the lack of personal motivations towards sustainability, which affects someone’s ability to assess their actions or inhibits responsible behaviours. As organisations are equally supportive to all employees, this means, while some employees are able to see their jobs as broadly, others may lack the internal motivation to do so, making these employees simply disregard sustainability, as emphasised by Gagné and Deci (2005). In this research, there was found to be a lack of motivation to engage, which was evident from the attitude towards sustainability, with those who did not engage at all considering it as ‘fringe work’ and stating lack of time as the barrier to not engage, as emphasised by sustainability managers.

However, some employees perceived a lack of mandate for sustainability, meaning there was none or only a rather casually expressed environmental agenda for supply chain functions, and it acted as an impediment to implementing sustainability-focused improvements. Therefore, for such employees, their personal motivation was not able to serve as a strong base for the actions required for PGBs, and even got out of focus due to other objectives (such as cost savings) taking precedence. In the absence of the formal appearance of a sustainability strategy, it might be difficult to give the green principles and goals the importance that the organisation intends. The lack of accountability can be perceived as a lack of mandate giving employees no reason to incorporate sustainability consideration into their projects. These barriers, such as no mandate, can be interpreted

as an absence of green HRM practices particularly for supply chain staff (Yu et al., 2020). The literature does not really acknowledge lack of any of these conditions as barriers to employees' engagement in EGBs, except for the case study by Wu and Pagell (2011), which provides support for the trade-off decisions employees make under financial constraints which may not always favour more environmentally-oriented choices, especially in the short run.

Steg and Vlek (2009) suggest informational strategies aimed at changing prevalent motivations, perceptions, cognitions, etc., to be effective when pro-environmental behaviour is relatively convenient and not very costly (in terms of money, time, effort and/or social disapproval), and when individuals do not face severe external constraints on behaviour. However, Wu and Pagell (2011) emphasise that, rather than using cost and resource constraints as an excuse for inaction, some companies do search for cost-neutral solutions and become more innovative. As a result, the committed employees can create supply chain practices that are different from industry norms. However, this may only apply to those who engage in EGBs proactively, although these employees who do engage proactively face slightly different barriers, which were mostly found to be external to them. The major barriers included lack of co-operation from others in the organisation and caused problems in terms of feelings of frustrations among employees and slowing the pace of the project but did not exacerbate their engagement. The other two barriers, lack of time and budget and bureaucracy related to sustainability implementation in the organisation, had a slightly negative influence in terms of causing dissatisfaction towards engaging in proactive EGBs but not necessarily inhibit employees from engaging in them altogether.

6.6.7 Summary

In conclusion, the study's findings contribute to enhance extant understanding of the role of multi-level factors in the antecedent-EGB relationship. Nonetheless, and despite the relevance of these findings, these remains a secondary contribution of this study, as the choice of research design and methods has been primarily guided by its first and second research questions. In this vein, the research has identified relevant individual factors that drive or inhibit engagement to be more important for evoking proactiveness but cannot

claim this to be a comprehensive list. Similarly, relevant aspects of the influence of these factors on the SC EGBs have been discussed, which can be employed by further theory building and testing studies in the future. These aspects are discussed in detail in the conclusions chapter.

Chapter 7 Conclusions

In this chapter, the main theoretical and practical contributions of the study are presented, followed by limitations and suggestions for future research.

7.1 Implications to theory

This study makes several notable contributions to the ESCM literature, and thus to the overarching EGBs body of literature. In line with the discussion in the preceding sections, these can be broadly classified into primary and secondary contributions on the basis of their theoretical and practical relevance and implications.

The literature on EGBs has long relied on social cognitive and work motivation theories of behaviour, such as TPB (Ajzen, 1985; 1991) and expectancy theory (Vroom, 1964). The findings of this research have built on these theories and incorporated literatures from social psychology as well as organisational behaviour to develop greater levels of actionable knowledge. Importantly, the theoretical framework (Fig. 6.2) allows us to not only understand the extant literature on EGBs but also bring to light new outcomes and new interactions amongst different role perceptions that previously have not been identified. Mainly, the framework highlights the importance of the existing role perceptions, outcome expectations and motivations of the SC employees.

Although this has often been recognised, the implications of the theoretical framework developed here are quite different. Most notably, by considering role expansion rather than the role prescription itself, it is proposed that the employee does not necessarily have to have sustainability as the prescribed role; rather, it is suggested that what is important is that the employee sees the behaviour as expressing as many of their interests, or other long-term outcomes perceived, as possible. This means that an employee from a supply chain function may be just as likely to engage in pro-environmental behaviour as one from a sustainability function.

However, what is worth noticing is that the employee perceives the link between environmental behaviour and outcomes. It is likely that the stronger relationships between EGBs and traditional expected outcomes found in previous research (e.g. Vroom, 1964; Chinander, 2001; Norton et al., 2014; Paillé and Mejía-Morelos, 2014) occur. However, it is more difficult to see how EGBs express sustainability outcomes except in circumstances when the reward or punishment associated with the alternative behaviour is high (Chinander, 2001; Organ et al., 2005). This research therefore extend previous thinking by proposing that those people who perceive the behaviour as resulting into favourable organisational/ operational outcomes (saving cost, reputation benefit, reduce carbon footprint) will engage in it regardless of what outcome it expresses – as long as they perceive the responsibility towards those outcomes.

Second, is related with the conceptualisation of EGBs. It is proposed to use compliance vs proactive green behaviours as the new conceptualisation of EGB which is better than the previous RGB/VGB conceptualisation. The assessment of employees' engagement in greening in previous research was generally focused directly on the green behaviour at hand irrespective of its proactiveness. Those who recognised the narrowness of these conceptualisations have highlighted alternative criteria for evaluating the proactiveness in behaviours, such as its applicability among employees in workplace (Bissing-Olson et al., 2013). I found that all employees might have — the so-called 'not part of my job' mindset. The approach that this research suggests is one that takes into account the other dispositions that an employee possesses, leading to the extended list of types of engagement outlined in Table 5.5. The theoretical framework developed here helps to pinpoint the psychological conditions under which an influence from others (management, sustainability staff, supervisor) might result in less or more proactive EGBs, thereby helping organisations to modify their efforts for interventions for behaviour change and make employees see their roles less 'narrow'.

In particular, the identification of broadening role perceptions of employees contributes both to theory and practice. In hindsight, the expectation that employees would engage in the pro-environmental behaviour (if seen as part of the job), or not, is perhaps a little simplistic. Given the multiple objectives that particularly supply chain

employees deal with and given the likelihood that green objectives/targets will be a low priority and not often activated in the workplace, it is unlikely that an employee will be able to consistently engage in EGBs. Instead, I propose that it is much more likely that the integration between operational objectives and sustainability objectives (for e.g. investing in energy efficient equipment; saves costs as well as reduce carbon footprint) will create episodes of high or low proactivity.

Also, the research has implications for research as simply taking aggregated levels of green behaviour (or other measures such as frequency of involvement) will not capture the dynamic nature of the interaction. Instead, diary studies or experience sampling methods may be a better method for assessing the engagement in EGBs. Vignettes have been used to measure hypothetical behaviours such as in a role play of supply managers (Swaim et al., 2016); however, to my knowledge, these data have measured intentions reflecting their behaviours, and not the real life engagement in EGBs and those have not been analysed in context of strength relative to other existing motivations of employees. I believe that this is an area that would prove highly fruitful, if effortful, in understanding the attitudes of supply chain employees towards EGBs. Further theoretical and research implications emerge from the posited interactions themselves. To date, most research in the pro-environmental literature has looked at identifying the organisational factors to EGBs such as training, rewards (Cantor et al., 2012) and, with only a few exceptions, neglected the role of potential motivations.

This research does not claim that the antecedents identified here are the only potential antecedents of the relationship between the perceived responsibility and the subsequent EGBs; indeed, there are many social and human factors (Murphy et al., 2019) that may act as either distal antecedents via these psychological states or as additional antecedents. For example, it is likely that many other individual difference factors will interact with the characteristics of the employee to affect perceptions of self-efficacy and expectations. Nonetheless, it is believed that the theoretical framework represents some of the significant psychological conditions that are more likely to lead to a successful engagement in EGBs.

Finally, in developing the theoretical framework, this research is able to contribute not only to the pro-environmental literature but also to the supply chain literature. In the past, studies examining self-efficacy, perceived outcomes, role orientations and pro-environmental work climate have all taken place in silos, with little to no overlap between them. In this research, I have shown how these constructs overlap (for example, the overlap between internal motivations and felt responsibility literatures), interact (for example, the interaction between role perceptions and self-efficacy) and interrelate (for example, using insights from both self-efficacy and expectancy literatures). This integration across the various bodies of literature should prove useful not only to scholars of EGB but also to scholars interested in green behaviours more widely.

7.2 Implications to practice

From a practical perspective, the framework offers implications to both the individual and the organisation. Although my aim was not to identify a perfect solution or an intervention, the framework nonetheless does have implications for making supply chain engagement in EGBs more proactive. It can be concluded that influences that target both internal and external motivations should result in greater proactiveness. Thus, the framework explains how behaviour changes among employees beyond those self-driven ones who are well aware in any organisation with a pro-environmental climate. Well informed employees who want to engage in EGB might not become proactive when there is a lack of external felt responsibility. The adoption of Environmental Management System does not ensure all employees will proactively engage in EGB (Murphy et al., 2019). Therefore, organisations with an active Environmental Management System may still have employees disengaged from sustainability at the individual level if they are not aware and lack the personal drive to engage in sustainability. This can be seen in the types of interventions that are now most popular such as those that address both knowledge and commitment (Abrahamse et al., 2005).

