

**THE DISPARITY BETWEEN POLICY INTENT AND
OUTCOME: A CASE OF IMPLEMENTATION OF
REGULATORY ENVIRONMENTAL PLANNING POLICY AND
ON-SITE CONSTRUCTION ENVIRONMENTAL
MANAGEMENT OPERATIONS**

Thesis submitted for the Degree of Doctor of Philosophy

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Statement of originality

I hereby certify that the work embodied in this dissertation is the result of original research and has not been submitted for a higher degree to any other University or Institution

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List of Abbreviations

AT	Architectural technician
BC	Building consultant
BE1	Building engineering
BS1	Building surveying (first interviewee)
BS2	Building surveying (second interviewee)
C1	Compliance
CEMP	Construction environmental management plan
CM	Construction manager
CMP	Construction management plan
CS1	Aged-care facility
CS2	Multi-storey residential building
CS3	Commercial building
CS4	Educational facility
DA	Development application
DBS1	Director/building surveying
DC	Development consent
DCP	Development Control Plan
DM	Development manager
DR	Director
DTP1	Director/town planning
EC	Environmental consultant
EP&A Act	Environmental Planning and Assessment Act
ESD	Ecologically Sustainable Development
FM	Facilities manager

LEP	Local Environmental Plan
MBPC1	Mgt building/planning/compliance (first interviewee)
MBPC2	Mgt building/planning/compliance (second interviewee)
MDC1	Mgt development/construction
MGR	Manager
NGERS	National greenhouse energy reporting scheme
PCA	Principal Certifying Authority (building surveyor)
PCM1	Project/construction management
PE	Principal engineer
PM	Project manager
PME1	Project manager: external (1)
PME2	Project manager: external (2)
PO	Project officer
PP	Principal planner
SDO	Senior development officer
SDP	Senior development planner
SE	Site manager
SPCM1	Snr project/construction management
SM	Site manager
SEE	Statement of Environmental Effects
TL	Team leader
TP1	Town planning

Abstract

Internationally, on-site construction operations are acknowledged as a major source of environmental degradation and exhaustion of natural resources. After the United Nations Earth Summit in 1992 the advent of Agenda 21 served as a catalyst for major environmental change in which a new approach – ecologically sustainable development – was cultivated. This afforded governments the opportunity to amend existing, and implement new initiatives to promote the principles of ecologically sustainable development. Policy is one mechanism employed by government authorities to promote sustainable practices and regulate construction operations. However, even with such controls, construction operations continue to result in negative environmental impacts.

The disparity between policy intention and outcome can be explored from an implementation perspective, with a focus upon regulatory environmental planning policy and on-site construction environmental management operations. Using a conceptual framework containing ten preconditions for perfect policy implementation as an analytical lens, a phenomenological two stage qualitative research approach is utilised.

Stage 1 reveals the etic perspective through 12 semi-structured interviews with specialist practitioners; interrogation of expertise over multiple projects determines the suitability and completeness of the conceptual framework to describe the phenomenon of environmental protection through policy implementation. Stage 2, an emic perspective, deploys the framework to explain specific environmental protection outcomes in 4 case study projects. A combination of detailed, semi-structured interviews, together with statutory and project-specific documentation are analysed thematically in order to understand the interplay between project participants and policy that leads to a specific level of environmental protection. Cross case analysis is then conducted to determine generalisations within the cases. A synthesis of Stage 1 and Stage 2 data is then undertaken.

Results suggest weaknesses with policy implementation processes, inter alia, poor communication and coordination, multiple links affecting the causal framework, complex dependency relationships and an incomplete understanding of policy objectives. The research extends the framework for policy implementation by identifying four additional influences:

policy operationalisation, organisational position, professional belief, specialist knowledge and understanding. Subsequently four additional conditions have been proposed.

The significance of this research is two-fold. First, it establishes a rigorous and appropriate framework for analysis allied to methodology with which to study the complexity of disparity between policy intent and outcomes at the implementation phase. Second, it extends current knowledge of the link between policy intent and implementation outcomes through the addition of four conditions. Taken together they provide the opportunity to conduct further research to validate the framework, and have the potential to trigger reflective learning within the relevant professions that will lead to improved environmental protection.

Keywords: *policy implementation, regulatory policy, construction, environmental management, phenomenological enquiry.*

Chapter 1: Introduction

Chapter 1 affords an overview of the research. First the research problem is identified from which the policy environment is introduced. The research problem is then conceptualised and the research question, aim, objectives and justification are described. Following which the phenomenological two stage qualitative exploratory design employed to explore the research theme is presented. The final section of this chapter outlines the overall structure of the thesis.

1.1 Introduction

The intent of this research is to explore how policy implementation influences the disparity between policy intent and outcome. In particular, the research explores the disparity from an implementation perspective with the focus being regulatory environmental planning policy in the context of on-site construction environmental management operations.

Construction operations are acknowledged to be a significant cause of environmental degradation (see for example, Graham, 2010; Shen and Tam, 2002; Tam, Tam, Yiu and Cheung, 2006). Regulatory policy is often a mechanism employed by governments to control development activities and promote sustainable construction practices; yet, such operations continue to have negative environmental consequences. Joseph, Gunton and Day (2008), highlight how *‘one of the primary challenges in resource and environmental planning is effective implementation...’* (Joseph, Gunton and Day, 2008, p. 594). Understanding policy, both relationships and dependencies, associated with implementation, is essential to the effective management of environments (Bainbridge, Potts and O’Higgins, 2011).

Policy may be defined as *‘a set of ideas or a plan of what to do in particular situations that has been agreed officially by a group of people, a business organisation, a government, or a political party’* (Cambridge Dictionaries, 2015). Regulatory policy, the focus of this research, has been defined as *‘a statement of government intent, and its implementation through the use of policy instruments’* (Althaus, Bridgman and Davis, 2007, p. 246). Therefore, regulatory policy is one which is formulated and enacted by a government authority in the interests of the greater community. Within the literature it has been argued that:

‘most existing approaches to regulation, are seriously sub-optimal...they are not effective in delivering their purported policy goals, or efficient, in doing so at least cost, nor do they perform well in terms of other criteria such as equity or political acceptability’ (Gunningham and Sinclair, 1998, p.1).

Examining the implementation phase of the policy process provides an opportunity to explore policy failure and within this learning process reform processes to improve outcomes. Policy implementation is the mechanism by which policy is enacted: given expression (Althaus, Bridgman and Davis, 2007); whereby, the regulatory policy becomes operationalised.

In other terms, a construct considered to be the way in which policy ideas and intent are translated into practice (Wang and Ap, 2013). DeGroff and Cargo (2009) argue in favour of implementation as an approach to examine policy failure, stating, '*...literature pertaining to policy implementation provide an important lens to inform our understanding of implementation as a change process*' (p. 48). Such a viewpoint has also been adopted within the domain of environmental management, a focus of this research, with Joseph, Gunton and Day (2008) highlighting that '*Despite the obvious importance of implementation, relatively little research has been done on conditions affecting implementation success*' (p. 594). Implementation may therefore, provide insight into actions and identify barriers and enablers to policy success.

Therefore, the intent of this research, is to address the knowledge gap by exploring policy disparity through the implementation phase: the process and subsequent activities associated with the execution of government decision (Berman, 1978). This research employs a conceptual framework of policy implementation – an analytical lens - not previously used in this context. The research moves beyond the State authorities typically acknowledged as administrators responsible for policy formulation, ratification and implementation, by concentrating upon the policy users: ground level implementation actors, government and non-government, and their activities. This provides a methodological contribution and valuable insight into operational issues: barriers and enablers to successful policy implementation, to help bridge the gap between policy intent and outcomes, and consequently assist in future environmental policy planning.

1.2 Background to the research problem

The following section will introduce the impact of the building and construction industry upon the environment. Internationally, the sector continues to be acknowledged as a major contributor to environmental degradation, regardless of existing regulatory sanctions. Highlighting the nature of the problem on an international scale affords definition to the research problem and justification for researching the theme of policy implementation: specifically, how the policy implementation phase influences the disparity between policy intent and outcomes.

According to Gunningham and Sinclair (1998):

‘One of the crucial issues of our time is how to avoid serious and perhaps cataclysmic damage to the natural environment. Causes are complex and controversial and arise from a variety of social and economic pressures. The results, however, are more readily apparent. The evidence that pollution, land degradation, de-forestation, ozone depletion, climate change, and the apparent loss of biological diversity are inflicting serious and in some cases irreversible damage to the planet which sustains us, is increasingly compelling’ (p.1).

The United Nations Environment Programme: Environment for Development, Sustainable Buildings and Climate Initiative: Promoting Policies and Practices for Sustainability (2014) identified that on an international scale, the construction and building sector contributes approximately 10% of the Gross domestic product (USD 7.5 trillion). Unfortunately, it has also been recognised as a sector responsible for significant environmental damage: irreversible environmental degradation and the exhaustion of natural resources (see for example, Ding, 2007; Hendrickson and Horvath, 2000; Shen and Tam, 2002; Tam and Tam, 2006; Tam, Tam, Yiu and Cheung, 2006).

During 2006, the United Nations partnered with several of the major construction organisations internationally in a collaborative programme entitled the ‘Sustainable Building and Construction Initiative’. During the programme inauguration, the Director of the United Nations Environment Programme, Division of Technology, Industry and Economics, acknowledged that *“The construction and use of buildings generate substantial social and economic benefits to society, but may also have serious negative impacts on the*

environment... ”, in addition, “The industry seriously affects many of the world’s most pressing environmental issues like climate change, waste generation and depletion of natural resources” (p.1). Following the initiative, in the draft report of the United Nations Environment Programme, Sustainable Building and Climate Initiative, Graham (2010) identified how:

‘the building sector is responsible for one-third of humanity’s resource consumption, including 12% of all fresh-water use, and produce up to 40% of our solid waste (Background, p. 3). Furthermore, ‘The building sector represents 40% of the world’s energy consumption and one third of global greenhouse gas (GHG) emissions’ (Chapter 1, p. 1).

During 2014, it was acknowledged that the industry is the largest producer of greenhouse gas emissions (United Nations Environment Programme: Environment for Development, Sustainable Buildings and Climate Initiative: Promoting Policies and Practices for Sustainability, 2014). Shen and Tam (2002) quite aptly state that

‘construction is not by nature an environmentally friendly activity’ (p. 535).

The building and construction industry is a vital part of the Australian economy, contributing significantly to both Gross Domestic product (GDP) and Gross Fixed Capital Formation (ABS, 2015a). Yet, it is acknowledged internationally that the industry continues to impact negatively upon the natural environment. Therefore, there remains a pressing need to address the environmental issues resulting directly from industry operations to ensure environmental preservation, now and into the future.

1.2.2 Research context

As formerly identified, on a global scale many governments have attempted to address the detrimental environmental impacts from industry and policy has been one such mechanism employed to regulate activities. The proceeding discussion affords an overview of the regulatory policy which is the subject of this research. It commences with an introduction to Agenda 21 as this framework highlights the need for ecologically sustainable development (ESD) and became the catalyst for change from which the regulatory policy evolved into the statute applied today. A commentary on major environmental planning policy influences, in conjunction with an abridged account of the regulatory policy is provided in Appendix 1.

Internationally, the significance of environmental protection has been recognised through various programmes and initiatives. Of importance is the United Nations Conference on Environment and Development, the 'Earth Summit', that paved the way for Agenda 21. Agenda 21 became the international framework, an agreement for pursuing global sustainable development: the principles of ESD. The concept has been defined as '*development which meets the needs of the present without compromising the ability of future generations to meet their own needs*' (World Commission on Environment and Development, 1987, p. 43).

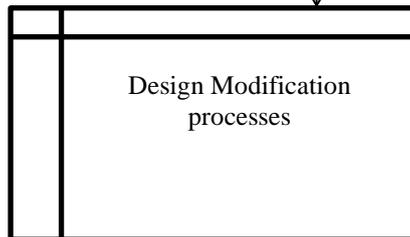
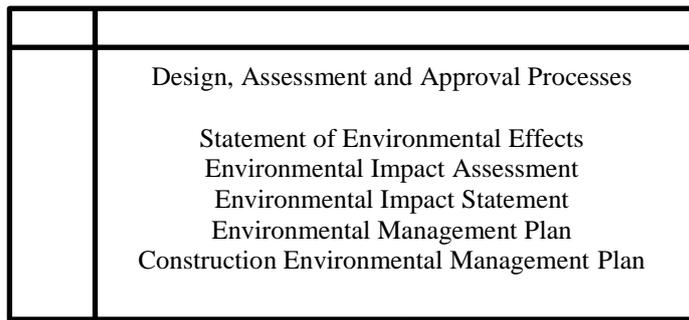
Environmental preservation had been integrated into Australian National policy; however, Agenda 21 highlighted the seriousness of environmental degradation, particularly from a global perspective and proposed mechanisms for mitigation: it became the catalyst for directed change. At the Commonwealth level, the following definition of ecologically sustainable development was adopted '*...using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased...*' (Australian Government, Department of Environment, 1992a). A plethora of initiatives and policies were subsequently introduced to promote sustainable activities. Within the State of New South Wales (NSW), legislation was introduced and existing policy modified to achieve the principles of ESD. The environment had formerly been a consideration in State policy; however, the Commonwealth requirements brought forth alignment between the tiers of government and subsequent change, particularly with the environmental planning and assessment system.

1.2.3 New South Wales regulatory policy

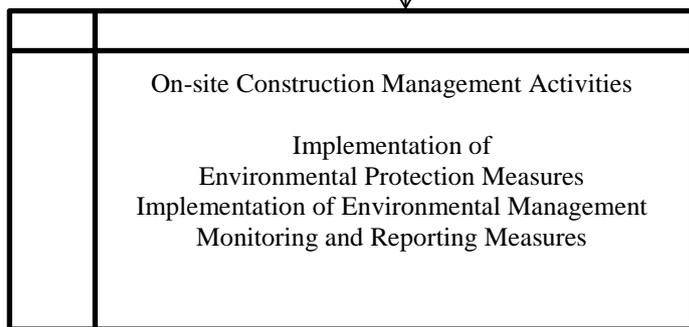
The State of NSW and the policy governing its environmental planning and assessment system was elected for investigation in this research given it maintains the largest population of all Australian States and Territories, being 7,544,000 million. The closest population being the State of Victoria with 5,866,000 million and the lowest the Northern Territory with 387,000 (ABS, 2015b). Additionally, the environmental planning and assessment system within NSW turns over more than \$20 billion of economic activity annually (Centre for International Economics, 2013). Importantly, it has been noted as a complex system that ‘...*is not achieving good outcomes for New South Wales*’ (Centre for International Economics, 2013, p. 2): potentially a reflection of a regulatory policy not able to achieve its objectives.

In NSW, the environmental planning and assessment system refers to the regulatory structure involving the policies, land use controls and procedures that are associated with the development, protection and conservation of land within the State. The intent of such a system is to manage development activities with regard to health, economy, infrastructure and environmental protection (Department of Planning, Infrastructure and Natural Resources, 2004). Within the State, the system is largely governed by the regulatory policy entitled the *NSW Environmental Planning and Assessment Act, 1979* (EP&A Act) and the associated Regulation. It is the implementation operations associated with this regulatory policy that forms the focus of this research. The EP&A Act and its planning system that governs development remains a multifaceted and fluid system. Application of the Act is not a linear process; rather it involves an intricate network of interactions across multiple dimensions. For the purpose of this research, the implementation processes may be considered three distinct but interrelated stages which may be categorised according to construction operations: pre-construction, post-construction and on-site construction operations (refer Figure 1). Pre-construction processes are those that primarily concern the design and approval stage of any development. Post-construction relates to those activities that occur after construction is complete. While, on-site construction processes are those that occur during construction both management and operation in nature. Of prime importance to this research are the pre-construction and on-site construction operations: policy implementation phases. Defining these stages sets the framework for the case studies, construction projects, which allow for the exploration of the research question. Through an understanding of the system subject to exploration, the research conceptual position can be framed.

Pre-construction processes



On-site construction processes



Post-construction processes

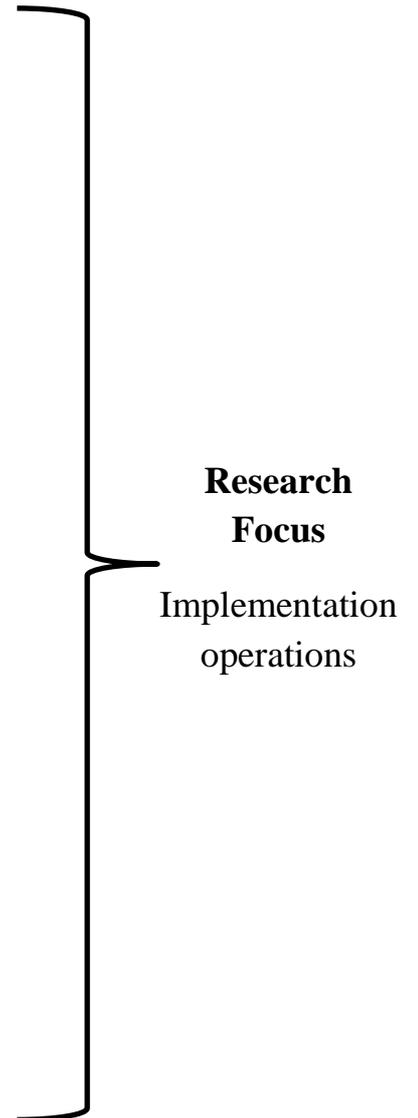
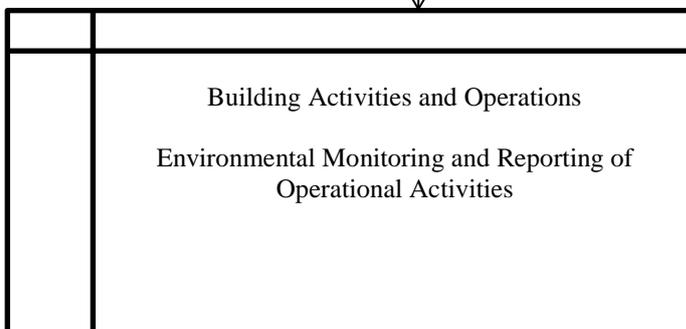


Figure 1. EP&A Act phases aligned with stages of construction

1.3 The research conceptual position

The intent of this research is to explore how policy implementation influences the disparity between policy intent and outcome. The phenomenon under investigation is therefore, policy implementation. To a degree, the policy itself and also the environmental outputs as a result of implementation can be measured. However, for the phenomenon of policy implementation the situation may be considered more complex as implementation operations do not necessarily align with a natural or physical outcome. Implementation operations and the subsequent disparity between policy intent and outcomes may be considered the result of human intervention: the interpretation, application and execution of the policy.

For this research the implementation system is conceptualised in Figure 2. The system is dependent upon inputs and these may take the form of regulatory policy and stakeholder expectations. The regulatory policy for this research is the EP&A Act, while stakeholders refer to those specialist practitioners associated with implementation activities: pre-construction and on-site construction operations. The input factors stream into the implementation system: implementation operations occur, from which a range of outputs are then realised. First, there are the environmental impacts and secondly, the experiences of the stakeholders. Importantly, the system incorporates a feedback mechanism: a process by which experiences and impacts are related back to the input stage to direct future decisions associated with the policy system.

To explore the implementation phase, the framework developed by Hogwood and Gunn (1984) - ten preconditions for perfect policy implementation - has been used as the analytical lens by which to explore the implementation activities related to regulatory environmental planning policy and on-site construction environmental management operations. Within the academic literature, this conceptual framework has been identified as a model by which implementation activities can be considered in light of influences that impact upon successful policy outcomes (Annor and Allen, 2009). Therefore, central to the model is the identification of deficits or impediments impacting implementation as this helps to facilitate an understanding of why the objectives of a particular policy have not been achieved (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013; Hordern, 2013).