More interestingly, influences from others (management, supervisors, sustainability managers) that not only emphasise a key environmental outcome but also create integration between (operational and sustainability goals) through mentioning a number of related outcomes should result in greater attractiveness to engage among supply chain

employees. For example, an influencer (e.g. a sustainability manager) that focuses on making supply chain staff propose green solutions might also present cues for giving them the financial benefits to execute the initiative. Finally, influencers could directly address the issue of priority conflict (between sustainability and operations) through the inclusion or provision of cues to re-focus the employee back on the sustainability outcomes. For example, interventions that send occasional reminders to participants may help to make the sustainability outcomes central again. With regard to the organisation, the framework suggests that there are things that can be done to improve the overall engagement from supply chain staff by focussing on addressing the barriers such as lack of communication about sustainability.

Changing the supply chain strategy to procure or evaluate suppliers to include more environmental criteria (compulsory) related cues should help in changing the employees' engagement from passive to active. For example, a policy drafted to level up supplier's environmental capability other than the ability to provide cheaper product should provide cues to supply chain employees' that the organisation is interested in sustainability outcomes more. When these positive environmental cues are available, we posit that the intervention will lead to greater EGB change.

In addition, the framework highlighted the importance of internalisation when depicting a more proactive engagement. Whereas internalisation of responsibility is an individual level difference variable, influence attempts particularly using tactics as per the values of the target (one being influenced) have been shown to be related to increased commitment for supply chain employees towards environmental sustainability (Gattiker et al., 2014). Thus, another implication arising out of the theoretical framework is that to improve the likelihood of long-term success of environmental engagement is that, an organisation could engage its leaders (preferably belonging to supply chain functions) rather than just focusing on sustainability manager to try and influence supply chain staff. These leaders would then increase the employees' perceptions of the role breadth towards EGBs because they both (influencer and the target) speak the same language.

7.3 Limitations

In spite of its various contributions to theory and practice, this research has a number of limitations. Many of these arise in relation with the adopted methodological approach. In addition, regardless of the choice of methodology, every method has intrinsic limitations that inevitably place subsequent limitations on the study's results and that, therefore, must be acknowledged.

The research is of an exploratory character and has leveraged the case study methodology. A general limitation of case studies is that the subjectivity of the researcher may influence the analysis and its conclusions even if sampling, data collection and data analysis have followed systematic and structured processes. Similarly, despite the use of triangulation, the data collection process significantly relied on the perceptions of a reduced number of selected key informants. Thus, their subjectivity must be recognised as another source of potential bias. Another general limitation of case study is that they do not allow for the findings to be generalised. In this respect, the use of case study is regarded as an appropriate first step in the theory-building process (Meredith, 1998), but one that demands from further research, as will be discussed in the coming section. In other words, the presented findings can provide practitioners and academics with valuable insights and guidelines to examine, analyse and respond to employee engagement issues in SCs, but further research is called for to ensure the generalisability and expand these findings.

Some additional limitations relate to more specific aspects of the methodological design. In particular, the unit of analysis influences the research outcomes and the relation of the findings with broader bodies of knowledge (see section 3.5); and hence has clear implications on the limits of the study. By defining the unit of analysis as the SC employee engagement in the project, and despite the efforts made during the data collection process to incorporate the perspective of employees within the SC function when demanded by a key issue in the case, the study is not most adequately suited to examine other actors or cross-functional aspects of engagement. This can arguably be of particular relevance when investigating the use of liaisons to manage sustainability in supply chain. In this sense, the findings from this research offer a rich description of how

these behaviours are implemented from a SC viewpoint. Nonetheless, the existence of practices that involve other functions could benefit from a broader cross-functional perspective.

The sample of the study consists of five in-depth case studies focused on supply chain employees from manufacturing and service companies operating in different industries. The empirical data supports that the unveiled behavioural mechanisms are present in all five interviewed case companies. However, it cannot be claimed that these are all the mechanisms involved in ruling the behavioural engagement towards environmental sustainability in other industries (or that they are the only). A second and anticipated limitation incurred by the size of the sample is the study's reduced capacity to identify all relevant engagement factors that may influence felt responsibility. In this regard, the size of the sample has been fixed according to the research goals of investigating the interplay and additive effects of different motivations, which demanded of significant depth of observation. Therefore, the study may not claim the list of factors to be exhaustive, but simply that it has identified a number of antecedents that significantly influence felt responsibility towards incorporating sustainability.

The study of the influence of felt responsibility and of individual and organisational drivers on the SC employee's engagement in environmental behaviours is equally bounded by the choice of methodological design. Indeed, while the qualitative analysis allows to explore the relative extents of and, above all, the types of positive and negative contributions of multi-level factors on EGBs, a quantitative approach would have enabled much detailed results on this regard. However, the adopted approach was sufficient, and fully in-line with the prevailing research goals of the study. Moreover, an important limitation to this respect is the study's lack of ability to establish causal relationships between the constructs. Indeed, and as anticipated in previous chapters, the study has merely reviewed and discussed the influences that have emerged from the qualitative analysis of the empirical data.

In terms of results, there is a major limitation. The identified interactions between antecedents and EGBs cannot be generalised to corresponding compliance or proactive green behaviours. Similarly, the study's investigation of the interplay between the internal

and external felt responsibility has focused on how motivational states influence the environmental behaviours in ESCM (section 6.4), and not on the opposite effect. Hence, as anticipated, the study cannot claim that the synergistic effect on EGBs is symmetric with respect to the two types of felt responsibilities. Also, how outcome expectations from the project can make them feel motivated differently depending on the scope of the project. In this way outcome expectations have an intervening effect, but this wasn't fully conclusive.

Finally, the reduced amount of empirical data in some areas of the analysis has limited the findings. Specifically, limited evidence on the use of outcome expectations by SC employees to address the interactions between external and internal felt responsibility has been found, rendering this part of the analysis less conclusive. In a similar vein, while the study has found some evidence of barriers impairing the engagement of supply chain employees, the majority of the data in this respect referred to lack of certain condition's influence on their engagement behaviours. Thus, the study offers a limited understanding of how and the extent to which the informational strategies of changing motivations may be fostered or hindered by these factors.

7.4 Implications for future research

Some EGB themes are stronger than others in terms of repetition across cases (see table 5.1 and 5.2). However, they are all analysed and discussed in this research because they all relate to some environmental impact one way or another. In addition, the proactivity of the behaviours helps to assess the variability in employees' behaviours, but it is complex to evaluate their environmental impact. Looking for the relationship of each behaviour theme to the environmental impact, or more specifically the impact of each behaviour on the environmental performance, is not within the scope of this research. Therefore, future research might pay attention to this extended relationship carefully, looking for the different environmental impacts and how they relate to environmental performance of the supply chain. In addition, future research might also examine an employee's variability in his/her green behaviours in terms of their engagement from one project to the other. To understand if these behaviours vary or evolve and become more advance with experience as it was indicated in this research that employees may feel the

responsibility differently depending on the outcome expectations (which wasn't fully explored here due to the scope of the research).

The findings of this research suggest that greater research attention to supply chain employees work design could demonstrate greater engagement towards environmental sustainability of the supply chain. For example, the responsibility assigned to employees towards environmental target within supply chain functions might make them internalise the environmental responsibility. Therefore, job design prototypes work in concert with one's duty within a function leading to feelings of responsibility for engagement, then future research might investigate this possibility. As well as any other structural (or socio-structural) job characteristics which might also activate employee's implicit engagement in such a way that might benefit the environmental performance of their organisation. In this respect, role orientation theory may have huge relevance, but it does not challenge existing theories but proposes an additional framework that offers an alternative for predicting EGBs within supply chain roles.

Lastly, a finding of the study is that lack of co-operation from others, lack of time, budget, accountability etc. can affect engagement in both compliance and proactive behaviours when exist to cope with several supply chain objectives. As these can inhibit a range of CGBs and PGBs but also accentuate disengagement and negative engagement. While little discussion of the potential negative and positive effects of these conditions can be found in the literature this is an aspect that needs to be further investigated to aid organisations understand the full span of the implications of employing such conditions to facilitate engagement, especially in this era of increasing proactivity towards sustainability.

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Appendices

Appendix 1 Definitions of Pro-environmental behaviours, OCB-E, Proactive EGBs

Source	Definition	Research type
Stern, 2000	Pro-environmental behaviors defined as “behaviour that intentionally pursues reduction of the negative impact of people’s actions on the natural world”	Telephonic interview of 420 informants
Lindenberg & Steg, 2007	Pro-environmental behaviors are “individual behaviours contributing to environmental sustainability (for example limiting energy consumption, avoiding waste, recycling, and environmental activism)”	Based on an extensive review of studies in environmental psychology
Norton et al., 2015	<p>Required EGB is defined as green behaviour performed within the context of employees’ required job duties (see also the Bissing-Olson et al., 2013, concept of task-related EGB). This includes adhering to organisational policies, changing methods of work including choosing responsible alternatives, and creating sustainable products and processes.</p> <p>Voluntary EGB is defined as green behaviour involving personal initiative that exceeds organisational expectations. This includes prioritising environmental interests, initiating environmental programs and policies, lobbying and activism, and encouraging others. The concept of voluntary EGB aligns closely with the notions of contextual performance and OCB, which refer to behaviours that support the organisational, social and psychological environment in which task performance takes place (Borman and Motowidlo, 1993; Organ, 1997).</p>	Conceptual model drawn from systematic literature review
Cantor et al., 2012	Employee engagement in environmental behaviour: Employee engagement in environmental behaviours was measured using three constructs: Innovative environmental behaviours, frequency of involvement and promoting an environmental initiative	Empirical: Survey of 317 logistics and operations management mid-level distribution centre employees

Organ et al., 2006	OCB defined as “individual behaviour that is discretionary, not directly or explicitly recognised by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organisation”	Theoretical framework
Boiral, 2009	OCB-E defined as “individual and discretionary social behaviours that are not explicitly recognised by the formal reward system and that contribute to a more effective environmental management by organisations”	Empirical survey among 242 graduate students enrolled in the MBA programme
Lamm et al., 2013	OCB-Es are conceptualised as a type of OCB, defined as “voluntary behaviour not specified in official job descriptions that, through the combined efforts of individual employees, help to make the organisation and/or society more sustainable”	Survey of 1,225 employees covering a variety of occupations and organisational contexts
Ones & Dilchert (2010, 2012)	Employee green behaviours (EGBs) defined as ‘scalable actions and behaviours that employees engage in or bring about that are linked with, and contribute to, environmental sustainability”	Based on the analysis of more than 2000 activities obtained from a large spectrum of jobs, organisations and industries in the United States and Europe
Crant, 2000	Proactive behaviour defined as taking initiative in improving current circumstances or creating new ones; it involves challenging the status quo rather than passively adapting to present conditions. Employees can engage in proactive activities as part of their in-role behaviour in which they fulfil basic job requirements. Extra-role behaviours can also be proactive, such as efforts to redefine one’s role in the organisation.	Based on a review a diverse set of literatures that directly address proactive behaviour in organisational contexts

Grant and Ashford, 2008	Proactive behaviour defined as anticipatory action that employees take to impact themselves and/or their environments. This definition is consistent with dictionary definitions of proactive behaviour as that which “creates or controls a situation by taking the initiative or by anticipating events (as opposed to responding to them),” and to proact as “to take proactive measures; to act in advance, to anticipate” (Oxford English Dictionary, 1989). They view proactivity operates as a behavioural process that can occur either in-role or extra-role.	Based on a literature review they develop a framework designed to generalise across specific manifestations of proactivity, describing the nature, dimensions, situational antecedents, psychological mechanisms, dispositional moderators, and consequences of proactive behaviour.
Bissing-Olson et al., 2013	Proactive pro-environmental behaviour described as the extent to which employees take initiative to engage in environmentally friendly behaviours that move beyond the realm of their required work tasks.	Using a baseline survey and two daily surveys over ten workdays with 56 employees working in small businesses

Appendix 2 Ethical approval

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Savita Verma
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ESSL, Environment and LUBS (AREA) Faculty Research Ethics Committee University of Leeds

21 December 2015

Dear Savita

Title of study: Unravelling Employee Engagement for Environmentally Sustainable Supply Chains
Ethics reference: AREA 15-042
Grant reference: INCS-2014-214

I am pleased to inform you that the above research application has been reviewed by the ESSL, Environment and LUBS (AREA) Faculty Research Ethics Committee and following receipt of your response to the Committee's initial comments, I can confirm a favourable ethical opinion as of the date of this letter. The following documentation was considered:

Document	Version	Date
AREA 15-042 New_ethical_review_form_revised.pdf	1	21/12/15
AREA 15-042 New_ethical_review_form pdf.pdf	1	11/12/15
AREA 15-042 New_ethical_review_form.pdf	1	17/12/15
AREA 15-042 3676_001.pdf	1	17/12/15
AREA 15-042 Information sheet.docx	1	17/12/15
AREA 15-042 participant_consent form_SV.doc	1	17/12/15

Please notify the committee if you intend to make any amendments to the original research as submitted at date of this approval, including changes to recruitment methodology. All changes must receive ethical approval prior to implementation. The amendment form is available at <http://ris.leeds.ac.uk/EthicsAmendment>.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited. There is a checklist listing examples of documents to be kept which is available at <http://ris.leeds.ac.uk/EthicsAudits>.

We welcome feedback on your experience of the ethical review process and suggestions for improvement. Please email any comments to ResearchEthics@leeds.ac.uk.

Appendix 3 Sample of themes, codes and quotes

Aggregate Dimensions	Codes	Themes	Categorical aggregation	Representative quotes
Greening behaviours the SC employees pursue	<p>“10% scoring criteria”</p> <p>“Update existing travel policy and tender documents”,</p> <p>“considering running cost over unit cost”,</p> <p>“following plant environmental procedures”,</p> <p>“involving in process improvements”,</p> <p>“meeting green targets”,</p> <p>“vendor risk assessment”</p> <p>“adhere to the sustainability norms”</p>	Employees engaging in compliance green behaviours	Involving in cross functional liaisons by working collaboratively or partnering approach with supply chain functions	<p>“It is part of the ambition to achieve that 10% savings, that’s the objective of the organisation that was set by the sustainability team and we have agreed to deliver on that” (Alpha_2)</p> <p>"periodically they ask me to help...So, I've helped over the years many times helping them devise their question sets in accordance with ISO 14001 for instance and to issues that the company is concerned about at the moment and our key environmental aspects.” (Beta_3)</p> <p>“we also can play some major role in terms of identifying the technical details and resolving the technicalities and any obstacles in which we can play a big role in the commercial part and the technical part.” (Delta_1)</p>
			Conforming to EMS/ sustainability policy or environmental laws	
			Involving in improving operational effectiveness through sustainability integration	
	<p>“running sustainability workshops on top of tenders”, “looking after supply chain and environmental functions at the same time”,</p> <p>“assuming environmental responsibilities on top of</p>	Employees engaging in proactive green behaviours	Assuming additional roles	<p>There are chances of improvement where we are continuously focusing and educating employees and all type of managers not only logistic all types, production managers also. To develop a system to identify those people, train those people.” (Gamma_4).</p>
			Influencing and educating others	
			Taking charge to update process/policy	

	<p>operational responsibilities”, “bring a massive change in the business”, “updating tender documents”, “changing policy to initiate active involvement of suppliers from passive”, “encouraging others to do the right thing”, “integrating to make sustainability decisions”, “educating others to increase their awareness about sustainability”</p>		<p>Knowledge acquisition and exchange</p>	<p>“It is the matter of involving means educate the people about the environment. What are the dangerous things and then you have to involve? Then you know...if your focus is not production, if your focus is on environment then only things will improve.” (Omega_4)</p> <p>“It’s one factor, it’s probably quite a small factor to be honest but it is a factor that we are introducing, So, we are now putting that on the table and saying that now you can see the carbon impact too before that they would never have known.” (Alpha_2)</p> <p>“And, I really did hope that I could you know deliver something that would make a massive change to the business. It really what it ended up doing is making a small change in the business and not as big as I really wanted.” (Beta_4)</p>
	<p>“lack of involvement”, “passive involvement”</p>	<p>Do not engage in sustainability aspects but only operational aspects</p>	<p>Lack of engagement</p>	<p>“I can't remember on the top of head what questions there were but I said sustainability manager would have had his input on the environmental side of it. ..So for myself I didn't really have any input into the environmental side of it (Alpha_7)</p> <p>“We hardly think of all those things (sustainability). Whenever we have once in a blue moon some day when we think that okay now we need to do some brainstorming and do these things then</p>

				might be some suggestions will come but again after that meeting, we will forget that" (Gamma_2)
Attitude around responsibility	<p>"Part of the job", "Being asked by the sustainability manager/colleagues", "Environmental policy", "regulatory norms", Supervisory demand", "Influence from organisation" "moral obligation towards environment" "ownership for the category", "do the right thing, "commitment towards society", "right thing to do", "enjoy doing it", "past experience" "interest in the subject", owner of the category, custodian of the category", "self-drive" "not required", "don't have to", "somebody else's job", not cascaded down"</p>	Felt responsibility arising from greater role breadth perceptions	Being asked to engage by the supervisor/management	"That's just part of my job really. It's quite nice to have a project to get your teeth stuck into." (Alpha_6)
			Perceived as a part of the job	"First of all, it's my job, I have got to do it right. (Alpha_3)
			Influence from colleagues/ organisation policies and norms	<p>"Again, there is a specific requirement of supply chain work that needs to be done I mean in order for us to as a company achieve our standard which is something that we've already committed to doing" (Beta_2)</p> <p>"On the other side of it this was the intention of my Director in purchasing also. That ok we should not use these kinds of packaging material and move on to the returnable packaging" (Gamma_1)</p> <p>"staff Z, D and I all started within last year. And when we started, we looked at the documents and said actually these aren't fit for purpose... So, then we decided to stop complaining about it and make some new ones" (Alpha_4)</p> <p>"we have an engaged board who do want us to be good at these things as well" (Beta_2)</p>
		Felt responsibility arising from internal motivations	Proactive motivation	
			Moral obligations	
			Enjoy doing it/interest in it	
			Openness towards sustainability	