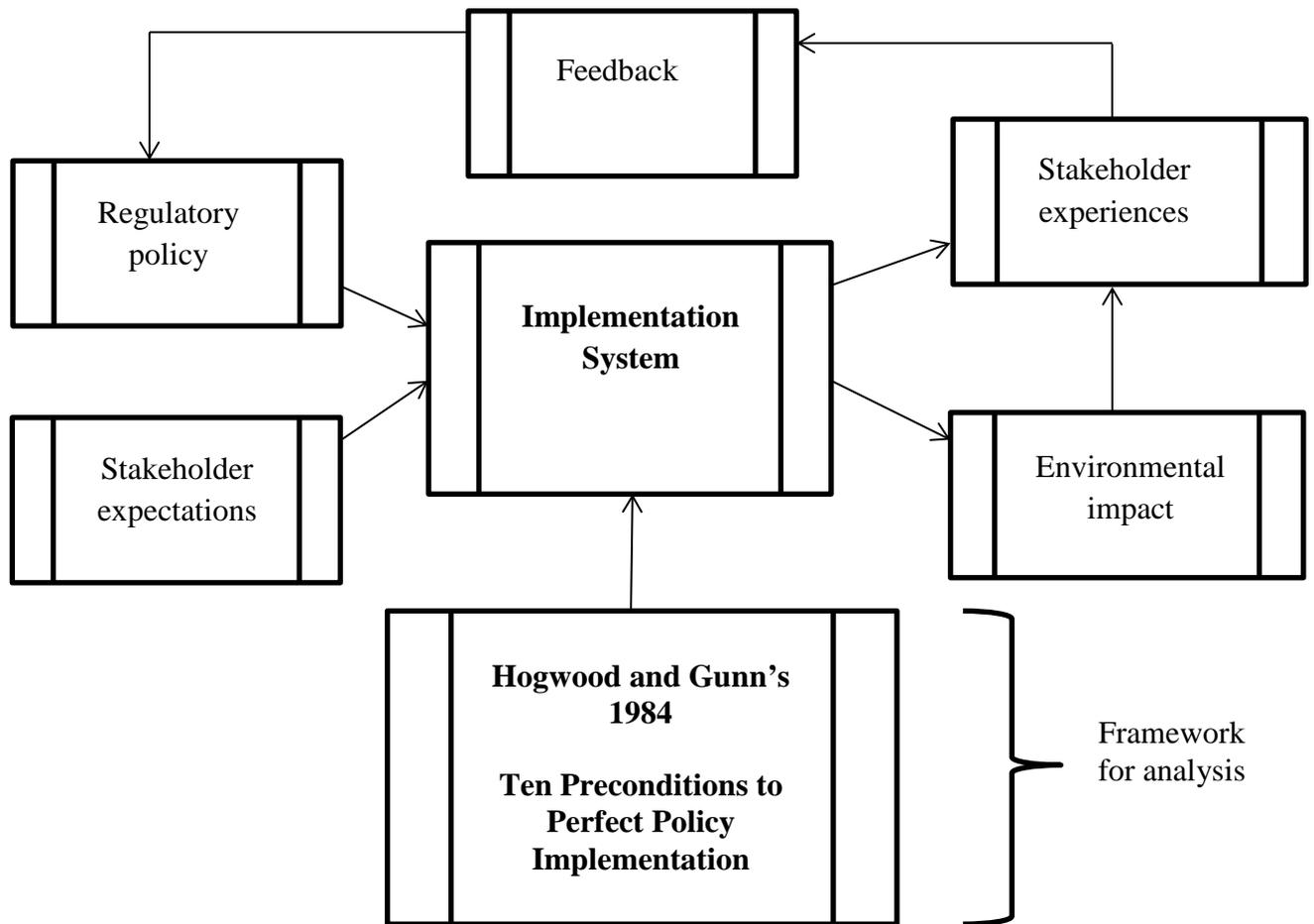


Figure 2. Implementation system as considered within this research

Through implementation research the challenges - weaknesses or barriers - to successful policy implementation can be identified that may assist in the development of strategies to improve success. Future planning can be designed to address such shortcomings and improve policy outcomes (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013). Although the framework has been used to explore implementation across a range of areas, the framework has not been fully applied in relation to the context of this research investigating regulatory environmental planning policy, environmental management and on-site construction operations against implementation. This research also takes the framework beyond its general application with higher order government authorities as the implementers and moves into the realm of the policy user: the ground level government and non-government actors responsible for policy implementation. Thus, identifying deficits at this level contributes to knowledge and how to structure future policy amendments to improve policy outcomes.

1.4 Research Intent

With the research problem identified and the implementation system contextualised the research question is then formulated. This section states the research question and explains the aim and objectives of the study. The research justification is detailed, in conjunction with an extract summarising the research design.

1.4.1 The research question

The research question is:

How does policy implementation influence the disparity between policy intent and outcome?

1.4.2 Research aim

The aim of this research is to understand how the policy implementation phase influences the disparity that occurs between policy intent and policy outcome.

1.4.3 Research objectives

Objective 1: Review the literature to conceptualise the concepts of regulatory policy, the policy cycle and implementation.

Objective 2: Establish the theoretical framework by which the implementation phase associated with policy operation can be explored.

Objective 3: Formulate an appropriate methodology to enable meaningful data collection and analysis to be undertaken.

Objective 4: To undertake an analysis of data collected.

Objective 5: Identify the factors that influence policy implementation.

1.4.4 Research justification

Construction operations continue to negatively impact the environment even though policy is often employed by government to regulate such activities and promote sustainable construction practices. The intent of this research, therefore, is to explore environmental planning and assessment policy against on-site construction environmental management operations in the context of implementation processes: to understand how policy implementation influences the disparity between policy intent and outcome. As Kendal (2010) explains,

‘Even an ideal policy is of little use if it is not well implemented’ (p. 1).

Presently, there remains a gap in the literature with respect to understanding the disparity between policy intent and outcome associated with the implementation phase in the context of this research. The gaps in the literature are now identified and these are addressed through this research.

- The literature does not fully consider regulatory environmental planning and assessment policy and on-site construction environmental management activities, in the context of the policy implementation phase.
- The literature is generally dichotomous being focused upon beginning and end processes: policy formulation and environmental impacts. The literature does not fully consider the implementation phase between these two areas.
- Within the literature, the ten preconditions have been acknowledged as a beneficial lens to explore the implementation phase. However, they have not been fully applied to consider multiple, government and non-government, implementing agents.

The literature has confirmed that construction operations continue to cause environmental impacts and the regulatory policy implemented to overcome this issue is simply not achieving its designated objectives. There remains an evident disconnect between what policy was formulated to do: intent, and what is actually occurring in reality: outcome. Therefore, there is a vital need to further our understanding of this area, to identify influences that impact upon successful policy implementation that will allow for appropriate future planning and ultimately protection of the environment.

1.4.5 Research benefits

There are two primary benefits of this research.

First, it establishes a rigorous and appropriate framework for analysis allied to methodology with which to study the complexity of disparity between policy intent and outcomes at the implementation phase. The research explores the complex area of implementation using a conceptual framework: preconditions to perfect policy implementation, in terms of a context beyond that in which it is normally applied involving government, non-government and implementing agents. It evolves from the higher order government bodies often responsible for implementation activities and moves into the realm of those agents responsible for ground level implementation operations. The outcomes of the research and the methodology employed can be transitioned across to other policy domains to explore the policy intent versus outcomes dilemma: implementation operations.

Second, by exploring environmental planning and assessment policy and its operations, it provides an understanding of the factors that influence implementation. It considers both etic and emic perspectives and extends current knowledge of the link between policy intent and implementation outcomes through the addition of four conditions. Taken together they provide the opportunity to conduct further research to validate the framework, have the potential to trigger reflective learning within the relevant professions and to guide future policy development that will lead to improved environmental protection.

1.5 Research design

The design of the research is now introduced. The research paradigm and the phenomenological qualitative exploratory design are presented, which are further detailed in Chapter 3. Figure 3 provides a schematic of the methodological design.

Methodological Design

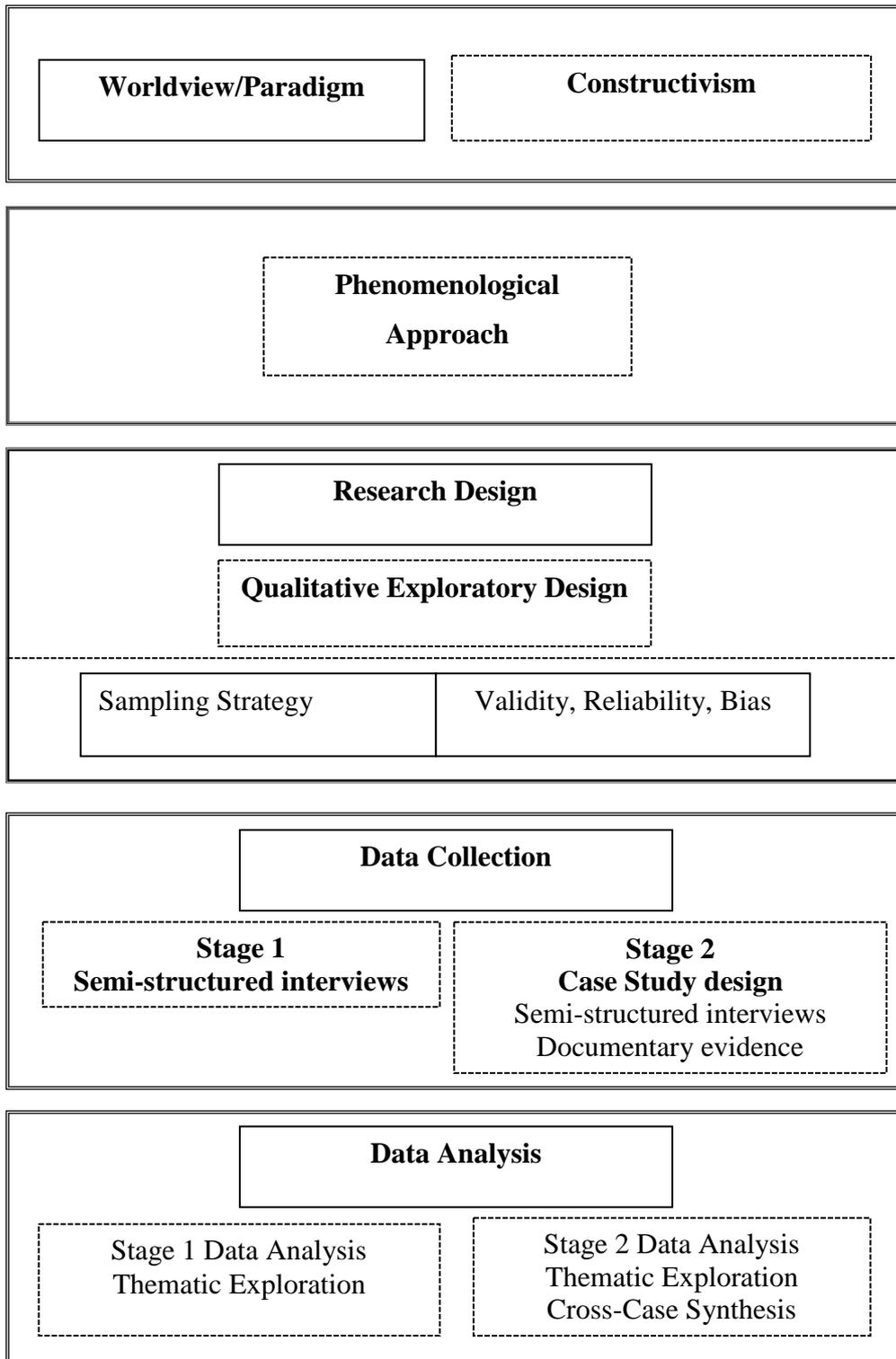


Figure 3. Methodological design

1.5.1 Research paradigm

A world view relates to the beliefs and assumptions that are used to inform a study (Creswell and Plan Clark, 2011, p. 417) and the world view or fundamental philosophy of Constructivism provided guidance for this research. Policy implementation is not a straightforward phenomenon to investigate. Therefore, by following a Constructivism philosophy it is possible to explore participants' perspectives, experiences and interpretation to develop a rich understanding of the policy phenomenon. Accordingly, a phenomenological approach was adopted as it aligns well with constructivism and follows an exploratory design to understand reality: experiences, values and beliefs as experienced by the person (Liamputtong and Ezzy, 2005). With the disconnect between policy and outcome apparent, the world view of constructivism and the phenomenological approach enable an exploration of 'reality' to provide an in-depth understanding of the phenomenon: implementation. It is in this manner that we can learn about implementation operations and influences that impact upon successful policy outcomes: to direct future policy activities to ensure environmental preservation.

1.5.2 Qualitative exploratory design for this research

Constructivism and phenomenological research studies are often associated with qualitative research. A qualitative exploratory design was adopted for this research as it assists to '*...develop as thick and rich and as complete an account of the phenomenon under investigation...*' (Quinlan, 2011, p. 420). The intent of this research aligns with the qualitative approach as it reflects an exploration into the subjective experiences and realities of specialist practitioners to increase understanding of the phenomenon policy implementation, as related to environmental planning and assessment policy and on-site construction operations.

The research methodology was approached in two stages as shown in Figure 4. The aim was to understand how policy implementation influences the disparity between policy intent and outcome. This also involved identifying whether differences exist within the classes of participants. From the body of knowledge the Hogwood and Gunn (1984) framework was identified as a lens by which to explore the phenomenon of implementation.

Stage 1 followed an etic approach which provides an overview of the general influences: an outside view from the observer of the phenomenon. This first stage employed qualitative research methods involving semi-structured interviews with specialist practitioners. Stage 2 followed an emic approach involving case specific viewpoints: an inside view from the perspectives of specialist practitioners. In this manner a qualitative research methodology was employed but in a different context: a multi case study approach.

Specialist practitioners associated with construction projects were interviewed and documentary evidence collated. Stage 1 interview data was subjected to a multiple stage coding approach. Stage 2 interview data followed the same analysis; however, given the use of multiple case studies it was then subjected to a cross-case synthesis. Documentary evidence was analysed for environmental content. Results were then synthesised and considered in terms of the ten preconditions. Details on the methodology and data analysis are provided in Chapter 3, 4 and 5. A discourse on the findings is provided in chapter 6.

1.5.3 Scope and limitations

For the purpose of this research it has been considered that the policy intent has been purely conceived and faithfully translated into outcomes. However, it is not known with any certainty that the drafting of policy is deliberately written to undermine its purpose. Therefore, this serves as a limitation to this research study.

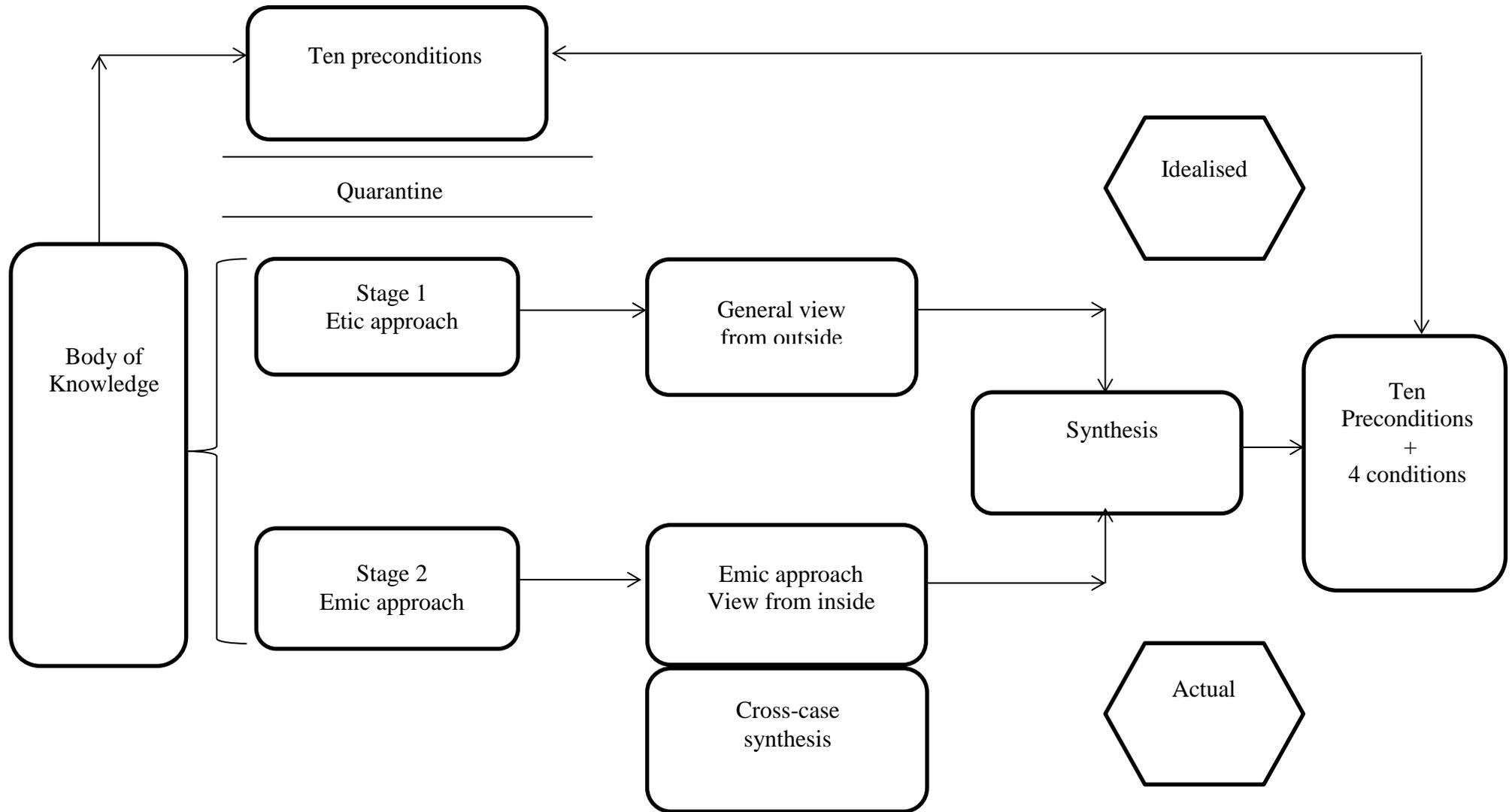


Figure 4. Two stage research design

1.6 Thesis structure

The thesis is organised into seven chapters as shown in Figure 5. An introduction to the content of each chapter is now provided.

Chapter 1 - Introduction

The first chapter affords an overview of the research. The research problem and research environment are introduced along with the Hogwood and Gunn (1984) framework: ten preconditions to perfect policy implementation which serves as the lens to enable an exploration of the research question. The research question, aim, objectives, justification are stated with an overview of the research design.

Chapter 2 – Charting the Major Policy Framework

Chapter 2 reviews the academic literature concerning the domain of policy, commencing with an introduction to the origin of the field as this highlights the importance of, and provides the context for policy implementation. The term policy is defined, including the public policy distinction, along with identifying implementation as a process of the policy cycle. Chapter 2 also concentrates upon the policy literature in terms of policy implementation theories and models. Importantly, this chapter describes Hogwood and Gunn's (1984) ten preconditions for perfect policy implementation which provide the theoretical lens for exploring the research question.

Chapter 3 - Methodology

Chapter 3 affords an introduction to the worldview or paradigm of constructivism and the phenomenological approach which form the philosophical framework to guide the research. The qualitative explorative design is then described as this affords the structure to direct the data collection and analysis processes across multiple stages.

Chapter 4 – Analysis Stage 1

In Chapter 4 the results from the Stage 1 data analysis are provided. Stage 1 involved interview data that was subjected to a thematic analysis to identify patterns and variables. The chapter first presents the descriptive analysis and then turns to the thematic analysis involving the identification of themes.