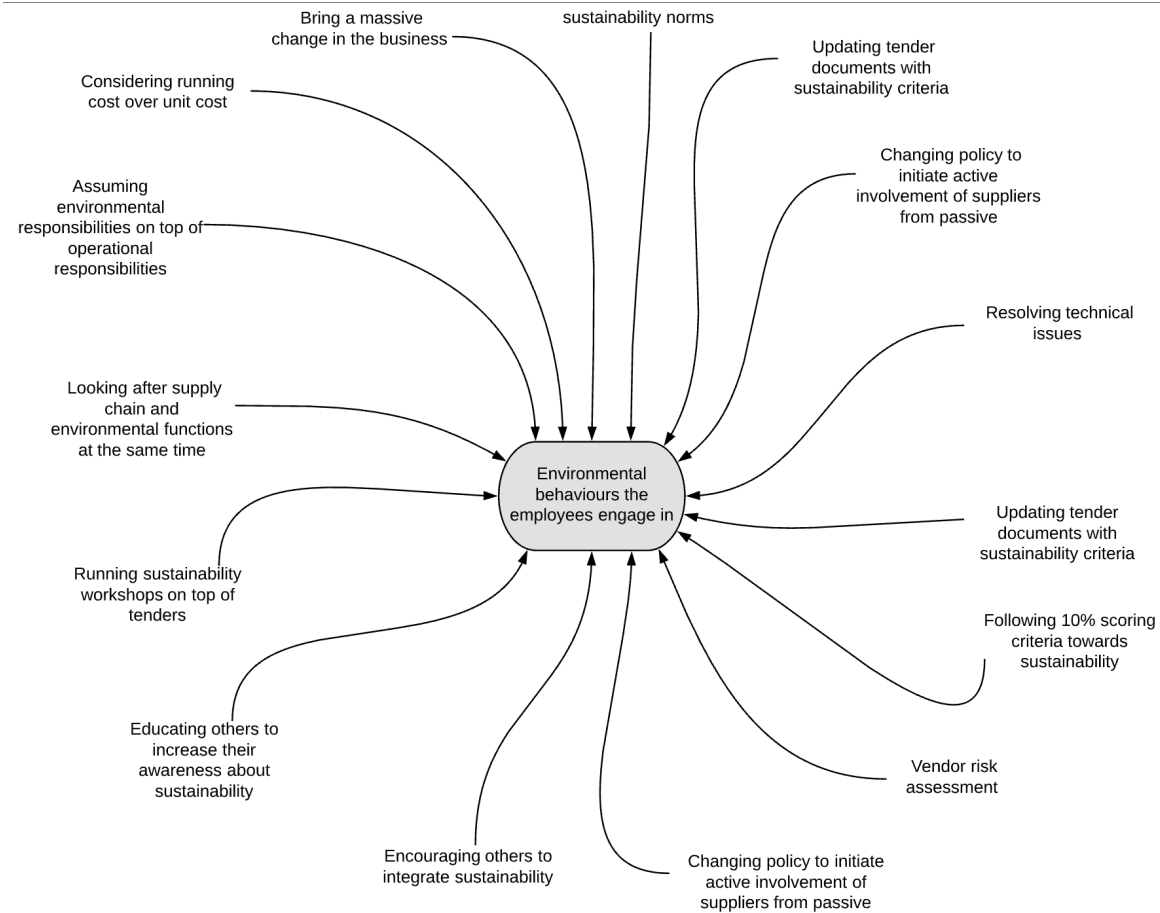
				<p>“Since safety and environment has been one issue which company has been overall has been very, very strict from day one. Every day or year after year it has improved only in terms of its practices” (Gamma_4)</p>
Outcome expectations	<p>“looking for good outcome”, “cost savings”, “reduced risks”, “add meaningfulness”, “add value”, “reduce carbon footprint”, “energy efficiency”, “more sustainable”, more cost effective”, “reduce wastage”, “good price”, environmental saving”, “operational efficiency”, “good business outcome”, “continuous improvement”, “deliver change”, “long term impact”, “happy customers”, “enhance reputation”, “improve brand image”, “reduce the impact”, “satisfy customers”, “meet regulatory requirements”, “reduce damage”</p> <p>“long term benefit perceived”, “impact of the project”,</p>	Felt responsibility arising from expected outcomes of the project that benefit the organisation	Good outcome for business and organisation	<p>“Infact when we talk about packaging improvement, we also came with this thing that it will save cost because disposable packaging is always once dispatched from our end...” (Gamma_5)</p> <p>“From a purchasing perspective, I normally just want to get a good price as well. The probably before that one I would look at it” (Alpha_5)</p> <p>“That this sort of project may be done it will bring some benefits in terms of the reduction in printing cost, paper cost and other manpower cost. It is huge for the company”. (Delta_1)</p> <p>“Our goal is cost reduction as well as improving operational efficiency, and our ultimate goal is that sustainability “should lead to innovation”, beyond compliance we aim to work and innovate.” (Delta_4)</p> <p>“Above all else we get the reputation. you Know well trusted company. We get to tell people that you know we've done this you know we've got the BITCs five stars” (Beta_3)</p>
			Cost savings as well as carbon reduction	
			Meeting regulations and customer requirements	
			Process/ policy improvements	

Drivers for engagement	“awareness of climate change”, “awareness of legal risks”, “trust”, “skills and knowledge”, “recognition”	Perceived role breath self-efficacy	Awareness of supply chain risks and environmental issues	<p>“No, I think if you're in a role like mine we've got a fairly relentless drive for a belief in this sort of subject”. (Beta_3)</p> <p>“I am handling a category; I am basically a kind of owner for that particular category. So whatever new or new idea or maybe total change of mechanism or something that has to start from me only. Because I am the custodian of that particular category.” (Delta_2)</p> <p>“think the success in the past on relationships and having somebody who was interested in it. So, I think that helps, if somebody has an interest in sustainability and has been given a task to champion they have also been given a little bit of time to do it (Alpha_1)</p> <p>“I mean I suppose I have a personal interest in it I mean I'm an environmental scientist by kind of degree (Beta_2)</p>
			Past experience	
			Perceived autonomy	
			Ability to influence	
			Knowledge	
	“cost savings”, “management support”, “sustainability policy”, “past experience”, “freedom from top”, “empowerment”, “senior support”, “laws and regulations”, “team support”,	Pro-environmental work climate perceptions	Detailed purchasing policies and procedures: Environmental policy and standards	<p>“They also allowed us given the consent to use this material till 3 years. In the 3 years we can take the trial and confirm the results. Now no doubt our unit head Director and Chief Executive who allowed me to take this trial.” (Omega_2)</p> <p>“But ultimately yes we spend other people's money, really, we kind of</p>
			Liaisons	
			Top management support	

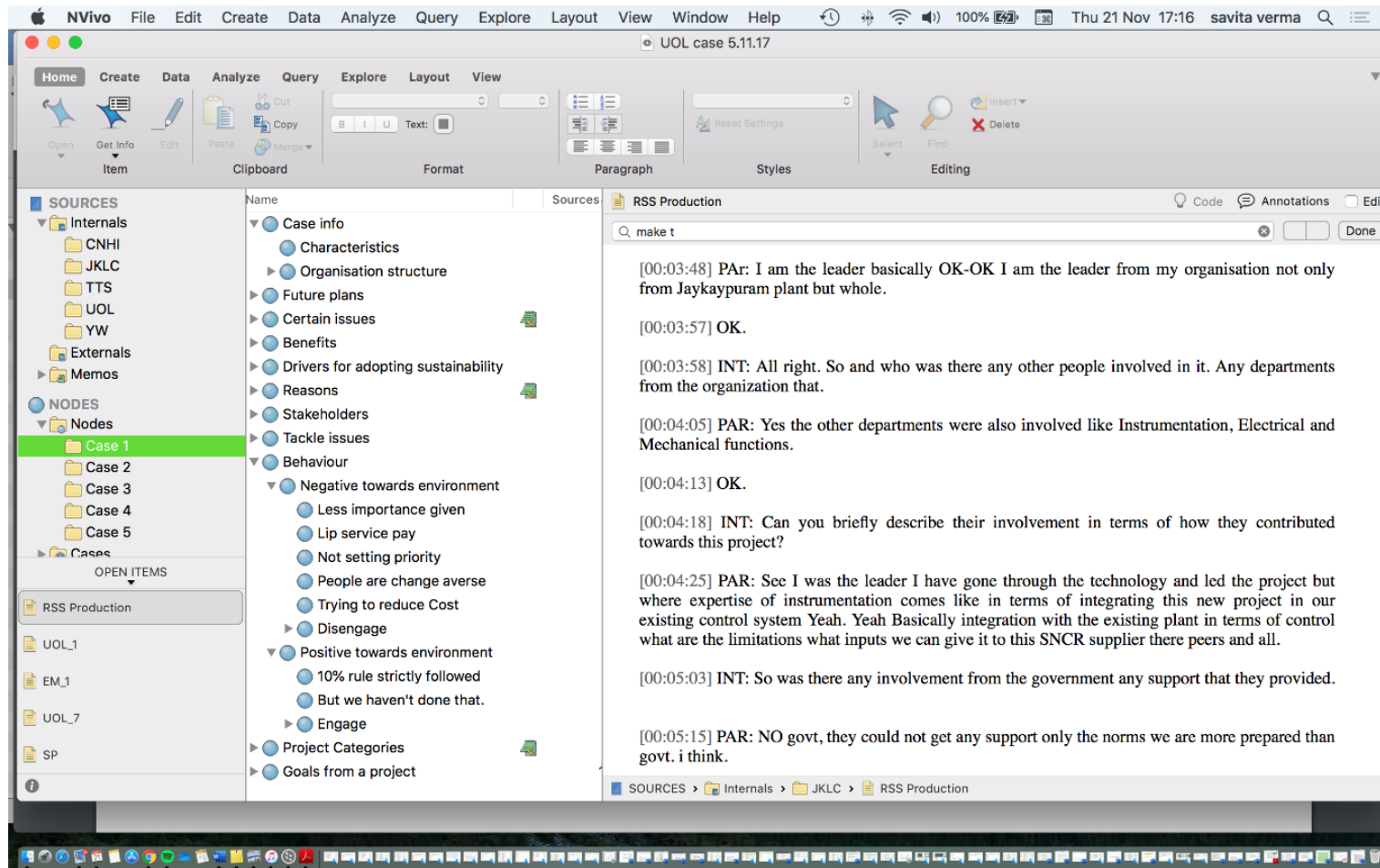
	<p>“liaisons”, “circles and network” “joint work”, “management support, “leadership from top”, “awards”, “ratings”, “available tools”</p>		<p>Working together for a common goal: Teamwork</p>	<p>commit them to certain things so we have to spend a lot of time within the business to internal liaison and ensuring that each stage of the process got the right level of sign off” (Beta_2)</p> <p>“Because they are part of the compliance structure. It’s not that it is only my KRA or that I have to reduce. I can only reduce because others are collaborating. Even one single guy is not collaborating the everybody is failing. (Gamma_4)</p> <p>“My engagement with the team and meticulous planning” (Omega_1)</p> <p>“And because it's a very clear policy because it's mandated. Well it's the way we should be doing it. So, I feel good about it.” (Alpha_3)</p>
Lack of supporting conditions	<p>“limited level of influence”, “lack of communication”, “lack of information”, “low involvement from the top”, “no accountability”, “not a priority”, “lack of budget”, “vague policy”, “slow process”, “bureaucratic hurdles”, “lack of cooperation from others”, “no time to do it”,</p>	<p>Barriers to engagement in environmental behaviours</p>	<p>Lack of accountability</p> <p>Lack of communication about sustainability from the top</p> <p>Lack of co-operation from others</p> <p>Lack of time and budget</p> <p>Bureaucratic hurdles faced</p>	<p>“Most difficult one is liaison with our framework consultants...our colleagues we have everyone stressing people will generally try and help sort of inclusion in the process but our design team framework is just a bit resistant at times” (Alpha_1)</p> <p>“I think every now and again you do get frustrated with, you know if you feel a little bit brick walled by bureaucracy within the company” (Beta_3)</p> <p>“I would say I'm not very much aware because it more or less involve the day to day business everything so we hardly</p>

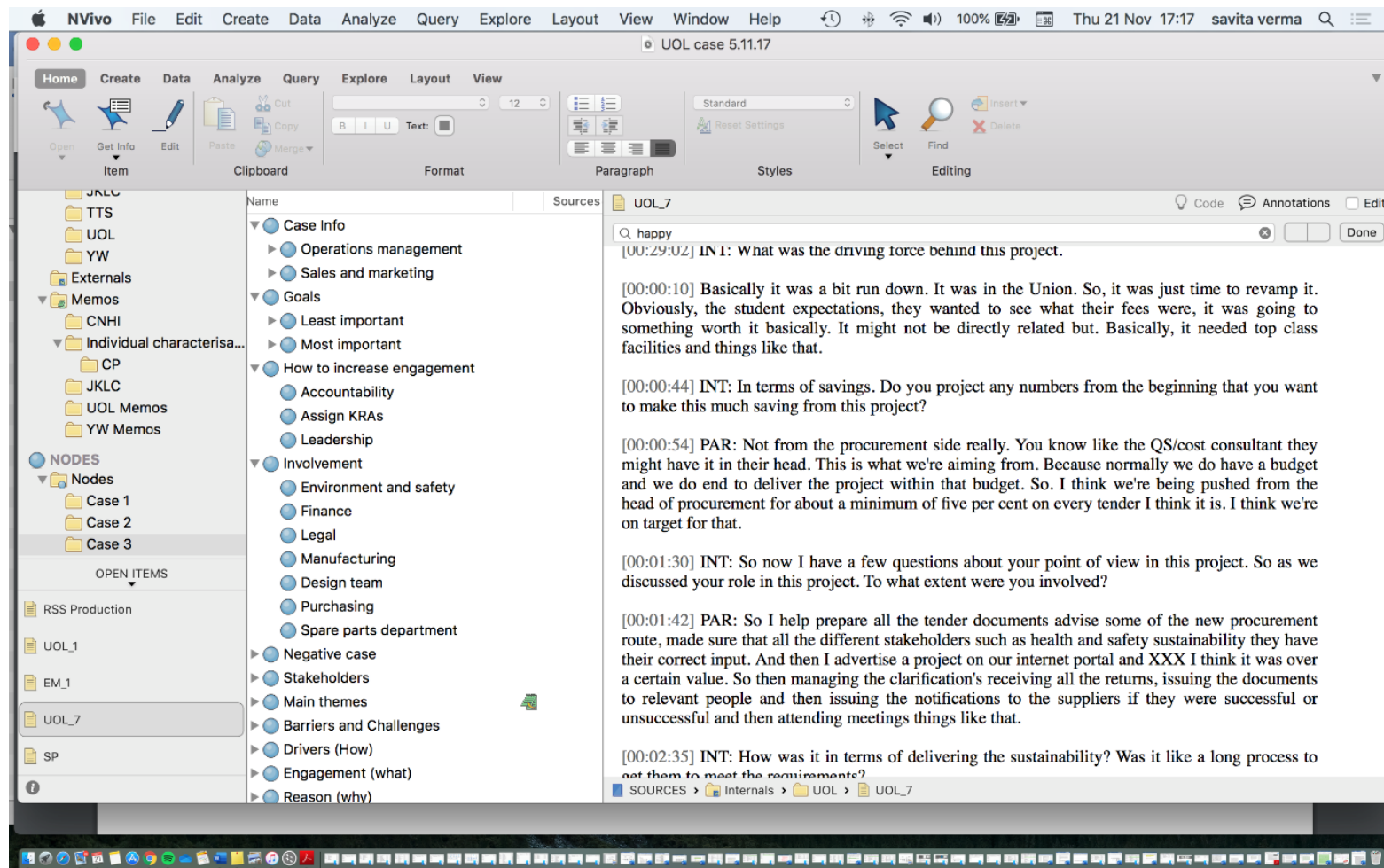
	<p>“not a KPI”, “somebody else’s job”</p> <p>“conflict of interest”,</p> <p>“must demonstrate commercial benefits to run the project”</p>			<p>have time to think of all those things” (Gamma_2)</p> <p>“Senior Colleagues sometimes it was difficult to take them on board or other i would say there were feeling not good i had to convince them” (Omega_1)</p>
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Appendix 4 Sample of categories and codes mind map



Appendix 5 Nvivo11 screen captures





Appendix 6 Samples of company presentation content captures

Gamma world class manufacturing module (environmental pillar)

Legal - Licences & Other Requirements

Ministry of Environment & Forests, Government of India

Latest Environmental Legislation
Find out more about recent & upcoming environmental legislation.

- Water (Prevention & Control of Pollution) Act, 1974 & Rules, 1977.
- Air (Prevention & Control of Pollution) Act, 1981 & Rules, 1982.
- Environment (Protection) Act, 1986 & Amendments.
- Hazardous Waste (Management, Handling) Rules, 2008.
- The Manufacture, Storage & Import of Hazardous Chemical Rules, 1989.
- Bio-Medical Waste (Management & Handling) Rules, 1998.
- Plastic Manufacture, Sale & Usage Rules, 1999.
- Municipal Solid Waste (Management & Handling) Rules, 2000.
- Noise Pollution (Regulation & Control) Rules, 2000.
- Batteries (Management & Handling) Rules, 2001.
- Landfilling of Hazardous Waste, 2005.
- Ply ash Notification S.O.763(E), 1999.

Agenda
Vision/Mission/
Objectives
Pillar Route map
KPI & KAI of Pillar
7 steps
Pillar Team
Step 1
Step 2
Step 3
Step 4
Step 5
Step 6
Results
Next Steps

Legal Compliance Management

Identification of Applicable Legal & Requirements

Compliance Report

Agenda
Vision/Mission/
Objectives
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Step 3
Step 4
Step 5
Step 6
Results
Next Steps

Legal Compliance Management

CHECK / ANALYSIS / DISPOSE

EXTERNAL AGENCIES
PUBLIC AUTHORITY
Regional Enviro. Dept.

External Air & Noise
ANNUAL TEST

Air emissions
MONTHLY TEST

Hazardous Waste
PERIODIC DISPOSAL & TESTS

Workplace Air
MONTHLY TEST

Ground water
MONTHLY TEST

Storm water
PERIODIC TESTS

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Compliance Checking

Aspect	INDICATION	Indicator	Objective	Control System	RESULT
Waste & Used Oil Testing & Monitoring	Waste	Physico-Chemical Testing Parameter	Law Compliance & Measurement of water pollutant	Monthly Recording & Analysis	😊
Drinking Water Testing & Monitoring	Drinking Water	Drinking Water Parameter	Law Compliance & Measurement of water pollutant	Monthly Recording & Analysis	😊
Recording & Monitoring (Consumption of Ground Water)	Ground Water	Recording	Monitoring & Analysis	Monthly Recording & Analysis	😊
Recording & Monitoring of Fuel/Propane Gas, HSD	Fuel/Propane Gas, HSD	Recording	Monitoring & Analysis	Monthly Recording & Analysis	😊
Energy Management	Energy	Recording	Monitoring & Analysis	Monthly Recording & Analysis	😊

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Compliance Checking

ASPECT	INDICATION	INDICATOR	OBJECTIVE	CONTROL SYSTEM	RESULT
Noise Level Monitoring	Noise	Work Zone & External Noise	Law Compliance	Monthly Recording & Analysis	😊
Waste Management	Waste	Industrial Waste, Woods Metal	Monitoring & Analysis	Monthly Recording & Analysis	😊
Soil & Sludge Testing	Soil & Sludge	ETP Sludge Soil	Law Compliance	Monthly Analysis & Testing of Soil Near Sludge	😊
Stack Emission Monitoring	Stack Emission	Emission Level of Flue Gases	Law Compliance	Monthly Recording & Analysis	😊
Work Zone Ambient Air Monitoring	Work Zone Ambient Air	SPM, NOX, SOX, CO	Law Compliance	Monthly Recording & Analysis	😊
Waste Water (ETP)	Waste Water (ETP)	Treated Water	Law	Monthly Effluent	😊