Chapter 5 – Analysis Stage 2

Chapter 5 relates to results of the Stage 2 case study data. Multiple case studies were employed involving interviews and documentary evidence. As per Stage 1, interview data was subjected to descriptive and thematic analysis: specifically designed to explore and understand experiences as related to real life construction projects. The chapter provides details on the cross-case synthesis and analysis of documentary evidence in terms of environmental management content.

Chapter 6 - Discussion

Chapter 6 constructs and discusses the analysis from Chapter 4 and Chapter 5 in terms of their application to the Hogwood and Gunn (1984) ten preconditions. Additional influences discovered from the data analysis process are also highlighted within this chapter. This leads to the development of additional conditions that need to be considered in order to improve policy outcomes. The research question is answered through the discussion: how does policy implementation influence the disparity between policy intent and outcome.

Chapter 7 – Conclusion and Recommendations

The final chapter presents a summary of the research including an overview of the objectives. Recommendations for future research are also discussed and a conclusion provided.

1.7 Summary

This research addresses the knowledge gap through understanding how policy implementation influences the disparity between policy intent and outcome. Essentially, those influences that impact upon the ability to achieve successful policy outcomes. It explores effectiveness in relation to environmental planning policy against on-site construction environmental management operations in the context of ‘implementation’ activities.

Specifically, the research answers the following question:

How does policy implementation influence the disparity between policy intent and outcome?

Within this chapter, an overview of the research has been provided including an introduction to the research problem, the research question and methodological design. The following chapter provides a discourse in relation to the academic literature. The review introduces policy implementation and multiple theories and approaches considered within the research environment to explore this phenomenon. This directs the discussion towards the theoretical lens used in this study to explore how the implementation phase influences the disparity between policy intent and outcome.

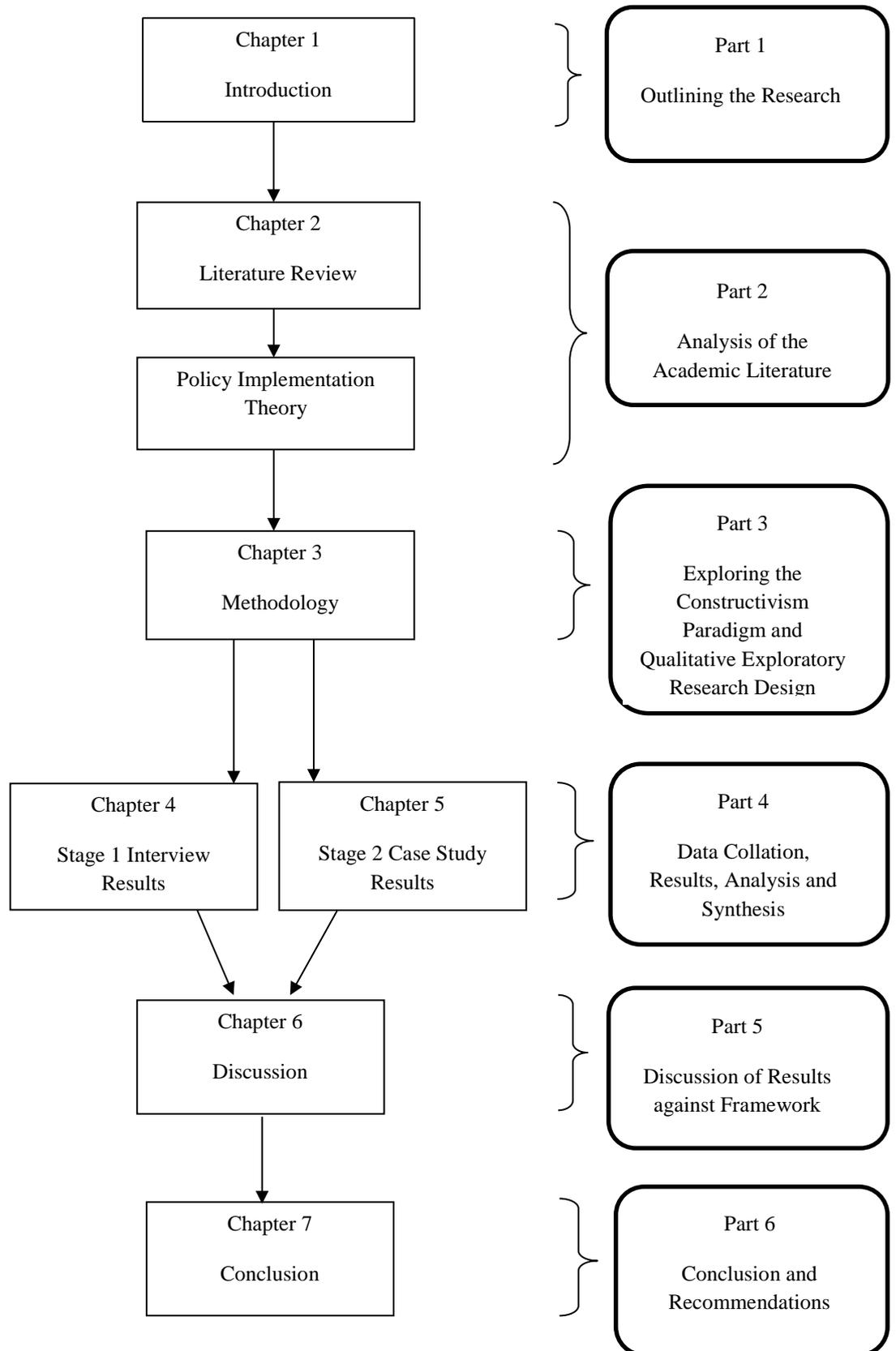


Figure 5. Thesis structure

Chapter 2: Literature Review

Chapter 2 reviews the academic literature concerning the domain of policy, commencing with an introduction to the origin of the field as this highlights the importance of policy implementation as a research discipline. With the identification of the policy domain: the public policy distinction and implementation as a process are discussed. The remainder of Chapter 2 concentrates upon the policy literature in terms of policy implementation theories. Particular reference is made to the central theme of policy implementation approaches and models and importantly, Hogwood and Gunn's (1984) framework: ten preconditions for perfect policy implementation which provides the theoretical lens by which to explore the research question.

2.1 Introduction

As DeGroff and Cargo (2009) highlight, ‘...*literature pertaining to policy implementation provide an important lens to inform our understanding of implementation as a change process*’ (p. 48). Those responsible for implementation actions may not necessarily have the same understanding, viewpoint, objectives or beliefs of those responsible for formulation (Mazmanian and Sabatier, 1983). Therefore, in this manner, ‘*When we act to implement a policy, we change it*’ (Majone and Wildavsky, 1984, p. 177) and subsequently this may result in a policy gap: ‘*the disparity between policy conception and outcomes*’ (Moncaster and Simmons, 2015, p. 453). This aligns with the aim of this research: to examine policy implementation in order to understand the underlying influences causing the disparity between policy intent and outcomes. Specifically this concerns the gap between environmental planning regulatory policy intent and actual environmental outcomes. Importantly, this research moves beyond the State authorities typically acknowledged as administrators responsible for policy formulation, ratification and implementation, instead concentrating upon the policy users: ground level implementation actors and activities. This will provide insight into operational issues: barriers and enablers to successful policy implementation and consequently assist in future policy planning.

Chapter 2 commences with an introduction to policy highlighting the importance of policy implementation as a research discipline. The distinction between public and private policy is explained and the relevance of the public context to this research is established. The literature is then explored in terms of implementation as a discrete stage within the policy cycle. The remainder of Chapter 2 is dedicated to an extensive review of the literature specific to policy implementation including three primary generations: top-down, bottom-up and hybrid. These perspectives and associated theoretical stances are then considered in detail leading to the selection of the theoretical framework that underpins this research.

It is noted that irrespective of any issues with the policy that some commentators may have, it must have been drafted with the best intentions: protection of the environment and given all consultation activities associated with its design it is assumed that the policy is satisfactory. Therefore, the gap between policy intent and outcome is the consequence of implementation. Discussions related to implementation may refer to specific details of the policy; therefore, a commentary on the regulatory policy and its framework is included in Appendix 1.

2.2 Rules and policy

Governing systems have their foundation steeped in antiquity. Even within the realms of the built environment, rules were imposed to protect people and create order. The Sixth King of Babylon: King Hammurabi (1792BC-1750BC) introduced what is known as The Code of Hammurabi: alleged to be the first written codes of law. Although, laws had been in existence for many centuries, this was a written Code of nearly 200 rules (Johns, 1904; Riggsby, 2010) and quite specific in terms of responsibilities and maintained a focus upon punishment, particularly death, for forms of insubordination (Johns, 1904). Over the intervening centuries laws have spawned subordinate codes, policies and procedures. These have tended to increase in detail and complexity, though thankfully, becoming decreasingly Draconian.

Today, policy may be considered ‘...an exercise in informed problem-solving: a problem is identified, data is collected, the problem is analysed and advice is given to the policy-maker, who makes a decision which is then implemented’ (Colebatch, 2006a, p. 309). The evolution of policy and subsequently, policy theory will now be introduced as this leads to policy implementation: why it came about, what it is and subsequently the theories that led the way for the ten preconditions for perfect policy implementation, the subject of this research.

2.3 Policy analysis

The domain of policy science was brought to the forefront by Harold Lasswell, an American political scientist, during the early 1950s with the intent being a discipline of social scientists with a focus upon examination of intricate government problems and their potential resolution through independent scientific enquiry (Lasswell, 1951, Colebatch, 2006b). Subsequently, research into policy grew in the United States and the inauguration of policy analysis as a domain became a reality (Colebatch, 2006b; Radin, 2006). Over time the field came to be dominated variously by computation (Colebatch, 2006b; Hult and Walcott, 1990), administration (see Colebatch, 2006b; Colebatch, 2010; Wildavsky, 1979) and economic perspectives (Radin, 2000; Radin, 2006; Radin 2013) with links to planning, programming and budgeting and latterly including social or behaviour perspectives (Radin 2000; Radin 2006).

2.4 Policy implementation

Prior to the 1970s, the policy process was considered linear in that government officials assumed that policy intentions were clear and that these were understood by administrators responsible for implementation (Pūlzl, Helga, Treib and Oliver, 2007). Policy implementation as a concept, was highlighted around the late 1960-1970 period, predominantly within the United States. However, it was quickly acknowledged that many policies were developed and implemented with little success: the ability of policy to achieve its objectives was ineffective (Annor and Allen, 2009).

Nilsen, Stahl, Roback and Cairney (2013) describe that policy implementation research evolved due to '*...a desire to understand, explain and address problems associated with translating explicit and implicit intentions into desired changes*' (p. 4). Pressman and Wildavsky (1973) put forth the argument that poor implementation was due to those responsible for policy formulation: their inability to fully comprehend the difficulties associated with implementation processes. Such difficulties revolved around the multiple agents, agencies and activities involved in the process, also the negotiation and conflict resolution inherent with such relationships and the need to coordinate a range of implementation activities. The work by Pressman and Wildavsky highlighted the importance of the implementation phase and how it can be the determining factor of policy failure or success (O'Toole, 2000; Schofield, 2001). Their research was integral in demonstrating the disparity that exists between high level government policy objectives and the local reality (Annor and Allen, 2009). Subsequently, a plethora of studies evolved investigating primarily public policy implementation and consequently numerous models or approaches with an intent to understand implementation phenomenon and advise on conditions necessary to achieve the desired outcomes: policy objectives and intent.

Within the context of this research it is policy implementation that is under investigation. Therefore, the first step is to identify what category the policy falls within: the public versus private distinction. Following which the actual phase of implementation as an element of the public policy environment can be identified. This then allows for an introduction to the models and approaches used to explore implementation and ultimately the Hogwood and Gunn (1984) framework used as a lens by which to explore the research question.

2.5 Public versus private policy

Within today's environment, policy is an instrument employed both within the government and non-government sectors and although maintaining the intent to achieve a desired objective, they operate differently within each domain. Policy has been defined as '*a set of ideas or a plan of what to do in particular situations that has been agreed officially by a group of people, a business organisation, a government, or a political party*' (Cambridge Dictionaries, 2015).

Around the inauguration of policy analysis as we understand today, Helco (1972), explained that '*A policy may usefully be considered as a course of action or inaction rather than specific decisions or actions*' (p. 85). The focus of this research concerns public policy: regulatory policy. Policy that enables an exploration of that which governs development practices, the implementation of a specific government policy. The realm of government is often a complex phenomenon to explore, particularly given the multiple interactions of stakeholders, organisations and agendas (Colebatch, 2006b, 2006c). For these reasons it can be difficult to provide a universally accepted definition of policy as a construct. However, the following discussion will explore some of the more salient descriptions of policy and highlight definitions of relevance to this research.

2.5.1 Defining public policy

From the 1970s, a multitude of definitions related to the term policy in the government context had arisen. For example, Dye (1972) stated that policy is '*Anything a government chooses to do or not to do*' (p. 2), in which he later modified this statement asserting that such policy is essentially what governments do (Dye, 1976). Hawker, Smith and Weller (1979) later described public policy as '*...the more or less rational activity of specifying objectives and devising means for attaining them*' (p. 10). In this manner, policy making relates to administrative activities and decision making processes and the subsequent interaction of the political environment (Hawker, Smith and Weller, 1979). Of importance, is that all the abovementioned interpretations highlight government as the essence behind public policy: the instigator, decision maker and formulator.

Numerous writers have introduced definitions that made consideration of public policy in terms of its objectives. For example, Anderson (1997) discussed public policy as a defined course of action by stakeholders to remediate a problem that has arisen, in which he investigated policy outputs such as taxes collected and benefits paid against policy outcomes related to the direct impact upon communities. Similarly, Peters (1999) considered public policy beyond the immediate government authority and problem resolution process by acknowledging that its intent is to influence the community.

Researchers such as Cochran, Lawrence Mayer, Carr and Cayner (1999) promoted earlier definitions with more emphasis upon the government stance: government relationships to determine who gets what. Dye (2002) supported this definition, explaining that public policy differs to private policy in that it is simply a process of government: in which they as the governing authority are responsible for deciding what must be acted upon. These explanations are of relevance as they acknowledged the input of government into public policy; however, they highlight an intent to serve the greater community over a policy developed by any organisation to be used internally as a systems protocol. In addition, these definitions identify the regulators legal powers: an area generally bestowed upon government authorities.

Birkland (2005) delved into attributes of public policy, stating that it is policy made specifically for society: for the greater good. To be a public policy it must be of this nature rather than an internal policy for the benefit of a single organisation. In addition, Birkland (2005) explained that the public nature refers to formulation by government as the authoritative power in which they can develop and implement policy through law. Interestingly, he acknowledged that this form of policy and the phase of implementation involves multiple stakeholders from both public and private sector organisations (Birkland, 2005). Although government in nature, this identified that private sector actors are integral to the processes such as implementation and potentially the overall success or failure of the policy.

Althaus, Bridgman and Davis (2007) further identify that public policy may exhibit a range of characteristics that identify it as unique to other such forms. Essentially, it is an intentionally designed protocol to achieve a desired objective, it is a decision making process that is structured, dynamic and is influenced by the political environment (Althaus, Bridgman

and Davis, 2007). Therefore, a public policy is about achieving a goal, an aim, a purpose: an objective but again focused towards the common good – in the best interest of the community. It involves a sequence, albeit a rather fluid one, of activities to attain that objective; whereby, intelligibility, clarity and transparency are vital to operational success (Althaus, Bridgman and Davis, 2007).

Althaus, Bridgman and Davis (2007), continue to explore public policy from an Australian context. They define such policy as ‘*a statement of government intent, and its implementation through the use of policy instruments*’ (p. 246). Furthermore, public policy relates to the ‘*...intentions and deeds of a government...*’ and a ‘*description of principles governing the way decisions are made*’ (Althaus, Bridgman and Davis, 2007, p. 247).

Essentially, public policy involves the government arena, actions undertaken by government bodies to achieve desired outcomes or objectives (Althaus, Bridgman and Davis, 2007): how ‘*governments strive constantly to formulate and adapt practicable policy responses to complex political, social and economic problems*’ (Wanna, Butcher, Freyens, 2010, p. 16).

The primary difference between public and private policy being that public policy: government policy, is operationalised with the use of public resources that may also include the use of legal action to achieve the desired outcome (Althaus, Bridgman and Davis, 2007). This view was supported by Johnston Miller and McTavish (2014) who asserted that public policy relates to government decision making and acknowledges that they have the authority to make such decisions a reality through the ratification of the policy.

The later definitions by Althaus, Bridgman and Davis (2007) and Johnston Miller and McTavish (2014) are most relevant to this research in that public policy refers to government policy: government identification of issues and decision making processes along with the subsequent ratification or making the policy law. In this respect, a government decision behind the environmental planning policy, explored in this research, was to protect the environment. As such policy was amended and legally ratified with the intent to manage development and construction operations and to subsequently achieve policy intent.

2.5.2 Public policy instruments

It is important to note that public policy as a concept associated with government may also be used in different ways, depending upon the desired outcome. Althaus, Bridgman and Davis (2007), have identified five types of policy instrument in practice. These will be briefly discussed to illustrate the type of policy that applies to this research.

Within Australia, policy may be employed in multiple ways to achieve different outcomes. First, policy may be considered in terms of advocacy. This type of policy is often orientated towards educational programmes in an attempt to promote behavioural change: voluntary change. The second way in which policy can be exercised is through a network. As the name suggests this mechanism looks towards collaborative partnerships. These may occur both within and outside of the government realm: essentially they are partnerships designed to achieve objectives. Policy through money refers direct to economic consequences – often used as either an incentive or a penalty may be precursor to achieving desired objectives. Policy can also be government action. This form of policy in practice relates to service delivery. In particular, the role of government, the public sector, to provide specific services to the community (Althaus, Bridgman and Davis, 2007). However, it is policy through law that is of relevance to this research. This is policy in the form of, for example, legislation: Acts and Regulations (Althaus, Bridgman and Davis, 2007). The types of policy instruments discussed have the potential to intersect or work collaboratively to achieve the desired outcome. For example, the EP&A Act, is policy through law – regulatory policy - yet, it contains mechanisms for this issue of orders and notices which may have a direct economic impact (EP&A Act, 1979).

Within the legal framework of Australia, public policies may be enacted as legislation. In following this process through Cabinet, the policy becomes a law and with this status provides government agencies with legal responsibilities. Generally, this will involve the power to put the policy into operation, it becomes mandatory, in which processes are established for its implementation and mechanisms enabled for enforcement and non-compliance (Althaus, Bridgman and Davis, 2007). According to Althaus, Bridgman and Davis (2007), *'The law is the traditional instrument of government policy, and the final guarantee that policy intent can be translated into action'* (p. 94).

In summary, the regulatory policy, now established as a formal Act, sets the required framework for action and attainment of the desired objectives. Within society laws can facilitate a wide range of actions. Commonly they are used to shape behavioural activities, often through the use of either economic incentives or penalties associated with compliance or non-compliance actions, as described above.

With the identification of policy in the context of this research, the discussion will now explore the stage or phase considered to be implementation. First an introduction to policy cycles is provided, in particular the Australian Policy Cycle which identifies implementation as a vital phase in the policy process. Following which, implementation is defined and the discussion moves into policy implementation theories and consequently, the Hogwood and Gunn (1984) framework.

2.6 Policy cycles and implementation

To understand the operation of policy, including environmental planning policy, some semblance of structure needs to be provided to the operations inherent with its processes. Development of policy by government is a multifaceted and intricate operation encompassing a sequence of defined tasks, of which implementation is involved. Although a complex and fluid process, there are standard phases identified in policy development and these are often explained through the use of policy cycles. Such cycles enable the activities associated with policy to be structured in a way that allows for their examination: the policy process may be broken into a series of phases or specific steps (Althaus, Bridgman and Davis, 2007; Annor and Allen, 2009).

It is important to note the limitations of such cycles. Burch and Wood (1989) assert that cyclic approaches are not perfect as they emphasise policy and its administrative processes as a chronological sequence which is not reality. Models usually imply structure, some ability to follow a staged operation that follows a rational process; however, the reality may be much different. Policies may be formulated, actioned or not actioned, amended and fragmented in nature (Wanna, Butcher and Freyens, 2010). Similarly, Althaus, Bridgman and Davis (2007) explain that the use of a policy cycle is problematic in its use of a structured approach as ‘to

impose a policy cycle creates artificial expectations of a reliable, predictable policy world. It also presupposes the political will to follow due process in policy making when determination is not always present or possible’ (p. 34).

Foxell and Cooper (2015) highlighted from their research, participants viewed policy cycles as ‘...*divorced from reality*’ (p. 401). Furthermore, in reality ‘...*policy-making does not take place in distinct stages; policies need to be designed, not just conceived, policy-making is often determined by events and the effects are often indirect, diffuse and take time to appear*’ (Foxell and Cooper, 2015, p. 401). Therefore, such staged models of implementation – separation of decisions from implementation – have been challenged within the literature (see for example, Hill and Hupe, 2002; Matland, 1995). However, to examine policy and identify what is meant by implementation, it is necessary to place parameters and define phases to give structure to the analysis. Considering the often artificial nature of a policy cycle, Colebatch (2006a) looks towards the policy process with an explanation that it is ‘*an exercise in informed problem-solving: a problem is identified, data is collected, the problem is analysed and advice is given to the policy-maker, who makes a decision which is then implemented*’ (p. 309).

Often within the policy cycle it is inevitable that the directional flow will be halted and a need to retrace or adjust a former process will emerge: interrupting the rotation of the cycle. In the end, ‘*A policy cycle provides the analytical tools, even if each example of policy making is unique, and often a narrative with the steps in all the wrong order and moving in dissociated directions*’ (Althaus, Bridgman and Davis, 2007, p34). Therefore, any framework needs to be dynamic, flexible and easily accepting of change or adaptation when issues arise.

Policy cycles may be restrictive to the often illogical and irrational nature of policy. In reality the policy process affords change, amendment, action or inaction and complexity. However, cycles are useful mechanisms to help provide an interpretation of the processes and operations involved – to provide tangible elements by which analysis can eventuate, to identify barriers and enablers, and improve the success of the policy in achieving its objectives.

2.6.1 The Australian policy cycle

One of the universal policy cycles identified within the literature is the ‘Australian Policy Cycle’ by Althaus, Bridgman and Davis (2007). In their depiction of the policy, they define a series of interrelated stages involving the following elements:

- *‘identifying issues;*
- *policy analysis;*
- *policy instruments;*
- *consultation;*
- *coordination;*
- *decision;*
- *implementation; and*
- *evaluation’ (p. 37).*

Given this approach is representative of the policy system across the Nation, it is applicable to the State of NSW and importantly, highlights the importance of the implementation phase from a government policy perspective. It is during this phase that the industry harnesses the opportunity to explore policy from an operational context. The implementation phase of the policy cycle obviously does not operate in isolation; therefore, to understand its import it becomes necessary to consider the entire cycle (refer Figure 6) so as to differentiate it from other elements. The first element relates to identification of issues. An issue refers to a topic or theme, one that is raised on the public forum for consideration as a potential policy issue. In general terms, a problem or issue may be raised by any number of individuals and organisations within the general population. However, when those issues are brought to the attention of those elected into positions of governance, there may be petition for action (Althaus, Bridgman and Davis, 2007). Following this process, policy analysis takes place. Analysis is when the abovementioned theme or issue is examined, explored and considered. It enables the issue to be dissected to unearth the true problem and allow for options analysis. The process whereby, the governance investigators undertake research to enable exploration of the issue, to seek information from professional experts and ultimately enable an informed judgement. Information is a crucial instrument that enables determination on whether the cycle is to proceed. (Althaus, Bridgman and Davis, 2007).

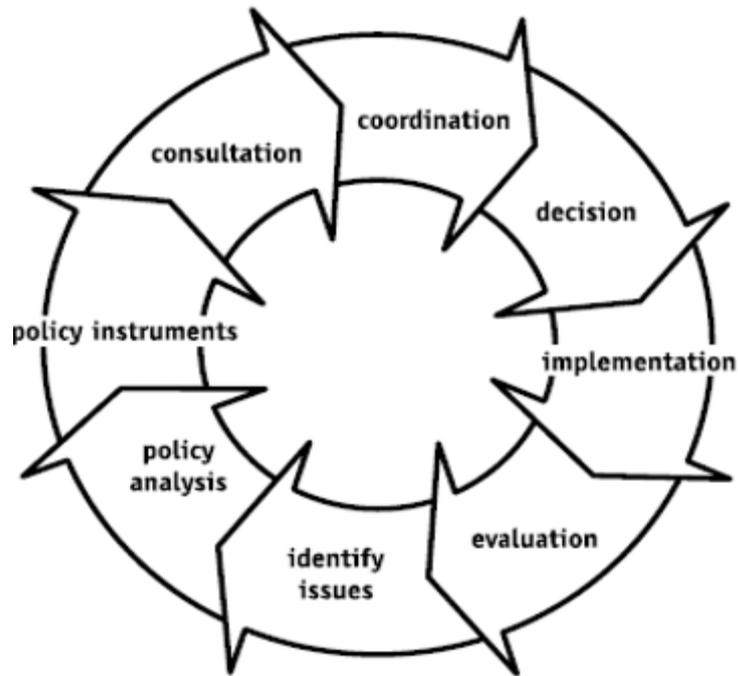


Figure 6. The Australian Policy Cycle (Source: Althaus, Bridgman and Davis, 2007, p. 37)

The next element concerns the choice of policy instrument. An instrument in relation to policy refers to the mechanism by which it can take effect. Once a determination has been made by government to intervene on an issue that has been investigated, it is necessary to view the issue in light of the available mechanism to introduce action (Althaus, Bridgman and Davis, 2007). There are many instruments which may be employed as previously discussed under public policy instruments; however, for this research it relates to legislation. Proceeding identification, analysis and instrument preference, it become necessary to pilot the proposal and its feasibility through consultation. Multiple stakeholders from the community, government and non-government organisations may have an interest or will be affected by the proposal. Their input: views, understanding, beliefs, experiences and the like are all considered as part of this process. Therefore, consultation is a process by which the draft policy may be exposed for community comment offering an opportunity for those in governance to garner support for its implementation (Althaus, Bridgman and Davis, 2007). Coordination is the next step in the cycle. It refers to collaborative partnerships or operations. Once the draft policy has reached a stage of finalisation ready to proceed for approval, issues of coordination must first be investigated and established (Althaus, Bridgman and Davis, 2007).

Funding from government needs to be forthcoming and confirmation of cohesion with other legislative policies, in addition to the confirmation of collaborative partnerships (Althaus, Bridgman and Davis, 2007). After collaboration, a decision is made. A decision is '*a formal resolution of cabinet*' (Althaus, Bridgman and Davis, 2007, p. 242). Given the preceding stages, the draft policy has reached a point whereby, it now becomes before cabinet for final consideration on its adoption. This stage of the cycle is uncertain as the political environment and the information submitted for appraisal will impact upon the final resolution: adoption, further review or absolute rejection (Althaus, Bridgman and Davis, 2007).

With a favourable decision from cabinet and the adoption of the policy instrument, the next phase involves implementation. Implementation provides the mechanism by which the policy is enacted: given expression. Through communication channels the community is formally advised of the new policy, its goals, operation and impact (Althaus, Bridgman and Davis, 2007). During this phase the adoption of the policy by the community eventuates. For this research, implementation moves beyond this higher order State process and explores the application of the policy from those executing its objectives: both government and non-government actors at the ground level. Once implementation has eventuated and the policy has been in effects for a period of time evaluation may occur. Evaluation involves reviewing the policy and its intent in terms of the outcome or outputs achieved – understanding whether the policy achieved its desired objectives. Often, the implementation of a policy can be subjective in nature. It is not possible to counter every scenario so it is common for policy to provide guidance and areas for consideration. Give this ability for interpretation, individual bias may result in the policy goals digressing from their actual intent. Therefore, it is necessary to review and evaluation the policy to adjust or act as necessary. In some situations this can result in the policy cycle recommencing (Althaus, Bridgman and Davis, 2007).

The Australian Policy Cycle is an important approach to the examination of policy. Although there has been much debate over the advantages and disadvantages of using cycles, their benefit as an instrument to understand the policy process and exploring the different stages has been acknowledged. Important to this research is the acknowledgement of implementation as entwined within the policy cycle. With the role of implementation identified, the discussion now moves towards the literature and an examination of implementation, implementation theories and subsequently, the ten preconditions for perfect policy implementation.

2.7 Implementation defined

As explained in the preceding section by Althaus, Bridgman and Davis (2007), implementation is a process whereby the approved regulatory policy is essentially operationalised. The definition of implementation for the purpose of this research also aligns with that by Kendall (2010) ‘...*the means to fulfil or satisfy the conditions of a policy*’ (p. 1). Furthermore, policy implementation relates to ‘...*what develops between the establishment of an apparent intention on the part of government to do something, or to stop something, and the ultimate impact in the world of action*’ (O’Toole, 2000, p. 266). In effect, it is the process and subsequent activities associated with the execution of government decisions: policy intent (Berman, 1978). Ultimately, implementation is a construct that may be thought of as the way in which policy ideas are translated into practice (Wang and Ap, 2013). Of importance is the statement identified in Chapter 1, by Kendal (2010):

‘Even an ideal policy is of little use if it is not well implemented’ (p. 1).

In other words, a policy may be perfect in its design and content, yet, if executed poorly at the implementation phase it may become ineffective. Therefore, it may be unable to achieve the policy intentions – objectives – from which unforeseen outcomes may be mistakenly introduced.

As formerly identified, policy implementation was not always identified as an area of academic focus: it was assumed to be unproblematic. After the rigour of policy development - decision making and formulation - the policy was quite simply implemented and no further action warranted (Wanna, Butcher and Freyens, 2010). With the advent of the 1970s and the evolution of implementation as a theory it was acknowledged that although policies had been designed with an intent to achieve a desired outcome, many were not fully achieving their objectives. Failure was experienced as the outcomes that eventuated were not aligned with the original policy intent or it was purely failing as a regulatory protocol and unable to achieve specified objectives. It was during this period, Pressman and Wildavsky (1973) highlighted how American government policies were ‘...*distorted, misapplied or failed...*’ (Wanna, Butcher and Freyens, 2010, p. 221). Interestingly, Joseph, Gunton and Day (2008) identify how implementation theory has evolved since the 1970 studies; however, there remains continued failure in implementation.

Given this research explores implementation, it is important to recognise the reasons or influences behind the disparity between policy intent and outcomes from why they are not always aligned or eventuate as planned. To a large extent, policy implementation research continues to maintain a focus upon the term failure. However, failure may result from a range of outcomes and these are important as they determine what part of implementation and its associated activities are the link responsible for poor policy outcomes. Wanna, Butcher and Freyens (2010) identify that policy failure may be examined in terms of: non-implementation, unsuccessful implementation and implementation gaps. Although these reflect policy failure, they are quite distinct in their outcomes. Non-implementation relates to a policy which is formulated, yet is not actioned or its execution is ineffective: a policy may be perfect in its design and content, yet, if executed poorly at the implementation phase it becomes ineffective. For example, the policy may not be enacted as originally designed due to two factors: ineffective collaboration or undue obstacles (Kendal, 2010).

Ineffective collaboration refers to the relationships between those responsible for implementation. Where actors work inefficiently or hinder processes, implementation is ineffective (Hogwood and Gunn, 1984; Wanna, Butcher and Freyens, 2010). Conversely, unsuccessful implementation refers to impediments or barriers at the implementation phase that impact upon the policy having successful outcomes. Generally, of a nature which is outside the influence of those responsible for implementation, the policy will fail. While, implementation gaps refers to the execution of policy whereby associations become disconnected resulting in poor outcomes (Wanna, Butcher and Freyens, 2010). Foxell and Cooper (2015) provide further rationale for why gaps emerge between policy formulation and policy outcomes:

- *‘overcalling;*
- *impatience;*
- *changes of government personnel and direction;*
- *neglect and decay;*
- *distraction and noise;*
- *temporal misalignment;*
- *multiple jurisdictions; and*
- *events’ (pp. 402-403).*

First, is the issue of overcalling or an exaggeration of the policy issue under scrutiny. Closely associated with a heightened focus upon the issue is the actual ability of the regulatory authority to provide the necessary remedial action. Impatience is an accepted part of the policy process whereby governments are subject to timeframes, which impact upon implementation processes. Often such timeframes reduce policy effectiveness given the reliance upon often ill considered, decision making processes lacking in judgement and methodological rigour. Additionally, as new priorities emerge, the emphasis upon those in the delivery stage is often reduced (Foxell and Cooper, 2015). The constant changes to government and personnel within these administrative centres, often produces a change in direction or degree of emphasis placed upon a policy (Foxell and Cooper, 2015). In reality this has the potential to affect the set policy objectives or at the very least, cause interruptions: ineffective policy and/or unexpected outcomes. Closely aligned to changes in direction are neglect and decay. Foxell and Cooper (2015) assert that policy-makers are often required to focus attention ‘...on and off at short notice as economic exigencies require’ (p. 403). The result from such rapid and often ill-prepared policy where policy formulation and implementation objectives are not aligned. In this manner, delivery may be incomplete, ineffective or discarded altogether (Foxell and Cooper, 2015).

In the context of the policy environment, regulatory policy may be formulated with the intent to pacify, as Foxell and Cooper (2015) describe as the ‘news cycle’ (p. 403). A programme implemented to potentially divert attention from other sensitive areas under scrutiny. Similarly, with temporal misalignment, there may be purposeful displacement between short term and long term goals. Additionally, policy by definition involves a host of actors associated with all phases of its development, implementation and evaluation. In this manner, there is potential for conflict, misunderstanding and multiple constraints that impact upon policy effectiveness. The final issue relates to events. In effect, ‘*despite the best of intentions, the mistakes and misfortune that beset policies, whether through neglect, financial pressure or inexperience, are inevitable*’ (Foxell and Cooper, 2015, p. 403). Therefore, there are situations that arise that will impact upon policy and its outcomes.

With an understanding of implementation as a phenomenon, identification of failure and possible causes for ineffective policy, the discussion will now turn towards implementation theory. First the benefits of implementation research are identified with theories that dominant the field are introduced in conjunction with the framework used by this research.

2.7.1 Benefits of implementation research

DeGroff and Cargo (2009) highlighted how policy implementation research aids in our understanding of implementation processes. The many benefits of policy implementation research highlight how it can be used to understand a policy and its functioning, far beyond just whether it is predicted to succeed or fail. These are important to identify as they provide justification for research into this domain:

- exploring implementation can produce a wealth of information that enables constructs such as policy ambiguity and policy irresolution to be examined: areas that can be examined without being considered items of failure;
- research allows for both macro and micro analysis of the problem. It assists to provide in-depth examinations that afford a perspective that is in contrast to existing policy evaluation research methods;
- implementation research allows for an examination of the multiple agents and agencies involved with implementation activities; and
- importantly, implementation research allows for analysis of outcomes and risks. In this manner, the degree of risk with which society will accept can be determined where there is a difference between the policy intent and outcome (Schofield, 2001).

Schofield (2001) provides a summation of the benefits of implementation research (refer Table 1). Implementation research does not revolve around its own axis, rather it forms part of a holistic process by which study into this area can be used to inform other phases of the policy cycle.

Table 1. Benefits of policy implementation research (Source: Schofield, 2001, p. 258)

Areas implementation research can address	Contributing themes from the literature using revised thematic focus
<p>The complexity of achieving policy goals</p> <p>The framing of policy advice</p> <p>The potential ‘reverse effects hypotheses’ or counter intentional outcomes of policy</p> <p>The reformulation of policy goals and policy re-design</p>	<p>Knowledge, learning and capacity</p> <p>The processes of implementation</p> <p>Bureaucratic discretion</p>
<p>The dynamic, continuum-based nature of policy initiation and conversion into action</p> <p>Time as a variable within the policy process</p>	<p>The processes of implementation</p> <p>The role of actors</p>
<p>The role and importance of technical detail and procedural information</p>	<p>Knowledge, learning and capacity</p>
<p>Attention towards lower level actors, rather than policy elites and the role which non-elites can play in operationalising ambiguous policy design</p>	<p>The role of actors</p> <p>Knowledge, learning and capacity</p>
<p>Practical issues based on the day-to-day effects of policy at street-level and how these impact on bureaucrats’ work</p>	<p>Bureaucratic discretion</p> <p>The process of policy implementation</p>

2.8 Top-down, bottom-up and hybrid models

Understanding policy implementation in terms of exploring the disparity between intent and outcomes provides policy formulators and implementers with the ammunition to design strategies to maximise preferred outcomes. Within the literature, many theories exist that attempt to describe and explore the implementation phase to understand how policy can be best executed to achieve positive results. This section will now look at several predominant theories as they help provide the context for the Hogwood and Gunn (1984) framework which is used in this research a lens to explore implementation.

Initial theories were categorised into three generations of implementation research: top-down approaches, bottom-up approaches and the more contemporary hybrid approaches that attempt to synthesis the former two frameworks (Annor and Allen, 2009; Goggin, Bowman, Lester and O’Toole, 1990; Pülzl, Helga, Treib and Oliver, 2007; Wang and Ap, 2013).

Figure 8 identifies some of the key contributors to each generation.

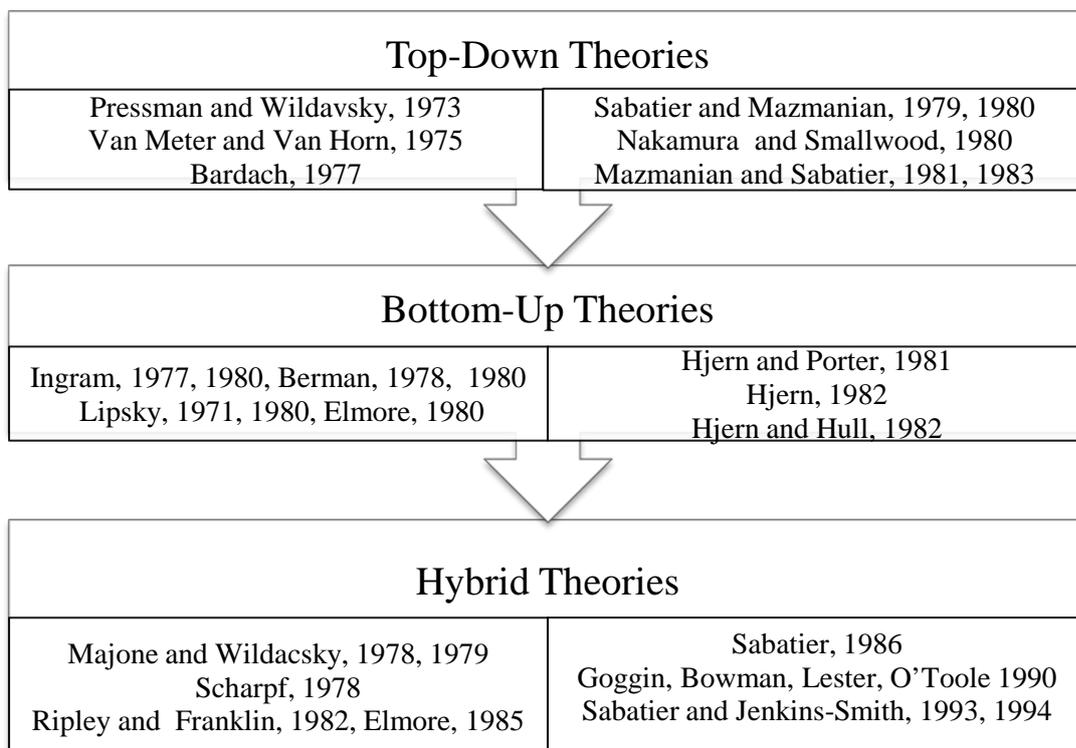


Figure 7. Principal theorists for the three sequential generations of implementation research

2.9 Top-down philosophy of implementation

According to Annor and Allen (2009), the top-down model relates to the ‘...*hierarchal execution of centrally-defined policy objectives and the process of interaction between the setting of goals and the actions to achieve them*’ (p. 19). The top-down framework is prescriptive in nature, as it places emphasis upon the government hierarchy and the regulatory environment (Wang and Ap, 2013). Therefore, with a hierarchal approach, it is the bureaucrats that distribute authority and power, which in turn achieves policy implementation and outcomes. It relies upon management and their skills and power to make implementation a reality (Kendal, 2010). Wanna, Butcher and Freyens (2010) explain that ‘*Implementation is hierarchic and top-down running from cabinet or ministers, through departmental organisations to delivery agents and frontline staff. They carry out or attempt to carry out the intentions of the hierarchy*’ (p. 223). According to these theories, policy implementation is the direct result of decisions made by the governing power: decisions are made by top level authorities that are deployed to those responsible for implementation activities which equates to good executive management (P`ulzl, Helga, Treib and Oliver, 2007). Therefore, control by the policy maker is of salience (Wang and Ap, 2013).