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Compliance Checking

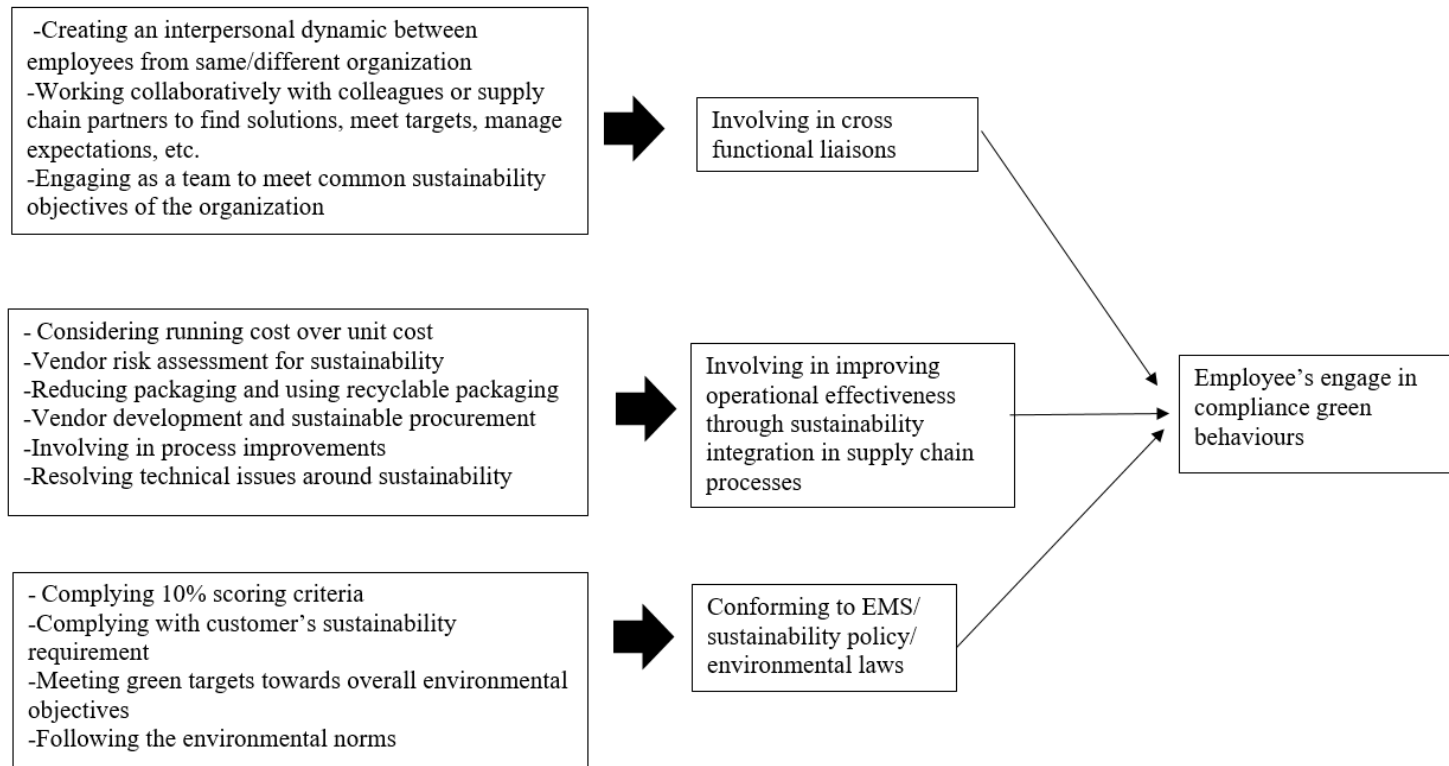
TEST REPORT OF ETP TREATED WATER 2013

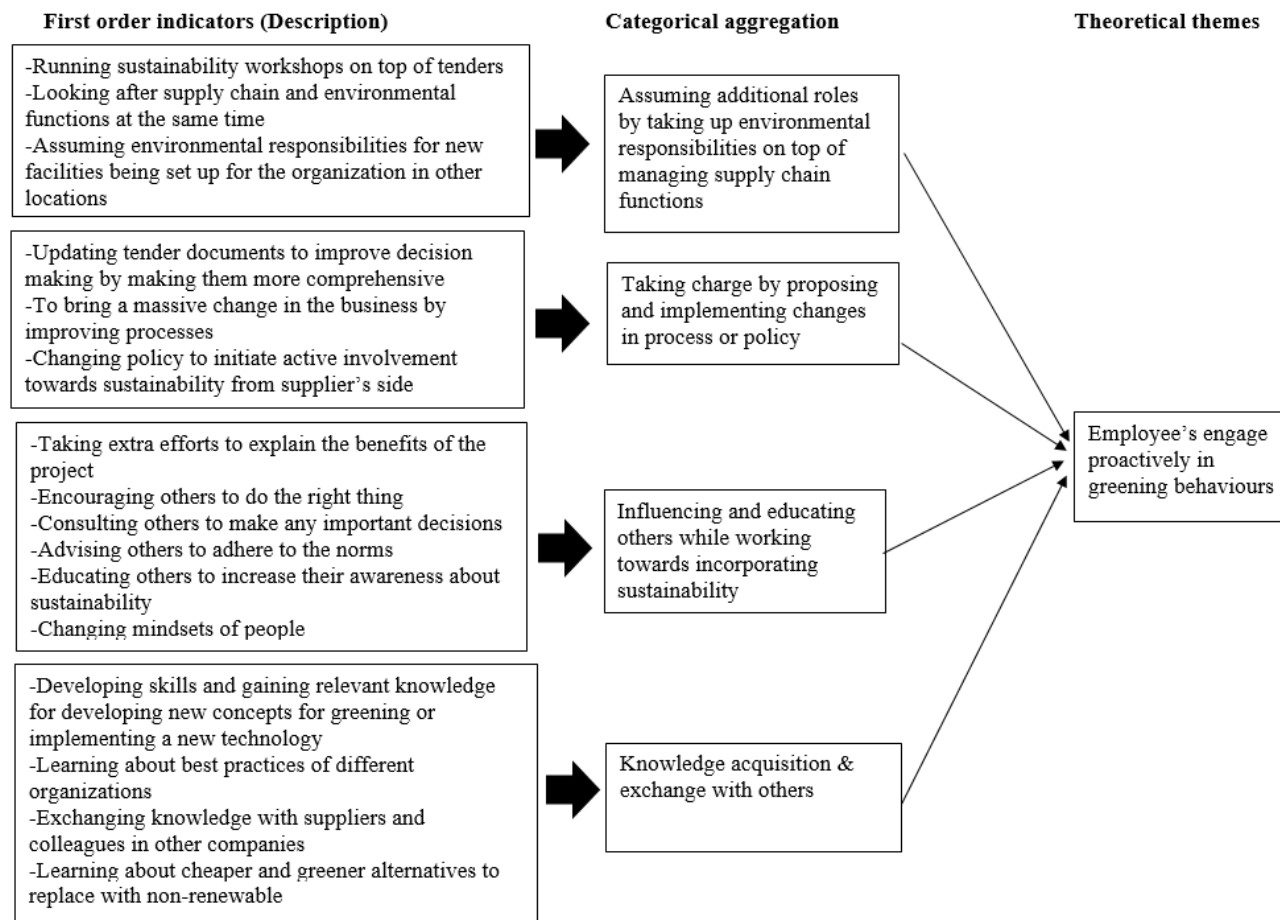
PARAMETERS	COD		BOD		TSS		OILS		STATUS
	Indian legislation	Actual	Indian legislation	Actual	Indian legislation	Actual	Indian legislation	Actual	
Months	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Jan-13	<250	49	<30	31	<100	31	<50	1.25	😊
Apr-13	<250	47	<30	23	<100	37	<50	1.06	😊
Jul-13	<250	64	<30	24	<100	48	<50	1.12	😊