Research within this field concentrated upon ‘...*the success or failure of policy goals and produced a typology of approaches to make implementation more effective within the logic of the policy goal itself*’ (Schofield, 2001, p. 249). The focus upon policy failure was seen to explain objectives in relation to the government policy maker perspective. It involved understanding those factors responsible for the implementation gap: unclear policy, poor compliance and insufficient resources for example (Nilsen, Stahl, Roback and Cairney, 2013). ‘*Top-down models put their main emphasis on the ability of decision makers’ to produce unequivocal policy objectives and on controlling the implementation stage*’ (P`ulzl, Helga, Treib and Oliver, 2007, p. 90). Therefore, clear objectives are formulated by the decision makers and implementation is merely the direct execution of those top level decisions (P`ulzl, Helga, Treib and Oliver, 2007).

Matland (1995) supported this approach and describes how top-down theorists of this camp argue for clear goals, minimal actor involvement, restricted programme change and the need for the implementing agency to be supportive and committed to the policy. Implementation failure was viewed as a top-down approach. Research involved understanding those factors

responsible for the implementation gap, *inter alia*, unclear policy, poor compliance and insufficient resources (Nilsen, Stahl, Roback and Cairney, 2013).

According to Calista (in Nagel, 1994 pp. 132-133), the top-down view asserts six major assumptions:

1. The definitiveness of a statute will structure effective implementation;
2. There needs to be appropriate jurisdictional reach and sufficient resources to address a policy's underlying causes;
3. Appropriate legal structures are required to structure compliance by implementers;
4. Those responsible for implementation are expected to behave self-interestedly;
5. Executives and legislators must provide incentives to ensure the continued support of implementers; and
6. Stressful socioeconomic change can affect implementation (Calista in Nagel, 1994 pp. 132-133).

2.9.1 Variants of the top-down approach

Research into top-down theories predominantly emerged in the mid-1970s and continued into the next decade. Pressman and Wildavsky (1973) may be considered a founding architect for research into the realm of implementation. However, Van Meter and Van Horn (1975), Bardach (1977), Sabatier and Mazamania (1979), also made significant contributions to the field around this time. Pressman and Wildavsky (1973) explored policy objectives and intent which they reasoned was derived directly from policy officials or policy formulators.

Therefore, in this manner implementation research investigates why the policy intent is unable to be achieved. In their initial works, they identified that implementation implied adequate bureaucratic processes, sufficient resources, clear responsibilities, hierarchical control. In addition, they discussed how multiple agency involvement reduces effective implementation (Pressman and Wildavsky, 1973, Pūlzl, Helga, Treib and Oliver, 2007).

Proceeding the work by Pressman and Wildavsky (1973), Van Meter and Van Horn (1975) continued to investigate whether policy objectives and intent matched implementation outcomes. However, they explored relationship factors that established policy and performance. Most factors revolved around the capabilities of the organisation with regard to

implementation process and hierarchal control. Importantly, they highlighted that the degree of policy change impacts directly upon implementation effectiveness. In addition, agreement on goals played a significant part in the effectiveness of implementation (Van Meter and Van Horn, 1975; Pūlzl, Helga, Treib and Oliver, 2007).

Bardach (1977), another member of the top-down theorist alliance, considered game theory as the instrument by which implementation processes could be explained. Political processes associated with policy phases – including implementation – are important facets to policy success. However, effective implementation was a result of policy makers structuring the implementation game suitably (Bardach, 1977; Pūlzl, Helga, Treib and Oliver, 2007).

Thompson (1984) considered the Overhead Control Model containing two primary elements: statutory provisions and oversight with four implementation mechanisms (Kendal, 2010). Up-for-grabs implementation is a flexible approach and although involving structures they remain inexact which eliminates rigidity across implementation. Implementation can be adapted through the use of creativity and innovation (Thomson, 1984, pp. 15-18).

Controlled implementation eliminates most creativity by displaying clear directives with oversight. The organisations, implementers and the environment are considered to be supportive of policy (Thomson, 1984, pp. 6-14). Buffered implementation imparts a perspective of *neutral or supportive* -defined statutes and minimal oversight, allowing for some scope in terms of activities for different hierarchical levels (Thomson, 1984, pp. 18-20). While, prophylactic implementation, adheres to principles of definite statutes. Autonomy is rated higher as supervision is minimal. Reliance is upon the ability to programme in a manner that favours concrete planning and design phases (Thomson, 1984, pp. 14-15).

In contrast, the Sabatier and Mazmanian (1979) model asserts that the policy environment involves a decision by the governing authority in policy formulation and implementation must be differentiated as individual entities. Although absolute control over implementation is difficult, Sabatier and Mazmanian (1979) considered effective implementation to be achieved through manipulation of program design and implementation processes (Kendal, 2010; Pūlzl, Helga, Treib and Oliver, 2007; Sabatier and Mazmanian, 1979). The conditions established by their model highlight some important factors related to this research as they present what could be considered an early edition of the more advanced ten preconditions for

perfect policy implementation presented by Hogwood and Gunn (1984). The five primary conditions of this model are as follows:

1. *'The program of action is based on a sound theory, which relates changes in target group behaviour to the achievement of desired end state objectives.*
2. *The statute (or other basic policy decision) contains unambiguous policy directives and structures the implementation process so as to maximize the likelihood that target groups will perform as desired.*
3. *The leaders of the implementing agencies possess substantial managerial and political skill and are committed to statutory goals.*
4. *The program is actively supported by organized groups and by a few key legislators (or the chief executive) throughout the implementation process with the courts being neutral or supportive.*
5. *The relative priority of statutory objectives is not significantly undermined over time by the emergence of conflicting public policies or by changes in relevant socioeconomic conditions that under-mine the statute's "technical" theory or political support'* (Sabatier and Mazmanian, 1979, p. 484-485).

Condition 2 also purports six internal sub-conditions. First, policy objectives must be clear, consistent ranked according to the implementation programme. Secondly, the implementing agency requires appropriate resources and authority to perform their duties that include policy development and delivery. Implementing agencies must be supportive of the policy, placing high priority on its programme status. The policy must allow for hierarchical integration within and among implementers: the ability to introduce sanctions to ensure acquiescence and minimising clearance points that may obstruct progress. Statutory objectives must also be reflected by the rules of the implementing agency. Finally, a supportive policy environment must be provided: opportunity for internal and external entities to intervene in implementation processes (Sabatier and Mazmanian, 1979). Although the model sets out some valid criteria, it has been criticised. Schofield (2001) explains how the model is not considered '*...contingency responsive*' (p. 250). In this respect, any sudden change within the system renders the model inadequate.

2.10 Bottom-up philosophy of implementation

Viewing policy implementation as a top-down framework - policy makers identifying objectives and formulating policy that must be perfectly implemented by ground level actors – was not a concept accepted by all researchers. Many disagreed with the top-down approach concerning hierarchal governance, electing instead the view that the political design of policy is influenced from the local level and highlighting the importance of the nature of the policy problem (Nilsen, Stahl, Roback and Cairney, 2013; Pūlzl and Treib, 2007). Second generation research presented a more theory based approach, progressing beyond the focus of failure. Variable analysis was central to this new wave of research as there was a shift towards explaining the impact of implementation (Nilsen, Stahl, Roback and Cairney, 2013).

Lipsky (1971) may be considered the first to identify that ‘...*implementation consisted of the everyday problem-solving strategies of street-level bureaucrats*’ (p. 89). During the 1980s, this rapidly evolved into numerous bottom-up theories that consider actors associated with ground level implementation – those furthest from the top of the governing political system – and works upwards examining all agents and their problem solving strategies (Nilsen, Stahl, Roback and Cairney, 2013; Pūlzl, Helga, Treib and Oliver, 2007). In this manner, it is the local communities or street level bureaucrats that remain the central focus, along with their respective negotiation processes associated with higher order bureaucrats (Wang and Ap, 2013). This generation of research presented a more theory based approach, progressing beyond the focus of failure. Variable analysis was central to this new wave of research as there was a shift towards explaining the impact of implementation (Nilsen, Stahl, Roback and Cairney, 2013).

Pūlzl, Helga, Treib and Oliver (2007), explain that ‘*Bottom-up critiques view local bureaucrats as the main actors in policy delivery and conceive of implementation as negotiation processes within networks of implementers*’ (p. 90). While, Wanna, Butcher and Freyens (2010) explain that the bottom-up model of implementation ‘...*is built on accumulated knowledge and experience and fed back through organisations and hierarchies. Rather than a single agency implementing programs directly, bottom-up implementation suggests multi-organisational involvement, network delivery and considerable scope for street-level administrators*’ (p. 224). Within this approach, the outcome of successful policy

implementation relates directly to the successful interactions at the ground level, those implementing and those receiving.

Bottom-up theories can be characterised by the following features:

- They focus upon the actions of local level implementers.
- Attention is directed towards the nature of the problem which the policy is to address, rather than the policy goals.
- This approach attempts to describe networks associated with implementation.
- Good coordination amongst agencies is essential.
- Negotiation is a vital component of the process.
- Bureaucrats maintain a strong role in distributions processes. (Calista in Nagel, 1994; Nilsen, Stahl, Roback and Cairney, 2013; Pülzl and Treib, 2007).

2.10.1 Variants of the bottom-up approach

The founding work by Lipsky in 1971 set the agenda for the bottom-up movement; however, it was not until the late 1970s that research, in contrast to the top-down theories, became prominent. The initial work by Lipsky (1971) explored the roles of public service workers in the implementation process – the ‘street-level bureaucrats’. He argued that for successful policy implementation, consideration of the interactions and relationships between public service workers and the policy recipients is vital. These bureaucrats had sufficient autonomy with policy delivery at a local level that allowed them to manage policy in a manner that would address local problems (Lipsky, 1971, Pülzl, Helga, Treib and Oliver, 2007). Importantly, the studies by Lipsky (1971) were able to demonstrate that the top-down theories were insufficient for effective policy implementation.

Ingram (1977), Elmore (1980), Hjern (1982) and his partners, acting upon the work by Lipsky (1971) began to reposition policy implementation taking a viewpoint from those responsible for implementation. Elmore (1980) was focused upon the methodological consideration around studying policy implementation. His contribution to the policy implementation literature concerned the concept of backward mapping: identification of the

policy problem and the subsequent examination of local actors in problem resolution (Püzl, Helga, Treib and Oliver, 2007).

Hjern (1982) and Hjern and Hull (1982) were involved with the development of an empirical network methodology to examine policy implementation. Successful policy implementation involved an understanding of multiple actors and agencies, and their interactions involved with policy delivery. Policy implementation investigations should involve an examination of all the networks of actors, agencies and collaborative partnerships and their actions towards resolution of policy problems (Hjern, 1982; Hjern and Hull, 1982; Püzl, Helga, Treib and Oliver, 2007).

2.11 Hybrid philosophy of implementation

Third generation research evolved as a result of the top-down and bottom-up conflict as it was acknowledged that neither approach may be suitable for every single situation (Wanna, Butcher and Freyens, 2010). Bottom-up theorists criticised the top-down theorists for considering implementation as a pure administrative process and for not considering street level actors. In a similar fashion, bottom-up theorists moved beyond a linear hierarchal system top-down system to change the focus away from centralised government agencies and towards those actors responsible for ground level implementation activities (Nilsen, Stahl, Roback and Cairney, 2013).

Convergence of the two camps brought about hybrid theories which emerged to bridge the gap between the former opposing approaches: synthesise the strengths and eliminate weaknesses of the top-down and bottom-up theories (Püzl and Trieb, 2007; Püzl, Helga, Treib and Oliver, 2007; Trieb, 2006). According to Püzl, Helga, Treib and Oliver (2007), *‘Hybrid theories try to overcome the divide between the other two approaches by incorporating elements of top-down, bottom-up and other theoretical models’* (p. 90). These approaches *‘...combined elements of both sides in order to avoid the conceptual weaknesses of top-down and bottom-up approaches’* (Püzl and Trieb, 2007, p. 95). The value of the hybrid theories rests with their attempt to overcome the weaknesses of the former models, through development of a synthesis approach (Wang and Ap, 2013).

The salience of this generation of research, went beyond a synthesis of strengths to also provide a more scientific focus to the study of policy implementation. The importance of methodological process was acknowledged and a more defined emphasis was placed upon clear hypotheses, operationalisations and empirical observations (Nilsen, Stahl, Roback and Cairney, 2013; Pölzl and Trieb, 2007; Trieb, 2006). Goggin, Bowman, Lester and O'Toole, L.J. Jr. (1990) explain that:

'The principal aim of third-generation research is to shed new light on implementation behaviour by explaining why that behaviour varies across time, policies, and units of government...Third generation research is designed to overcome the conceptual and methodological problems that many scholars agree have impeded progress in this field. In a word, the aim of third-generation research is simply to be more scientific than the previous two in its approach to the study of implementation' (pp. 17-18).

2.11.1 Variants of hybrid models

Researchers in this field included Ripley and Franklin (1982), Elmore (1985), Goggin, Bowman, Lester and O'Toole (1990) and Winter (1990). Scharpf (1978) introduced policy networks and identified the both coordination and collaboration as separate but dependant actors was integral to the study of policy implementation. Also around this period, Majone and Wildavsky (1978) moved towards an approach that reflected upon the often unstable and unpredictable nature of policy where it is subject to change and redefinition. Within this model, policy makers define policy inputs from which they may be changed during implementation processes.

Ripley and Franklin (1982) moved beyond the standard top-down and bottom-up themes by considering the type of policy to be implemented and how that impacts upon success of the program. They identified three types of policies: distributive, regulatory and redistributive policies. Within each type of policy there are different actors, agencies and interrelationships combined with conflict that impact upon outcomes.

The concept of backward mapping presented by Elmore (1985) was later enhanced through the introduction of forward mapping. In this manner backward mapping continued to identify

implementers structures and target groups; however, forward mapping added a new element in the consideration of policy instruments and resources for change (Elmore, 1985). Elmore (1985) highlighted the importance of both concepts given how they are interconnected in practice and unable to operate without the other.

Goggin, Bowman, Lester, and O'Toole (1990) were aligned with the perspective of the political authority making decisions to be implemented at lower levels; however, they also considered implementers as actors. Hence, the interactions between authorities and local implementers dictated the outcome. Winter (1990) asserted that policy formulation and policy implementation were entwined where he investigated the effect of the former upon the later. This hybrid model is an approach that explores characteristics of policy formulation upon policy implementation.

Hybrid theories also began to emerge from former advocates of the top-down and bottom-up camps including Sabatier (1986). Sabatier (1986) proposed the Advocacy Coalition Framework (ACF) which he later refined with Jenkins-Smith (1993). According to Matland (1995):

'Advocacy coalitions are groups of policy advocates from differing organizations, both public and private, who share the same set of beliefs and goals. These groups attempt to have their views of policy problems, solutions, and legitimate actors accepted' (p. 151).

Essentially, the ACF was considered a holistic approach to examination of the implementation process. As a model, policy participants became a community engrossed in a game of negotiation around the discussion of ideas and understandings of the problem (Althaus, Bridgman and Davis, 2007; Sabatier and Jenkins-Smith, 1993; Jenkins-Smith and Sabatier, 1994). However, a prime criticism of this model has been related to *'bureaucratic obedience...in respect of how actors will use the 'official' guidance which accompanies new policies as a starting point for implementation'* (Schofield, 2001, p. 254). There is a strong focus upon government policy as the point of departure for development and implementation which is in contrast to analysing and examining a problem to overcome issues at the beginning of the process. It is considered driven by policy rather than project specifics.

2.12 Issues for consideration

The following discussion provides a summary of each generation of research (refer Table 2) and in doing so highlights the major strengths and importantly, the weaknesses associated with such theories. In this manner the discussion turns to additional perspectives and frameworks within the literature that have also been used to analyse implementation. Importantly, the weaknesses of such theories are identified. Subsequently, the ten preconditions for perfect policy implementation are introduced including why they are considered important and their justification for use in this research.

2.12.1 Top-down models

The top-down movement emphasised hierarchal order and supported systems analysis and the assumption that there is a direct causal relationship between the policy intent and the actual outcome (Pölzl and Treib, 2007). These first generation researchers may be acclaimed for their identification of policy implementation problems: decisions to implementation (Paudel, 2009). Although many top-down theories contain legitimate elements they have been subject to criticism. Top-down models are deemed rational approaches where policy making is a linear process void of flexibility, complexity, ambiguity and other such constructs which in reality dominate the policy process (Schofield, 2001). Furthermore, they tend to start with the statute, without consideration of pre-policy implementation processes (Matland, 1995).

Table 2. Characteristics of the three generations (Adapted from Pölzl, Treib and Oliver, 2007, p. 94)

Element	Top-down theories	Bottom-up theories	Hybrid theories
Policy process	Hierarchal execution: top-down chain of command. Authoritative decisions passed down for execution.	Ground level process. Street level bureaucrats involved with administrative networks and negotiation.	Top and bottom bureaucratic levels involved. Amalgamation of former two theories: builds upon strengths.
Strategy	Prescriptive.	Variable.	Flexible.
Emphasis	Government hierarchal processes. Well designed policy objectives control implementation.	Local level bureaucrats. Local actors maintain discretion and responsibility for policy delivery.	Multiple agent involvement. Scientific focus: operationalisation and observations.
Policy cycle	Fragmented approach.	Holistic approach.	Holistic approach.
Analysis outcomes	Policy recommendations.	Explanations.	Formulation and implementation inseparable
Implementation	Hierarchal directives.	Local level problem solving.	Multiple agent involvement. Subject to fluctuation and changing inputs
Strengths/Weaknesses	Highlighted implementation as a vital part of the policy process. Hierarchal processes. Ability to formulate clear and unambiguous objectives.	Introduced local level actors and their importance in the policy process. Street level bureaucracy ownership. Decision making and autonomy activities of street level actors.	Political authorities and local level implementers are vital actors. Explored conflict, coordination and collaboration. Inability to blend all elements from other theories.

Schofield (2001) explains how *'Top-down models place emphasis upon the central government role and the primary legislation as the embodiment of the policy objectives'* (p. 251). In this manner, implementation is only an administrative process (Matland, 1995). According to Schofield (2001) this can be an error as they fail to consider the pre-legislative policy making phases. The contribution of local implementers and their knowledge of the policy area is ignored as there are often viewed as impediments to successful implementation. Additionally, the autonomy bestowed upon implementers, makes it almost impossible to design policy that will maintain control over implementing agents (Matland, 1995).

Hordern (2013) highlights an underlying scepticism with policy analysts over the possibility of 'top-down goals' driven policy implementation and evaluation. With these theories, considerable emphasis has been placed upon implementation failure with little focus upon other crucial variables of implementation (Hordern, 2013). Additionally, these theories have generated criticism based upon their inability to predict the impact of policies (Nilsen, Stahl, Roback and Cairney, 2013; Schofield, 2001).

Furthermore, such models are considered to make critical assumptions (Hill and Hupe, 2002; 2009). For example, they create a picture that implies policy formulation and implementation are rational and linear processes. Additionally, they are separate entities and must be examined as such (Schofield, 2001). These models accentuate the formulator's ability to design objectives that are clear and devoid of ambiguity (Pölzl and Treib, 2007). They may be limited given they tend to neglect the complete policy cycle or any consideration of implementation actors: their influence and impact upon the policy implementation process and subsequent outcome (Annor and Allen, 2009; Pölzl, Helga, Treib and Oliver, 2007).

2.12.2 Bottom-up models

The second generation researchers, focused upon framework development: a more analytical approach concentrating upon policy outcome predictions (Schofield, 2001). The stance by bottom-up theorists contest that local 'street level' bureaucrats and associated actors are vital to the policy implementation process and ultimately, the success or failure of policy (Pölzl, Helga, Treib and Oliver, 2007).

In contrast to the top-down theory, bottom-up theories are holistic in that all stages are intertwined and to study one component is insufficient to garner a complete understanding of the policy process. In this manner policy formulation and policy implementation are inseparable. There is an underpinning belief by bottom-up theorists that there is a mismatch between policy objectives and policy outcomes. Local level government authorities had discretion over delivery and this was vital to the success of policy implementation. Basically, they had the ability to adapt to actual ground level realities (Pūlzl, Helga, Treib and Oliver, 2007). This is important as structure, resources and the like may all affect the success of policy (Matland, 1995).

Although these theories accept a more holistic approach to policy implementation, they have been criticised for their overemphasis upon the role of the street level bureaucrat in the policy process. Matland (1995) explains that *‘in a democratic system, policy control should be exercised by actors whose power derives from their account-ability to sovereign voters through their elected representatives. The authority of local service deliverers does not derive from this base of power’* (p. 149-150). These theories were also criticised given the excessive emphasis placed upon autonomy and decision making surrounding actors (Nilsen, Stahl, Roback and Cairney, 2013; Pūlzl, Helga, Treib and Oliver, 2007). Furthermore, where goals of formulators and implementers are not well understood, compatible or aligned, autonomy can be a dangerous element to the policy implementation process (Matland, 1985). There has been concern over such an approach to research as there appears to be an absence of a theory to explain what influenced the policy process and how change occurred (Nilsen, Stahl, Roback and Cairney, 2013; Pūlzl, Helga, Treib and Oliver, 2007): an abundance of case studies and insufficient validation and replication associated with their work (Schofield, 2001).

2.12.3 Hybrid models

The importance of the hybrid models is their ability to build upon the strengths of former generation approaches. Importantly, they emphasise the scientific methodologies as a basis for research. In this manner they emphasise a holistic approach to the study of implementation, formulation and implementation are intricately entwined. Additionally, both bureaucratic administration and local autonomy are concepts associated with policy success. Variables

such as policy types and influences (e.g. economic) impact upon policy delivery. It is important to note that even hybrid models have been the subject of much debate and may be considered 'incomplete'. Given the polarisation between the top-down and bottom-up theorists, there may be some facets of these approaches that is unable to be synthesised into a hybrid model, given such fundamental differences which has been identified as a process of attempting to merge "*incommensurate paradigms*" (Parsons, 1995, p. 487; see also Pülzl and Trieb, 2007, p. 97).

2.13 Perspectives and frameworks

In addition to the three generations of research numerous alternate perspectives and frameworks concerning implementation also emerged. These models further illustrate the wide range of approaches in which implementation research has been viewed and analysed.

2.13.1 Political to behavioural approaches

There are four (4) predominant approaches that fall within this scale: political, structural, procedural and behavioural. Political approaches relate to relationships within and between organisations and include the way in which a government entity exercises political judgement strategy implementation. To ensure the successful policy outcomes, politics, power and their impact must be considered given their ability to change the policy environment, otherwise failure is eminent (Hogwood and Gunn, 1984). As Hogwood and Gunn (1984) describe, '*...the distribution of power may be such as to produce policy stalemate at the implementation stage even when the policy has been formally authorized and legitimised*' (p. 216). Political approaches consider those for and against the implementation of the policy. However, the political approach may not be holistic in its view of implementation given variables beyond those associated with politics also have the potential to influence outcomes.

The structural approach examines organisational structure. For example, it means that rather than examining the organisation as a whole, the focus has shifted towards organisational structures and their compatibility with specific tasks and environments. Planning of change is an organisational process: involving internal organisational control and management. Such

planning however, requires a more flexible implementation approach as change may come from external influences or may be challenging to predict and control. Therefore, this type of approach has limitations as structure is often rigid and inflexible given the bureaucratic environment (Hogwood and Gunn, 1984) and may not truly reflect implementation in its entirety.

Procedural approaches argue that process dictates successful outcomes. Implementation from this perspective is often viewed in terms of an approach similar to project management. In this respect, implementation is a highly detailed operation concerning schedules, management plans and controls, in which control and certainty reign. Central themes relate to forecast planning, contingency planning, evaluation processes and overall programme reviews (Hogwood and Gunn, 1984). More specifically, Hogwood and Gunn (1984) identify that these approaches tend to involve three phase programme design, programme execution and monitoring processes. Therefore, implementation would involve programme development with objectives and tasks clearly stated and defined. Although planning may assist in implementation there are other considerations to implementation such as conflict, bargaining and behaviour and as such the singular focus of this approach becomes its weakness.

The final type of approach – behavioural – relates to attitudes and behaviours and that they need to be guided and often shaped to achieve the outcomes of the new policy (Hogwood and Gunn, 1984). Hogwood and Gunn (1984) identify that behaviour towards policy implementation can be ‘...*active acceptance to passive acceptance, indifference and passive resistance to active resistance*’ (p. 212). All these behaviours need to be considered as any policy brings change and for many, this can elicit a range of emotions (Hogwood and Gunn, 1984). All these behaviours need to be considered as part of the implementation process as the introduction of any policy brings change and for many, this can elicit a range of emotions. For example, change can evoke a fear reaction as it may suggest uncertainty. Similarly, individual fears may affect attitudes towards policy implementation as concern is raised over personal impacts such as career options and remuneration. However, as with the former approaches, one based primarily upon behaviour may be deficient in its ability to embrace all influences that impact implementation.

2.13.2 Incentive, institutional and mandate models

Incentive theory quite simply argues that incentives are introduced to form and shape behaviour to ensure policy is effectively and successfully implemented. In effect, it is incentives that form a mechanism to change and shape behaviour. Although this may be true in certain situations, Kendal (2010) considers the straightforward nature of this theory to be problematic given association with ‘*over-simplification*’ (p. 21). Whereas, institutional models assist in understanding how an organisation implementation contexts variables such as variety and function of institutional contexts in relation to implementation processes (Calista, in Nagel, 1994; Kendal, 2010). Calista (1994) explains that ‘*As policy choices move across institutional contexts, implementation becomes a cumulative process*’ (p. 123). However, across contexts, policy intent may not be clarified in which an inability to attain consistency and cooperation across contexts may result in ineffective implementation. Mandate design models differ as they are used in conjunction with statistical techniques and demonstrate that statutory compliance and consistency alone are not the primary drivers to effective implementation (Kendal, 2010). Kendal (2010) explains that ‘*Findings can show that policy designers can enhance implementation efforts and shape regulatory styles through better mandate design...*’ (p. 22). These models may provide valuable information about implementation but individually, their ability to fully encompass all issues is questionable.

2.13.3 Macro and micro-implementation models

Kendal (2010) identifies that implementation research can be approached from the macro or micro perspective. The macro model investigates the phenomenon of implementation from an organisational viewpoint with reference to inter-relationships and system interactions. As such, rational choice theory and network analysis are common approaches. Although research into organisational networks can elicit rich information, Kendal (2010) explains that they generally provide more uncertainties. Given that implementation in relation to this research did not focus solely upon the organisational context, the macro model approaches were not considered suitable.

The micro implementation perspective consists of five (5) predominant models. Model 1 considers implementation as systems management where organisations function in a capacity as value maximises and hierarchal control is evident in allocation of responsibilities. Effective implementation and policy success is the direct result of achieving a full understanding of the policy intent, having detailed objectives, appropriately allocating tasks, performance monitoring and modification (Elmore, 1997). Model 2 encompasses the bureaucratic process and presents four (4) assumptions. Organisations are defined by discretion and habitual practices. A hierarchy exists which distributes power and authority from the top down in which discretion and routine are responsible for the allocation of power in a fragmented manner to units responsible for specific tasks. Implementation identifies discretion and the routines in need of change and this includes identification of new routines that align with policy intent (Elmore, 1997).

Model 3 views implementation in terms of organisational development and maintains that organisational intent is to satisfy psychological and social needs, an organisations structure should be designed to maximise individual control and to encourage participation and commitment (Elmore, 1997). Implementation revolves around consensus and relationships amongst those responsible for policy formulation and implementation (Elmore, 1997; Kendal, 2010). Model 4 considers implementation as the relationships between conflict and bargaining. Elmore (1978) discussed organisations as domains full of conflict competing for authority, power and ultimately resources. Implementation is the bargained decisions that reflect choices and resources of units (Elmore, 1997). Similarly, Matland (1995) proposed a conflict-ambiguity matrix in which four situations are possible: administrative, political,

experimental or symbolic implementation. Successful implementation is a function of administrative implementation with sufficient resources and minimal conflict (Matland, 1995). Model 5 relates to the project management approach where the underlying principle concerns the identification of risk: risk management during implementation process which equates to critical event control (Kendal, 2010).

Although these models maintain a specific focus or concern various elements of the implementation process, it is noted that there are limitations to each. Primarily, the first models are not holistic given they negate inclusion of conflict processes or consequences from failure (Elmore, 1997; Kendal, 2010). Conversely, Model 4 may consider conflict yet Kendal (2010) highlights that there is no determination measure for success or failure. Although Model 5 may align well with planning and organisation these approaches are not considered ‘fully developed theories of implementation’ (Kendal, 2010, p. 21).

2.13.4 Research outcomes

Within the literature there have been numerous frameworks and approaches developed that may be used to investigate policy implementation (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013). The three generations of policy implementation theory and alternative perspectives, identify a range of factors that attempt to describe and explain implementation processes (refer Table 2). However, as stated by P`ulzl, Helga, Treib and Oliver (2007), ‘...we know little about which of these factors are more or less important under what kind of background conditions’ (p. 103). It has been acknowledged that even with such a vast array of theories and approaches there were few conclusions or recommendations put forth in relation to the field of policy implementation (Nilsen, Stahl, Roback and Cairney, 2013). Many of these methodologies look at the various systems underlying implementation, for example, is implementation a managerial process or the result of an incentive strategy. Considering implementation as a singular system may not fully embrace all influences that impact upon outcomes. Therefore, this research uses the conceptual framework developed by Hogwood and Gunn (1984) as an analytical lens by which to understand policy implementation: the ten preconditions to perfect policy implementation (refer Table 3). A framework designed to explore policy deficits or failure that identified areas in need of attention to achieve successful outcomes. Further justification will now be provided.

2.14 Preconditions for perfect policy implementation

Gunningham and Sinclair (1998) argued that policy is often problematic:

‘...most existing approaches to regulation are seriously sub-optimal...they are not effective in delivering their purported policy goals, or efficient, in doing so at least cost, nor do they perform well in terms of other criteria such as equity or political acceptability’ (p. 1).

Exploring policy implementation processes may identify influences that impact upon these activities, providing an understanding of why there is a disparity between policy intent and outcome. It would assist in identifying why policy is often ineffective - highlighting barriers – that may drive change to improve implementation and achieve successful outcomes.

Theoretically, achieving the requirements of each of the Hogwood and Gunn (1984) preconditions must occur in order to attain perfect implementation and ultimately the success of the policy (Annor and Allen, 2009; Wanna, Butcher and Freyens, 2010). Conversely, the success of implementation becomes hindered where the ten preconditions are not considered or implementation processes depart considerably from the set requirements (Wanna, Butcher and Freyens, 2010).

Therefore, Hogwood and Gunn (1984) examined policy implementation from an implementation defect perspective: they highlighted areas that if imperfect or affected by certain variables will negatively impact upon the success of implementation processes (Annor and Allen, 2009; Hordern, 2013). They acknowledge that perfect implementation is an unlikely reality; however, their viewpoint asserts that without consideration of the ten preconditions, the policy implementation phase will be challenged (Robertson-Wilson and Levesque, 2009). Essentially, the *‘...preconditions are a scientific control against which all attempts at implementations would fall somewhere on a spectrum from being fully realised to unrealised’* (Wanna, Butcher and Freyens, 2010, p. 222). Although implementation of the policy in accordance with the governing authority may not be a possibility, Hordern (2013) explains that throughout the implementation process, there remains a responsibility to try and achieve those initial specifications.

It is important to note that there are two phenomenon associated with implementation: non-implementation and unsuccessful implementation. Although these both reflect policy failure,

they are quite distinct in terms of the source of failure and elements that contribute to failure. Non-implementation relates to a policy which is formulated, but not put into effect as intended given inefficient administrative processes or significant obstacles. Unsuccessful implementation relates to a policy, when fully implemented, does not result in the desired outcome, even when external constraints are not unfavourable (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013; Hogwood and Gunn, 1984).

Within the literature, the Hogwood and Gunn (1984) framework has been considered ‘... *a practice-related version of the top-down model, which epitomised the top-down approach to policy implementation by setting out ten preconditions necessary to achieve perfect implementation*’ (Annor and Allen, 2009, p.19). Although it has been described in association with the top-down faction, it is an operational framework makes consideration of the circumstances associated with implementation aligned with the EP&A Act. The Act has predominantly been a policy influenced from a hierarchal position: international directives, national initiatives and policies, State policy and subsequently local level delivery.

2.14.1 Framework justification

Primary reasons for use of the Hogwood and Gunn (1984) framework in the context of this research will now be discussed. Firstly, the framework is considered to be aligned with the policy under investigation given the international agenda that brought forth National and State amendments, and subsequently local level transformation. A hierarchal process of policy formulation and implementation. Although the ten preconditions are theoretical and idealistic in nature making them unlikely to be achieved in reality, they have been employed as an analytical lens by which to explore implementation activities (Annor and Allen, 2009): a beneficial framework by which challenges to successful policy implementation can be identified. (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013). Therefore, the model is considered important by policy analysts given its focus upon implementation deficits when determining why the objectives of a particular policy have not been achieved. Additionally, analysing potential policy deficits has the ability to incite learning, which may provide a deeper contextual understanding behind why policy is not achieving its desired objectives (Hordern, 2013).

Highlighting implementation barriers can assist in adapting strategies to improve success. In this manner, *'Implementation weaknesses can be overcome by paying attention to the conditions needed for successful implementation* (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013, p. 144). Where a precondition or preconditions are not successfully met, this can result in sub-optimal implementation (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013). Therefore, *'The framework is particularly useful in identifying the strengths and weaknesses of the policy implementation process, thus contributing to knowledge on the implementation processes...'* (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013, p. 144).

Ison and Rye (2003) provide a typical example of how the framework can be employed to identify areas of good practice when they investigated transportation planning. Importantly, they highlighted that the framework provides *'...an ideal against which real world areas of policy implementation can be analysed, assisting in thinking systematically about the reasons for implementation failure and approaches to improving the implementation process'* (p. 225). Ison and Rye (2003) identified not only areas requiring attention (e.g. high levels of dependency relationships) but also those working effectively (e.g. effective planning involves clear well written action plans).

In this manner the framework is useful to evaluate optimal implementation (Robertson-Wilson and Levesque, 2009): both barriers and enablers to understand why there remains a disparity between policy intent and outcome. An example rests with Ditlopo, Blaauw, Rispel, Thomas and Bidwell (2013) in their exploration of policy implementation related to an incentive scheme concerning nursing staff retention. Although there are ten preconditions set by Hogwood and Gunn (1984), the implementation of the incentive scheme resulted in non-compliance with some criteria. The policy itself was considered good and based on a valid theory of cause and effect, in line with precondition 4. However, it was shown that there were issues with inadequate information systems (information technology), communication and coordination, dependency relationships, task specification and the management of time and resources (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013), specific areas which once highlighted could be targeted and addressed.

Importantly, the ten preconditions to perfect policy implementation have been considered *'...a key instrument in analysing local policy implementation'* (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013) which aligns well with this research which considers local level

government and non-government agents. Examining the implementation phenomenon at the ground level, may provide a more rich understanding that can assist policy makers in future amendments and delivery of the policy. The importance of the framework at a local level was demonstrated by Annor and Allen (2009) when they used the ten preconditions as a lens to investigate public mental health policy implementation through understanding stakeholder actions: local level phenomena. Importantly, they discuss how implementation is more than simple hierarchal directives fed through the various tiers of the policy chain. Rather, implementation reflects the stakeholder's ability to '*...interpret, understand and behave in partnerships in the process of implementing...*' (p. 28).

Annor and Allen (2009) identified that understanding and interpretation of concepts is significant enough to impact upon the perception of objectives and the overall outcome of implementation, when they researched mental health concepts. Additionally, the interdependence of stakeholders, authority relationships, subsequent competition for resources and lack of communication all impact upon the success of policy implementation. Importantly, they provided support in favour of Hogwood and Gunn's (1984) precondition that requires complete understanding of, and agreement on the objectives of the policy. Of importance, their research maintains a relationship with local level phenomena, a theme presented throughout this research. Investigating local level implementation has the potential to highlight areas of disparity between plan objectives and associated implementation outcomes.

The framework has also been employed as a lens by which to explore documentation within research. Robertson-Wilson and Levesque (2009) used the Hogwood and Gunn (1984) framework as a lens by which to investigate publicly-available government documentation: physical activity policy for the education system. Their research aligns with this study which also involves an examination of publicly available documentation: the development consent related to each of the construction projects under examination.

Robertson-Wilson and Levesque (2009) found that although perfect implementation may be unrealistic, policy deliver will be challenged when the preconditions are not considered (Robertson-Wilson and Levesque, 2009). Importantly, Robertson-Wilson and Levesque challenged policy implementation in relation to precondition 4 and 5 as they highlighted the importance of cause and effect theory to enable a determination of whether unsuccessful

outcomes result from either poor implementation or inappropriate theory. They also discovered that a significant challenge to successful implementation related to precondition 8 and that insufficient task specification and sequencing plays can have a major detrimental impact upon policy implementation outcomes (Robertson-Wilson and Levesque, 2009). Robertson-Wilson and Levesque (2009) acknowledged benefits of the framework have involved its use outside the standard scope policy implementation, in combination with other models. Such an investigation using this approach was conducted by Mackie (2010) who combined the framework with the Hicks and Gullett (1981) model of control phases to investigate local government management development. The thirty five (35) year study, was aimed at improving policy formulation from an implementation perspective: to identify and employ measures to overcome implementation defects. They found a disparity between large and small authorities. Primarily the disconnect was a result of insufficient policy networks aimed towards the policy intent. Additionally, the disparity was due to a lack of expertise and resources. Mackie (2010) also highlighted how there *'is widespread use of 'standard' menu-driven approaches using traditional modes of delivery'* (Mackie, 2010, p. 358). There was also little evidence of collaborate partnerships to overcome resource issues (Mackie, 2010).