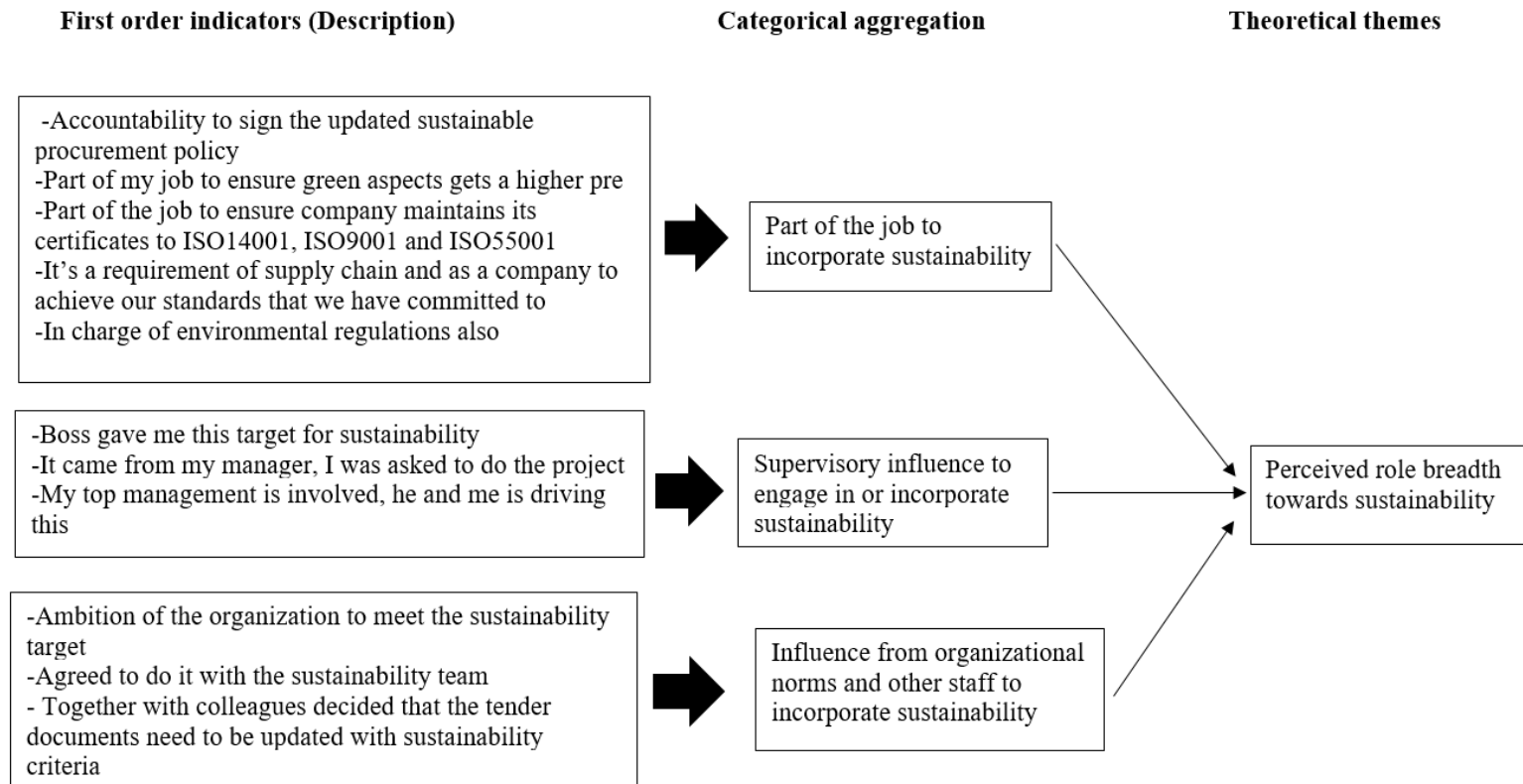
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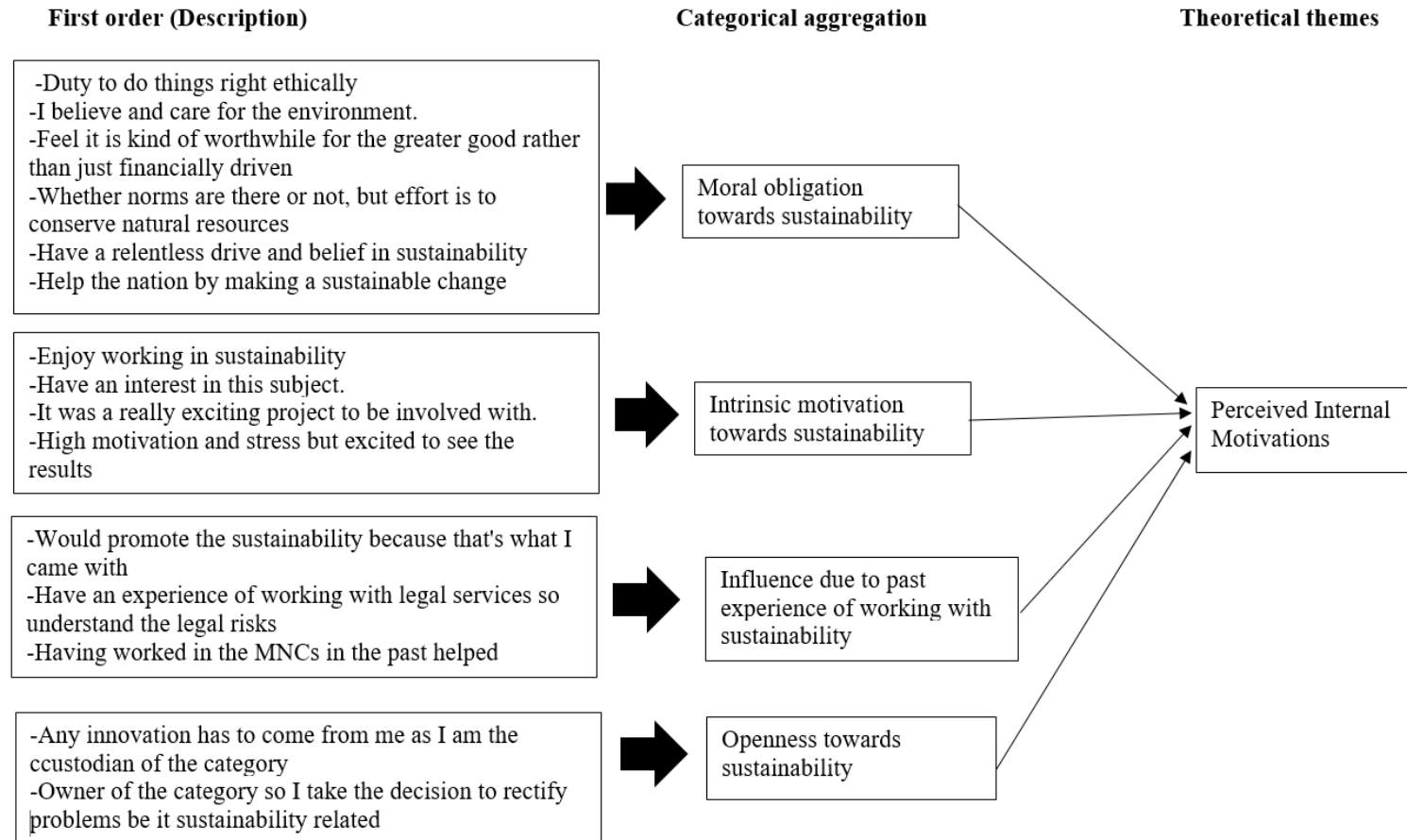
Appendix 7 Categorical aggregation