Charles (2005) followed a similar path, using the Hogwood and Gunn (1984) framework in combination with others to develop a list of implementation considerations which could be directly applied to the transport sector in Queensland, Australia. Through their research they were able to identify success factors and suggestions for improvement. For example, Charles (2005) describes how there is a need to *'Build a coalition of key stakeholders, meeting on a regular basis, led by a respected champion to discuss policy issues, agree roles and responsibilities, facilitate implementation and review and report on outcomes'* (p. 617). Such actions align with the Hogwood and Gunn (1984) framework as they discuss the need to identify stakeholders, develop collaborative relationships which includes specific actions such as identification of roles.

The ten preconditions have been employed to explore policy implementation across a range of disciplines. However, they are yet to be fully explored in terms of the context of this research. Examining how policy implementation influences the disparity between policy intent and outcome will assist future planning to ensure policy success.

2.14.2 Summary

This ideal list of preconditions for perfect policy implementation serves as a foundation for exploring the EP&A Act against on-site construction environmental management operations. Exploring policy implementation, specifically from the ground level perspective against the ten preconditions enables an assessment of the implementation phase which may identify influences that impact upon the success of the policy. Each of the ten preconditions will now be discussed in further detail as it is necessary to understand how they apply to implementation and how they can be used to understand implementation in the realm of on-site construction environmental management operations.

2.15 The ten preconditions defined

Hogwood and Gunn identify ten preconditions that must be achieved in order to attain perfect policy implementation as shown in Table 3. Each precondition will now be explained in further detail with an overview presented at the end of the Chapter in Table 4.

Table 3. The Hogwood and Gunn (1984) framework

Number	Precondition for Perfect Policy Implementation	Theme
1	The circumstances external to the implementing agency do not impose crippling constraints.	External Constraints
2	That adequate time and sufficient resources are made available to the programme	Time and Resources
3	That the required combination of resources is actually available	Resource Availability
4	That the policy to be implemented is based upon a valid theory of cause and effect.	Theory of Cause and Effect
5	That the relationship between cause and effect is direct and that there are few, if any, intervening links	Relationship Links
6	That dependency relationships are minimal	Dependency Relationships
7	That there is understanding of, and agreement on, objectives	Objective Agreement
8	That tasks are fully specified in correct sequence	Task Sequencing
9	That there is perfect communication and co-ordination	Communication and Co-ordination
10	That those in authority can demand and obtain perfect compliance	Compliance

2.15.1 Precondition 1

The circumstances external to the implementing agency do not impose crippling constraints.

The process of implementation will generally involve challenges of many descriptions. In some situations these constraints or obstacles can be managed internally: controlled by those responsible for the implementation phase. However, constraints may also emerge as external impediments. These are often difficult to manage and in some cases the agents responsible for implementation may have no ability to control them (Hogwood and Gunn, 1984). For example, they could be physical in nature such as climatic conditions impacting upon the implementation process.

Commonly, political constraints impact negatively upon the implementation phase. In this respect, stakeholders or groups may be in opposition to the policy and impede its implementation (Hogwood and Gunn, 1984). According to Parsons (1995), implementation reflects political endeavours: agents pursuing self-interests involving negotiation and persuasive behaviours (Annor and Allen, 2009). In relation to the EP&A Act and on-site environmental management operations, this research explores the experiences and perspectives of those responsible for implementing the policy at the ground level: both regulatory and non-regulatory agents. Moving beyond the State agency responsible for policy implementation, to understand how implementation influences the disparity between policy intent and outcome.

2.15.2 Precondition 2

That adequate time and sufficient resources are made available to the programme

For the success of any policy it requires appropriate time for implementation and resources to support actions. Insufficient time allocated to the implementation process may hamper efforts to fully execute actions in a positive way (Hogwood and Gunn, 1984; Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013). For example, a short time frame may impose too many constraints amongst those in receipt of the implementation. Values, behaviours, attitudes and beliefs are all areas that may be influenced by the implementation of policy and this often

requires longer time frames to encourage acceptance of the policy and its intent. Conversely, time frames too lengthy in nature may act as an impediment. Often a policy issue may be hindered by another rising issue that continues to gain public attention. Therefore, overly lengthy time frames may result to a degree in indifferent feelings towards the policy in which acceptance or commitment is diminished (Hogwood and Gunn, 1984).

Hogwood and Gunn (1984) explain that it is important to acknowledge that *'money is not a resource in itself but only a 'ticket' with which to purchase real resources, and there may be delays in this conversion process'* (p.199). Without appropriate resources from the political authority, combined with resource management plans, the implementation phase may be impeded or terminated (Hogwood and Gunn, 1984). For example, impractical time frames, such as those too short in nature, can often lead to excessive spending to use funding (Hogwood and Gunn, 1984). However, it is often in this scenario that funding is not directed towards implementation activities appropriately, as *'this often leads to excessive spending prior to the end of financial year on trivial items so as to not have to return the non-spent funds to the finance department'* (Hogwood and Gunn, 1984, p. 199).

2.15.3 Precondition 3

That the required combination of resources is actually available

This condition considers that implementation is not related to one individual or specific action, rather, it involves a multitude of activities often broken into set phases and tasks, delivered in succession. For the success of each phase, the required combination of resources needs to be available (Hogwood and Gunn, 1984). Hogwood and Gunn (1984) identify two primary situations when resources are not available when needed: bottleneck and cash shortage states. The first state, the bottleneck, is considered the most difficult scenario. It is experienced when a specific resource is either not available or delayed in some manner that the project is halted until either the resource (or a suitable alternative) is found or the project becomes inactive. Shortage of cash is another state that may impede successful policy implementation as it will affect the ability to acquire resources. However, additional funding may be sought from the authority but the ability and time needed to obtain the resources may have already had a detrimental impact upon implementation (Hogwood and Gunn, 1984).

2.15.4 Precondition 4

That the policy to be implemented is based upon a valid theory of cause and effect.

Hogwood and Gunn (1984) explain that *'Every policy incorporates a theory of cause and effect and if the policy fails, it may be the underlying theory that is at fault rather than the execution of the policy'* (p. 201). Under this heading the nature, appropriateness or quality of the actual policy is questioned. It concerns whether unsuccessful outcomes are a direct result of poor implementation or inappropriate theory about how the policy should work (Hogwood and Gunn, 1984; Robertson-Wilson and Levesque, 2009). There may be no valid theory of cause and effect and this means the policy formulated was inferior (Hogwood and Gunn, 1984). A policy may have been formulated without a true understanding of the issue, its root cause, options analysis may have been incomplete and the general policy making process flawed, therefore, the policy is deemed for failure. The necessity for a valid theory of cause and effect is an area to be addressed during the policy making process (Hogwood and Gunn, 1984).

2.15.5 Precondition 5

That the relationship between cause and effect is direct and that there are few, if any, intervening links

Cause and effect relationships can be a major impediment to the success of policy during the implementation phase. In their early writings, Pressman and Wildavsky (1973) discuss implementation as sequences of cause and effect, both difficult to depict and comprehend. In effect, *'...the longer the sequence, the greater the potential for failure'* (Smith, Sykes and Fischer, 2014, p. 240). The two stage process of 'if X then Y will occur' is not often experienced within the policy environment. This is due the range of internal and external stakeholders, government and non-government agencies and of course the differing agendas all involved with policy from formulation to implementation (Hogwood and Gunn, 1984). The reality, as described by Hogwood and Gunn (1984) is that *'policies which depend upon a long sequence of cause and effect relationships have a particular tendance to break down since the 'longer the chain of causality, the more numerous the reciprocal relationships*

among the links and the more complex implementation becomes' (p. 202). This means that the more relationships and agendas involved with the policy, the more complex and difficult the process becomes (Hogwood and Gunn, 1984).

2.15.6 Precondition 6

That dependency relationships are minimal

Perfect implementation '*...requires that there is a single implementing agency which not need depend on other agencies for success, or if other agencies must be involved, that the dependency relationships are minimal in number and importance'* (Hogwood and Gunn, 1984, p. 202). In reality, policy is not involve one implementing agency and one subject group, rather, implementation follows a complex path of events that involves multiple relationships with various agents and agencies. The process may involve local authorities, other government and non-government agencies, including community members and groups. In this respect, achieving successful implementation or a defined outcome may be problematic. With increased relationships comes additional approvals from all agencies with an interest in the policy and ultimately a reduced ability to achieve success. Often there is a separation between the stages of the policy cycle. Policy formulation may be developed within one agency, while the actual implementation and evaluation through another involving often rigid and inflexible implementation practices. It weighs heavily on the organisations ability to effectively implement policy and fully comprehend policy outcomes (Hogwood and Gunn, 1984; Wanna, Butcher and Freyer, 2010).

2.15.7 Precondition 7

That there is understanding of, and agreement on, objectives

The intention behind this condition is that all agents need to have and understanding of, and agree on the objectives. Additionally, for implementation success it is essential that these factors remain continuous during the entire implementation phase. First, objectives need to be clearly defined, quantified, precise and unambiguous to ensure they can be understood and

agreed upon. Second, there must be scope for review as the policy environment is flexible and subject to constant change; therefore, the current state may change in the future and goals vulnerable to succession, expansion and displacement. Poorly designed objectives can lead to confusion, misunderstanding of policy intent and noncommittal by implementing agents. This is then reflected along implementation communication channels creating further havoc to implementation activities (Hogwood and Gunn, 1984). Hogwood and Gunn (1984) also explain that objectives need to be compatible otherwise ‘...*the possibility of conflict or confusion is increased when professional or other groups proliferate their own ‘unofficial’ goals within a programme*’ (p. 204).

2.15.8 Precondition 8

That tasks are fully specified in correct sequence

Implementation tasks need to be detailed, specific and sequenced. Furthermore, the role of each agent needs to be explicit (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013; Robertson-Wilson and Levesque, 2009). In this way it is possible to progress towards the policy objectives as all agents understand implementation tasks and the sequence in which they need to be undertaken. Hogwood and Gunn (1984) explain how project planning techniques provide a framework by which the planning and implementation phase of a policy can be appropriately structured and regulated. Fully specified tasks and sequencing is not alone sufficient for success. There needs to be strong leadership to ensure that tasks are performed appropriately and in correct order. Importantly, there needs to be managerial control to implement action where tasks and sequencing do not progress as planned (Hogwood and Gunn, 1984).

2.15.9 Precondition 9

That there is perfect communication and co-ordination

For successful policy implementation there needs to be perfect communication and coordination amongst all agents and agencies (Hogwood and Gunn, 1984). Hogwood and

Gunn (1984) acknowledge that *'The attainment of a perfectly unitary administrative system with no compartmentalism or conflict within is impossible within and amongst real life organisations which are characterised by departmentalism, professionalism and the activities of many groups with their own values, goals and interests to protect'* (p. 205).

Regardless, communication and coordination are constructs that must be considered to improve the outcome of implementation. Hogwood and Gunn (1984) discuss how information management systems are available that can assist with communication activities; however, they are not responsible for ensuring advice and instructions are appropriately relayed to agents. Similarly, coordination moves beyond administrative structuring and information flow and extends to the exercise of power (Hogwood and Gunn, 1984).

2.15.10 Precondition 10

That those in authority can demand and obtain perfect compliance

Condition ten requires that those in authority can demand and obtain perfect compliance which means there is no resistance to their requests and actions. Those in authority retain power and *'...are able to secure total and immediate compliance from others (both internal and external to the agency) whose consent and co-operations are required for the success of the programme'* (Hogwood and Gunn, 1984, p. 206).

Given the multitude of agents and agencies involved with implementation, there may be impediments to perfect compliance. For example, conflict and power struggles may affect compliance activities (Hogwood and Gunn, 1984). Hogwood and Gunn (1984) explain how even those in power attempting to achieve compliance, may themselves impede the process, where they lack the inability to back their demands or do not have the determination or motivation to drive such orders. Even the policy can be a mechanism to reduce or inhibit perfect compliance. Policies that concern innovation or change management bring forth a range of impediments such as suspicion, resistance, defiance and disobedience. Where consultation activities and timeframes are insufficient then actions, such as suspicion, which are in opposition to the policy are heightened (Hogwood and Gunn, 1984).

2.16 Conclusion

Policy implementation as a concept, was highlighted around the 1960-1970 period, predominantly within the United States. Many policies were in force across the country with new ones evolving to address more contemporary problems. However, it was acknowledged that many of the existing and new policies had been developed and implemented with little success: their ability to achieve policy objectives was ineffective (Allen and Annor, 2009). The research by writers such as Pressman and Wildavsky, in their investigations into policy failure, highlighted the importance of the implementation phase and how it can be the determining factor of policy failure or success (O'Toole, 2000; Schofield, 2001). Implementation is an important phase to acknowledge, as it is this particular phase of the policy process that is subject to exploration in this research. Policy may be perfectly formulated; however, without appropriate implementation failure in one form or another is imminent.

Policy implementation allows us to explore the disparity between policy intent and outcomes (Moncaster and Simmons, 2015). In this respect, to understand why it has not achieved the desired outcomes now involves exploring '*...what happens and why in social interaction in micro-networks*' (Moncaster and Simmons, 2015, p. 453). Policy implementation has been explored using a variety of frameworks, perspectives and models. The literature review considered many of these approaches that endeavour to provide an understanding of implementation. Apart from identification of their strengths, relevant faults have also been highlighted. The intent was to demonstrate that although many approaches provide useful information and assist with implementation, the perfect model has not been developed, particularly given the multiple contexts in which policy operates.

Amongst such studies emerged the theoretical framework: the ten preconditions for perfect policy implementation by Hogwood and Gunn during 1984. Hypothetically, achieving the requirements of each precondition would contribute towards a positive policy outcome. Conversely, implementation success is impeded where the set conditions are not considered as part of the implementation process. The framework works from a defect perspective: it highlights the areas of imperfection associated with the implementation phase that can be addressed to positively influence policy success (Hogwood and Gunn, 1984).

The Hogwood and Gunn (1984) framework is used in this research as a lens to explore environmental planning policy implementation. The model and its preconditions are discussed in-depth along with justification for its use as a lens by which to explore the research question. The framework is specific to implementation activities by which it can evaluate optimal implementation. In addition, it has been used as a framework to examine government documentation and to explore local government implementation. Challenges or influences that impact upon successful policy delivery can be identified to give a rich understanding of the implementation process. In this manner strategies can be employed which make consideration of such delivery impediments.

The next chapter explores the methodology used to explore the research question. The methodology concerns a two stage approach. First, specialist practitioners are interviewed following an etic approach to provide a generalised overview of the phenomenon. Secondly, a multi case study methodology is adopted: an emic approach by which to understand the opinions and viewpoints of specialist practitioners that is context specific. The intent being to identify influences that impact the disparity between policy intent and outcome and determine whether differences exist within the classes of participants.

Table 4. Interpreting the Hogwood and Gunn's (1984) ten preconditions

Number	Precondition	Theme	Summary
1	The circumstances external to the implementing agency do not impose crippling constraints.	External Constraints	Many project challenges can be managed internally. External impediments are more difficult to control (Hogwood and Gunn, 1984). For example, implementation has been referred to as reflecting political interests (Annor and Allen, 2009).
2	That adequate time and sufficient resources are made available to the programme	Time and Resources	Short time frames may impose unrealistic constraints. Long time frames can affect commitment due to new policy issues that arise. Insufficient resources can impede to result in termination of implementation (Hogwood and Gunn, 1984).
3	That the required combination of resources is actually available	Resource Availability	Implementation involves multiple actions with set tasks delivered in succession. Appropriate resources need to be available at relevant stages for success. For example, where resources are not available project delay is imminent (Hogwood and Gunn, 1984).
4	That the policy to be implemented is based upon a valid theory of cause and effect.	Theory of Cause and Effect	Without a valid theory of cause and effect the policy may be inferior. Unsuccessful outcomes are a derivative of inappropriate policy rather than implementation (Hogwood and Gunn, 1984; Robertson-Wilson and Levesque, 2009).

Number	Precondition	Theme	Summary
5	That the relationship between cause and effect is direct and that there are few, if any, intervening links	Relationship Links	Minimal relationships increase policy success. Where there is a longer sequence involving multiple internal and external stakeholders, the ability for success is significantly reduced. There are more relationships, agendas and complexity introduced (Hogwood and Gunn, 1984; Smith, Sykes and Fischer, 2014).
6	That dependency relationships are minimal	Dependency Relationships	Where multiple agencies are involved and are reliant upon the actions of others then the likelihood of success is reduced as the ability to implement policy is affected. (Hogwood and Gunn, 1984; Wanna, Butcher and Freyer, 2010).
7	That there is understanding of, and agreement on, objectives	Objective Agreement	Poorly designed objectives can result in confusion, misunderstanding of policy intent and noncommittal by agents. Implementation channels are impacted and activities incompatible or ineffective (Hogwood and Gunn, 1984).
8	That tasks are fully specified in correct sequence	Task Sequencing	Tasks associated with implemented must be detailed, specific and sequenced with the role of agents fully specified. All stakeholders will be working to the one agenda and outcome (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013; Robertson-Wilson and Levesque, 2009).

Number	Precondition	Theme	Summary
9	That there is perfect communication and co-ordination	Communication and Co-ordination	Communication and co-ordination amongst agents and agencies must be perfect to ensure the success of implementation activities. Although a difficult task, this theme must be considered or policy failure will be imminent (Hogwood and Gunn, 1984).
10	That those in authority can demand and obtain perfect compliance	Compliance	Those in authority responsible for implementation can achieve perfect compliance referring to both internal and external stakeholders. Issues such as conflict and power struggles may impact upon the ability to achieve success (Hogwood and Gunn, 1984).

Chapter 3: Methodology

Chapter 3 affords an introduction to the worldview or paradigm of constructivism and the phenomenological methodological approach: the philosophical framework guiding the research including consideration of epistemological and ontological assumptions. Following which methods related to the qualitative explorative design are described as they afford the structure to direct the data collection and analysis process across two stages: Stage 1 semi-structured interviews and Stage 2 multiple case study design involving interviews and documentary evidence.

3.1 Introduction

The intent of this research is to understand how policy implementation influences the disparity between policy intent and outcome, specifically through an exploration of implementation activities in the context of regulatory environmental planning policy and on-site construction environmental management operations. In Chapter 1 ESD was considered and in turn the discussion provided a focus upon the policy central to this research: environmental planning policy. In doing so, it established the context to the investigation into implementation operations. Chapter 2 provided an in-depth review of the academic literature in terms of policy implementation theory. With a focus upon implementation, the Hogwood and Gunn (1984) framework: ten preconditions for perfect policy implementation, was discussed as it provides the lens to enable an exploration of the phenomenon of implementation.

In Chapter 3 the methodological approach undertaken in this research is described. Within the Chapter, the World View or Paradigm of Inquiry underpinning the research is examined: Constructivism in conjunction with the phenomenological approach. Subsequently, the Ontological and Epistemological assumptions or beliefs as related to Constructivism are explored. Understanding the theoretical perspective enables systematic development of the methodology to direct the structure of the methods and analysis. Gray (2009) explains that *'the choice of methods will be influenced by the research methodology chosen. This methodology, in turn, will be influenced by the theoretical perspectives adopted by the researcher, and, in turn, by the researcher's epistemological stance'* (p.17).

Therefore, moving beyond Constructivism and the phenomenological approach, the qualitative exploratory design is introduced which paves the way for discussion into the Stage 1 interview and Stage 2 case study research designs. Through this strategy, an exploration was undertaken in relation to practitioner experiences and understandings of implementation activities, considering both etic and emic perspectives, in conjunction with an analysis of documentary evidence. The remainder of the chapter concentrates upon data analysis techniques which are divided into three parts: data analysis associated with Stage 1, Stage 2 and the subsequent cross case synthesis.

3.2 Philosophical perspective

The focus of the research is to generate understanding, to explore the experiences of those directly involved with the phenomenon: policy implementation. This will provide information that can contribute to the body of knowledge: understanding and learning to make change for positive improvement. As such it is first necessary to outline the world view and methodological approach directing the research.