Theoretical themes

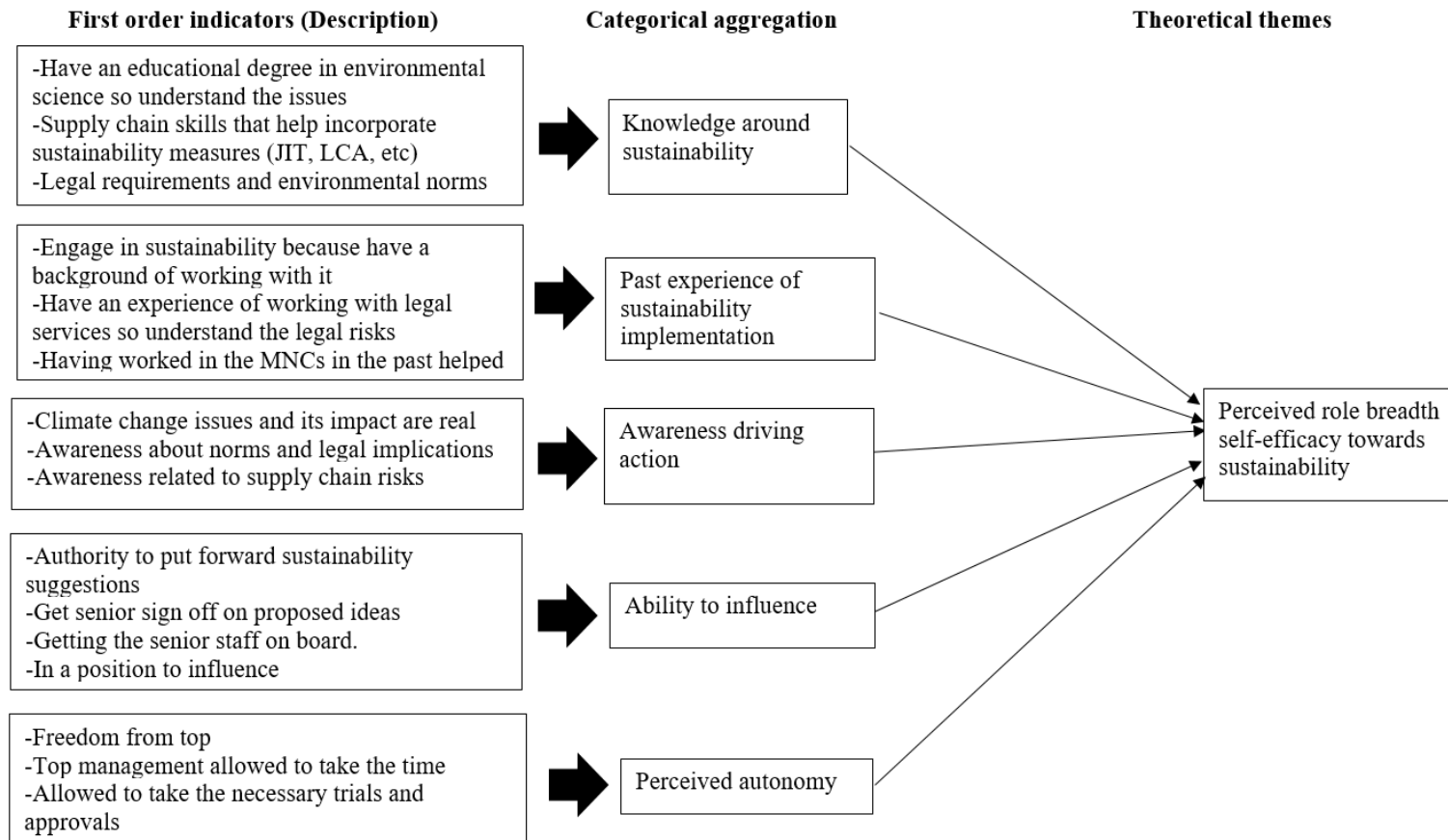


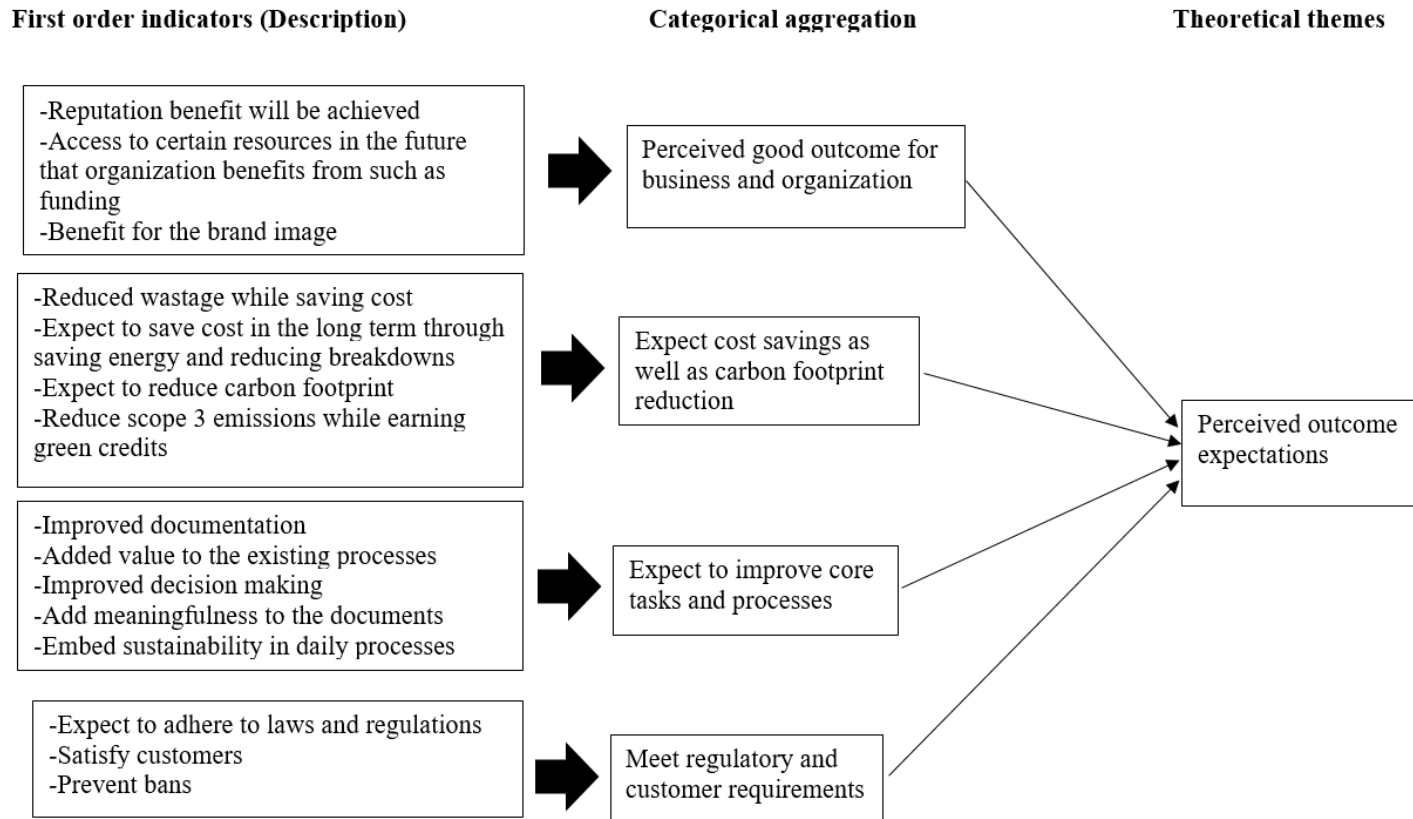






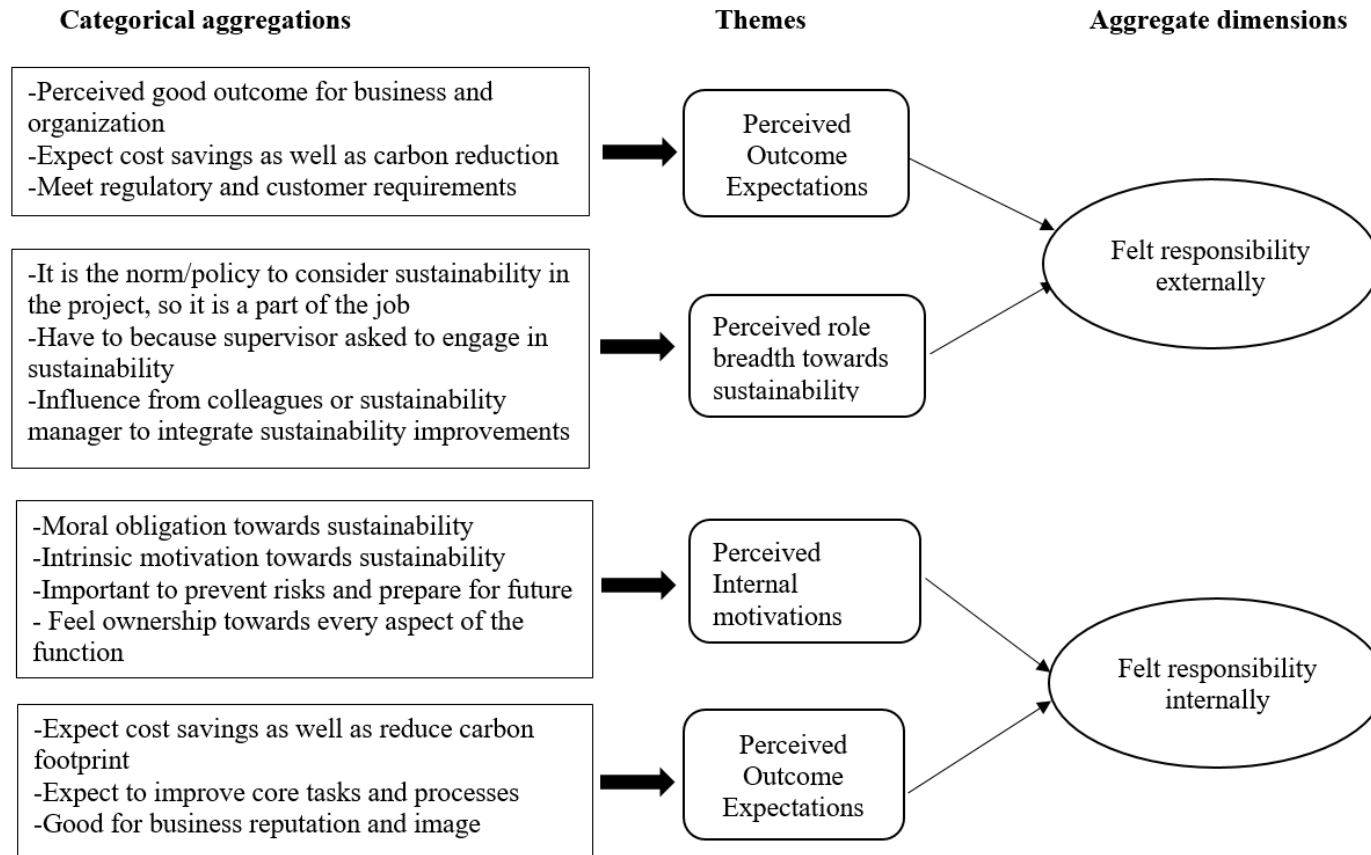
Perceived role breadth self-efficacy towards sustainability



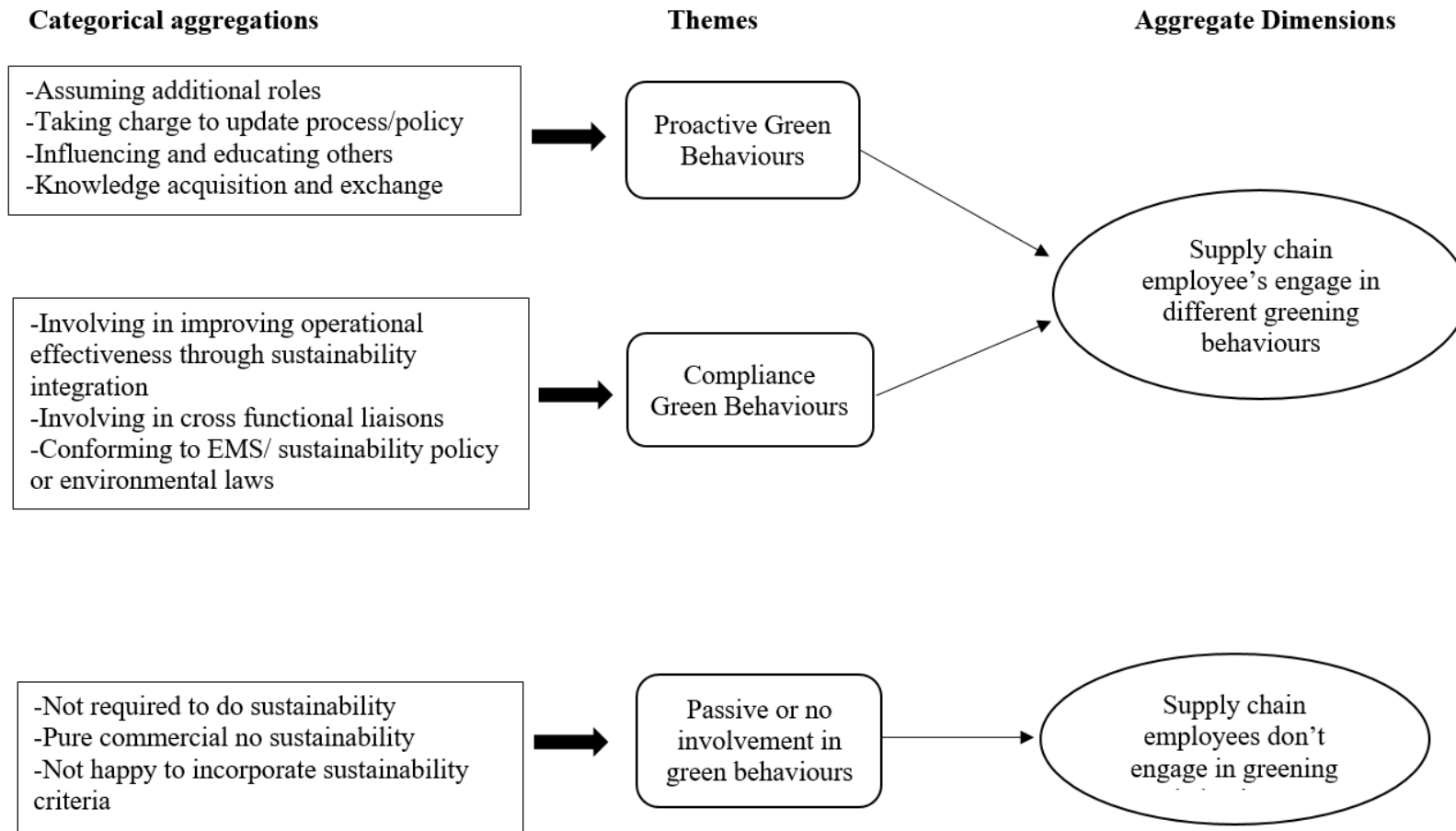


Appendix 8 Establishing patterns from data structure

Supply chain employees felt responsibility towards sustainability



SC EGBs



SC EGBs