3.2.1 Constructivism

A world view '*is composed of beliefs and assumptions about knowledge that informs a study*' (Creswell and Plano Clark, 2011, p. 417). The predominant world views are considered to be Postpositivism, Constructivism, Participatory and Pragmatism (Creswell and Plano Clark, 2011). There are many common elements amongst the world views, inter alia, ontology, epistemology, axiology, methodology and rhetoric elements. However, it is the distinctive positions that each world view holds towards these elements that defines them apart (Creswell and Plano Clark, 2011).

In terms of this research the world view or fundamental philosophy of Constructivism is of relevance as following such a view allows for participants to provide their perspectives and experiences to help shape a picture of the phenomenon – policy implementation – that is under investigation. Constructivism is considered to be '*Typically associated with qualitative approaches, is based on understanding or meaning of phenomena, formed through participants and their subjective views*' (Creswell and Plano Clark, 2011, p. 409). Therefore, in this research it is proposed to construct a picture of reality, policy implementation and how it influences the disparity between policy intent and outcome. It considers multiple perspectives: etic and emic approaches being generalised and context specific.

Four characteristics are common to Constructivism: understanding, multiple participant meanings, social and historical construction and theory generation (Creswell and Plano Clark, 2011, p. 40). These characteristics are defined through the position or view points on each of the elements. Therefore, as there remains a disparity between policy intent and outcome, it is necessary to investigate and explore the 'reality' of the situation, the actual implementation

operations: those which connect these variables may provide an in-depth understanding of the phenomenon. Specifically an appreciation of implementation from multiple perspectives may result in the identification of influences that impact upon successful policy implementation. Within Constructivism there is the belief that multiple realities exist (Creswell and Plano Clark, 2011). For example, every participant in this research has an understanding of, and individual meanings and experiences associated with, the phenomenon. This research primarily explores practitioner experiences from an emic and also an etic position in the context case study projects. In terms of Constructivism, Ontology '*asks what is the nature of reality*' (Creswell and Plano Clark, 2011, p. 42). From an ontological position, with a range of practitioners involved with the research, multiple realities are in existence as each has a different viewpoint. These viewpoints are important as they will contribute to construct a picture of the reality associated with the policy implementation phase.

Under the banner of Constructivism, Epistemology, examines how knowledge is gained with an emphasis upon relationships (Creswell and Plano Clark, 2011, p. 41-42). Epistemology, '*relates to knowledge, to what constitutes knowledge, and to the processes through which knowledge is created*' (Quinlan, 2011, p. 480). This research considers such an approach as it involves relationships between the researcher and the research being conducted. In this research, the researcher developed a relationship with each participant – building rapport – during data collection processes as interviews were undertaken. It is necessary to form a relationship between researcher and participant in an interview situation to enable effective communication, open dialogue and the transfer of information to explore the phenomenon.

Understanding Constructivism and the epistemological and ontological positions then demands a methodological approach to be defined. The term methodology has been defined as a '*combination of techniques used to enquire into a specific situation*' (Easterby-Smith, Thorpe & Jackson, 2012, p. 31). This research adhered to a phenomenological approach that provides support for the methods elected. Phenomenology as applicable to this research will now be discussed.

3.2.2 Phenomenology

Aligned with world view of Constructivism is a defined methodological approach. Quite commonly, a phenomenological approach is affiliated with Constructivism as the aim of such research is to examine and understand reality: experiences, values and beliefs as experienced by the person (Liamputtong and Ezzy, 2005). The phenomenological approach relates to the individual – the practitioners interviewed as part of this research – from their understanding of policy implementation: the lived experience. It is the study of everyday experiences from the viewpoint of the practitioners experiencing them: to understand and gather meaning from their perspectives (Liamputtong and Ezzy, 2005).

In this research the experiences of specialist practitioners are explored to depict a picture of reality surrounding implementation and this is affiliated with a phenomenological approach as it is considered to be in-depth research (Quinlan, 2011). There is a regulatory environmental planning policy and subsequent implementation operations will result in outputs. At present a disparity exists between the policy intent and the desired outcome. Policy implementation can assist in understanding what transpires between these two entities. It is through exploration of the lived experienced of those practitioners that it is possible to identify influences that impact upon successful outcomes.

Essentially, the phenomenological approach moves away from the theoretical assumptions of what should transpire to investigating the actual practices that occur (Quinlan, 2011). In this manner, as applied to this research, the phenomenological approach assists to define the phenomenon as it allows for an investigation into what is actually transpiring at the policy implementation phase. A range of factors are associated with phenomenological research, that allow for an examination of specialist practitioner experiences of the world as they experience:

- the phenomenological research approach provides an opportunity to explore the realities of individuals - multiple realities – related to the phenomenon;
- phenomenological research is compatible with the paradigm of inquiry named constructivism as it acknowledges the value of every participant and what they bring to the investigation; and

- small sample sizes are favoured to enable a targeted examination of views and experiences: a richer more detailed understanding of one's experiences can be garnered (Quinlan, 2011; Smith, Flowers & Larkin, 2009);

Importantly, within the realm of phenomenological research, the researchers hold values, beliefs and experiences that are acknowledged: they '*hold explicit beliefs*' (Mouton and Marais, 1990, p. 12). Hammersley (2000) explains that it is not possible to separate oneself from their own beliefs, assumptions and opinions and they should acknowledge this. However, the '*researcher does not impose any preconceived ideas that they might have*' (Quinlan, 2011, p. 102). Phenomenological research is the approach adopted for this research as it aligns with the intention of understanding the real lived experiences of individuals as related to the phenomenon: to investigate the 'reality' of practice to garner an understanding and true representation of implementation.

3.3 Qualitative exploratory research design

Within research, both qualitative and quantitative approaches are available to enable collection and analysis of data. In its simplest form, quantitative data is numeric in nature and qualitative is not: non-numeric (Quinlan, 2011). This research follows a qualitative approach, which has been described as '*an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world*' (van Manen, 1983, p. 9).

A qualitative approach was adopted as it assists to '*...develop as thick and rich and as complete an account of the phenomenon under investigation...*' (Quinlan, 2011, p. 420). The intent of this research aligns with the qualitative approach as it is about an exploration into the subjective experiences and realities to increase understanding of the phenomenon (Quinlan, 2011). In terms of this exploratory study, this refers to the policy implementation phase associated with on-site construction environmental management operations. By following such an approach it requires adherence to a set protocol with well-defined procedures, methods and analysis techniques (Liamputtong and Ezzy, 2005). The qualitative approach employed by this research is designed for interaction with the participants to obtain

a rich source of data involving a depth around views and experiences. This differs to the quantitative approach where the intent is to obtain a more generalised understanding of an issue across a specific population (O’Leary, 2005; Creswell and Plano Clark, 2010; Quinlan, 2011). Subsequently, the qualitative analysis involved an exploration of the data to identify new perspectives and provide for a deeper and richer understanding of the phenomenon related to implementation.

3.4 Design considerations

As discussed in Chapter 1, the research methodology was approached in two stages with the intent to explore different viewpoints, both etic and emic perspectives, to understand the reality of policy implementation and also see whether differences exist within the different classes of participants. To ascertain universal views of the phenomenon implementation and explore it in different settings to garner an in-depth understanding of reality. To ultimately inform of the influences that impact upon effective policy outcomes.

3.4.1 The two stage approach

A method is a technique employed to enable the collection of data, subsequent analysis and a discussion to be formulated (Easterby-Smith, Thorpe and Lowe, 2003). Therefore, the term reflects the ways in which data is collected or gathered that is needed for the research (Quinlan, 2011). For this research, the collection of primary data was approached in two stages:

Stage 1 followed an etic approach which provides an overview of the general influences of policy implementation: an outside view from the observer of the phenomenon. This initial stage explored practitioner experiences in a generalised manner that involved expert views of their multiple experiences across their professional careers. Policy implementation involved a generalised critique of practice. This first stage employed qualitative research methods: semi-structured interviews with specialist practitioners to explore the issues associated with regulatory environmental planning policy implementation that influences on-site construction environmental management operations. In this respect, interview questions were not

constrained into the existing Hogwood and Gunn's (1984) framework to obtain a holistic understanding of the phenomenon and eliminate bias in practitioner responses.

Stage 2 followed an emic approach involving very case specific multi perspectives: an inside view from the perspective of the specialist practitioner. It attempted to explore the extent in which generalisations are shown in each case and across all four cases. Stage 2 is context specific as it involves the interactions between a range of stakeholders across certain construction projects: to determine what happens in the real world that is, the implementation phase. It is about understanding of the mechanics of practice in a single context. In this manner a qualitative research methodology was employed but in a different context: a multi case study approach. Specialist practitioners associated with specific construction projects were interviewed and documentary evidence analysed for environmental content. As per Stage 1, the interview questions were not constrained to the framework to extract a universal picture of reality. It must be noted that the participants from Stage 1 were different to those in Stage 2.

The research theme is not well explored in terms of regulatory environmental planning policy and on-site construction environmental management operations against the implementation phase. Although the Hogwood and Gunn (1984) ten preconditions for perfect policy implementation have been acknowledged as a theoretical lens by which implementation can be explored (refer to Chapter 2 discussion), their application has not been considered in the context of this research. Therefore, there was a need to undertake Stage 1 to establish an emic view of the phenomenon to garner an understanding of the issues of relevance to relevant practitioners. Stage 2 considered an etic approach which contrasts with the initial stage given its focus being context specific. As stated, through etic and emic approaches the intent was to determine whether differences exist within the classes of participants. In this manner, the study explored and searched for outlier events as contributors or additional influences that have the potential to impact upon policy success.

Conducting two stage qualitative exploratory research requires consideration of issues such as the staged approach used for this research and the sampling strategy. In addition, it is necessary to reflect upon validity, reliability and bias related issues associated with research to ensure they have been duly considered in the design phase. The following dialogue considers each of the abovementioned issues in relation to this research.

3.4.2 Sampling strategy for this study

This study was guided by a phenomenological approach to explore the research phenomenon. Subsequently a qualitative exploratory design was employed to approach data collection across two stages. Qualitative research generally requires a sampling frame to be identified, making consideration of issues such as the sampling method and sample size (Liamputtong and Ezzy, 2005). The following discussion will review the sampling strategy employed for this research.

Liamputtong and Ezzy (2005) describe how *'A sample will aim, for example, to identify the cases that will provide a full and sophisticated understanding of all aspects of the phenomenon. The aim is to select information-rich cases for studying in depth'* (p. 45).

The sampling frame for this study was developed with the nomination of exclusion and inclusion criteria. The criteria was established to ensure participants had the knowledge and experience necessary which would elicit rich data and enable an exploration into the research phenomenon. The criterion are discussed further in this chapter.

Following the sampling frame the sampling approach – criterion sampling – was employed. Liamputtong and Ezzy (2005) explain that in criterion sampling *'All cases that meet a set of criteria are selected. In criterion sampling it is important to select the criteria carefully, so as to define cases that will provide detailed and rich data relevant to the particular research problem'* (p. 47). Given the nature of the research which investigates the phenomenon of policy implementation in relation to a specific regulatory policy, it was necessary to have participants involved with the industry and such operations. As discussed, criterion was established to ensure participants possessed knowledge and experience of the phenomenon under investigation from the regulatory environmental planning policy to implementation activities associated with on-site construction management operations.

In regards to the sample size, Creswell and Plano Clark (2011) discuss how it is important to interview small numbers of people, as this will ensure issues will emerge that will provide the understanding necessary to examination of the phenomenon being studied. They further explain *'the larger the number of people, the less detail that typically can emerge from any one individual'* (p. 174). While, Liamputtong and Ezzy (2005), explain that *'when the researcher is satisfied that the data are rich enough to cover enough of the dimensions they*

are interested in, then the sample is large enough' (p. 49). As formerly identified this research employed a two stage data collection process. Stage 1 followed the guidance of Creswell and Plano Clark (2011); whereby, a small number of participants were interviewed to ensure rich information and avoid data saturation. Stage 2 case study research followed the strategy by Yin (2009) involving a small number of case study projects but also aligned with the Creswell and Plano Clark (2011) as a small number of participants were interviewed for each projects. Given the inclusion and exclusion criteria against project type, a small sample size was considered appropriate.

3.4.3 Validity and reliability in this research

Although a qualitative exploratory approach was used to guide this research, consideration must be given to the areas of validity, reliability and bias to ensure the study is both comprehensive and rigorous in design and operation. Each of the areas of validity, reliability and bias are now introduced in reference to this research. Table 5 shows the main methods of consideration used to assist with the validity of this research and to increase reliability.

Table 5. Methods to improve validity and reliability as related to this research (Adapted from Yin, 2009, p. 41)

Criteria	Method
Construct Validity	Multiple sources of evidence
	Chain of evidence
	Reviewers
External Validity	Employ replication logic in multiple case studies
Reliability	Employ Case study protocol
	Develop case study database

Validity relates to the credibility of the data and outcome. With this research the lived experiences obtained through data collection need to be explored and presented in a manner that will allow an understanding of the phenomenon. The use of multiple case studies, with different data sources, contributes to the validity of the study. Multiple cases provide for evidence that is more robust in nature. In addition, the use of standardised data gathering techniques such as interview scripts in the case of this research, further supports validity (Yin, 2009). Validity ‘...is the degree to which a research project measures that which it purports to measure’ (Quinlan, 2011, p. 193). Therefore, validity is related to how robust and valid the research is. Primarily this research makes consideration of construct validity, a form of validity that considers the operational measures related to concepts under exploration (Yin, 2009). In this research multiple methods were adopted to increase construct validity as aligned with those presented by Yin (2009). They include the use of multiple sources of evidence, developing a chain of evidence and having multiple reviewers (supervisors).

As part of the design of this research, consideration was also given to external validity: a construct that is relevant to exploratory designs and specifically examines the generalisation of the research findings (Yin, 2009). With this research, analytic generalisations and findings are considered across multiple projects in relation to theory. The research considered the use of replication logic in multiple-case studies, methods identified by Yin (2009), that have been adopted to assist with external validity. A final consideration of this research related to internal validity. Validity of this nature has been considered relevant to explanatory studies only (Yin, 2009) and the focus of this research is exploratory in nature; therefore, no further discussion is provided with regard to this issue.

Reliability concerns to the ability of the research to be replicated to obtain consistent results. Although of vital importance in research, the degree of importance within qualitative research is a matter of debate (Quinlan, 2011). Quinlan (2011) explains that ‘*In qualitative research, reliability is not considered a crucial factor as it is context specific and the methods selected are chosen for suitability to that context*’ (p. 192). To a degree, reliability was considered within the scope of this research. For example, methodological processes were detailed to ensure a transparent process. While, supervisors acted as auditors to confirm the dependability of research.

3.4.4 Bias associated with this research

As part of the qualitative exploratory approach employed by this research, the construct of reliability was considered in terms of the types of biases and how they could be overcome. Essentially, *'bias in research is anything that contaminates or compromises the research'* (Quinlan, 2011, p. 297). Specific to this research were the areas of research bias, sampling bias and respondent bias and each was considered and where appropriate mitigation measures implemented.

There are many ways in which the researcher may purposely or unconsciously introduce bias in a qualitative study that may significantly impact the outcome such as adhering to certain views and beliefs (Quinlan, 2011). In this research, the potential for personal bias was acknowledged and care taken to ensure that the primary objective was to extract the participants' individual experiences and understandings of the world from their viewpoint: to ensure that the researcher remained open to all themes and findings as they arose.

To minimise sampling bias due to poor or flawed procedures (Quinlan, 2011) multiple interviews were conducted with a range of practitioners across multiple stages. In addition, numerous construction projects were investigated using interviews and documentary evidence. Each project involved different types of construction: residential, aged care, commercial and educational. The lead contact, being the construction manager for each project, was responsible for contacting key stakeholders. Each project also required, where possible, a diverse range of practitioners to ensure multiple realities were imparted.

Respondent bias was a consideration in this research and subsequently questions or themes posed to participants were framed in an open way. The one-on-one interview technique helped establish rapport with participants to encourage honest and open communication between the interviewer and interviewee. In addition, the open questions provided interviewees with the freedom to respond and discuss issues as they thought appropriate or relevant which would assist to eliminate respondent bias. In this manner issues associated with not elaborating upon answers, simply agreeing with a question or providing a socially desirable answer rather than the individual's own opinion or experience were reduced (Quinlan 2011).

3.5 Stage 1 research design

As formerly discussed, Stage 1 employed a qualitative research design involving semi-structured interviews, that followed an etic approach to provide an overview of the phenomenon from an outside perspective. This stage of the process explored experiences in a generalised manner associated with multiple experiences from across professional careers. This section will discuss the use of interviews and subsequently, detail the interview protocols employed for Stage 1 of the research.

3.5.1 Exploratory Interviews

Rubin and Rubin (1995) have identified two predominant categories of interviews within the research environment: cultural interviews and topical interviews. Cultural interviews look for the meanings behind behaviours and explanations for their actions. A greater emphasis is placed upon listening and the feedback or paraphrasing back to the interviewee (Rubin and Rubin, 1995). However, topical interviews were used to guide this research as these differ in that they *'are more narrowly focused on a particular event or process, and are concerned with what happened, when and why'* (Rubin and Rubin, 1995, p. 28). The questions used in this research were of an assertive nature and the process is directed with the intent of obtaining factual information (Rubin and Rubin, 1995). Use of topical interviews enabled consideration based upon the research theme and importantly, provided the mechanism by which the phenomenon was able to be explored.

Interviews may be classified as structured, semi-structured or unstructured (O'Leary, 2005; Roulston, 2010). The intent of the structured interview is standardisation with a deductive approach using set questions delivered in same order involving coded response options (Roulston, 2010). The unstructured interview differs as it concerns a discussion or conversation between the interviewer and the interviewee, an inductive approach (Roulston, 2010) with an informal and unstructured approach with reliance upon collaborative discussion (Bryman and Bell, 2011; O'Leary, 2005). However, for the purpose of this research, the final type of interview - semi-structured – was employed. The semi-structured interview is often associated with the inductive approach (Roulston, 2010) and may be considered a combination of the former two styles. For example, in this research, an

interview guide containing pre-determined questions was used in each interview and all themes were presented to each participant. Similarly, the interview style involved a discussion between the interviewer and the interviewee to elicit a rich understanding of the experiences of the participant.

The questions posed to the participants were considered to be open in nature. The open style was employed for this research as it is commonly aligned with qualitative approaches but importantly, they attempt to elicit richer more complex detail: there are no set responses. It was necessary to elicit detailed information to gain an in-depth understanding of the phenomenon. In this manner the questions were designed to avoid short responses: themes were identified for discussion and explored to fully understand the experiences of the practitioners (Roulston, 2010). Factual information in the form of yes, no or short answer responses and analysis using numerical codes was not viewed as appropriate to provide the depth or complexity of information needed.

Each participant was able to respond with their experiences: statements they understood to be of relevance. They were also given the opportunity to embellish their response by the introduction of associated issues they understand to be pertinent. The interviewer also had the ability to probe deeper and fully explore relevant themes that arose during the interview process: *'probes frequently to use the participants own words to generate questions that elicit further description'* (Roulston, 2010, p. 12). Figure 8 summarises the different types of interview and question techniques in the semi-structured approach as applied to this research.

As detailed, the interviews for this research were categorised as cultural and semi-structured in nature. The one-to-one nature of the interviews encouraged rapport and gave the opportunity for an in-depth explanation of the phenomena under examination. The intent was to evoke discussion into regulation and on-site construction environmental management issues. To elicit how participants perceived their work environment: regulatory and in operation. The cultural approach enabled a focus upon the understandings of professionals towards regulation but also how these were implemented from a practical perspective and its relationship to standard practice. The semi-structured nature of the interviews provided for open discussion where participants were given questions but had the opportunity to highlight associated issues of relevance to them.

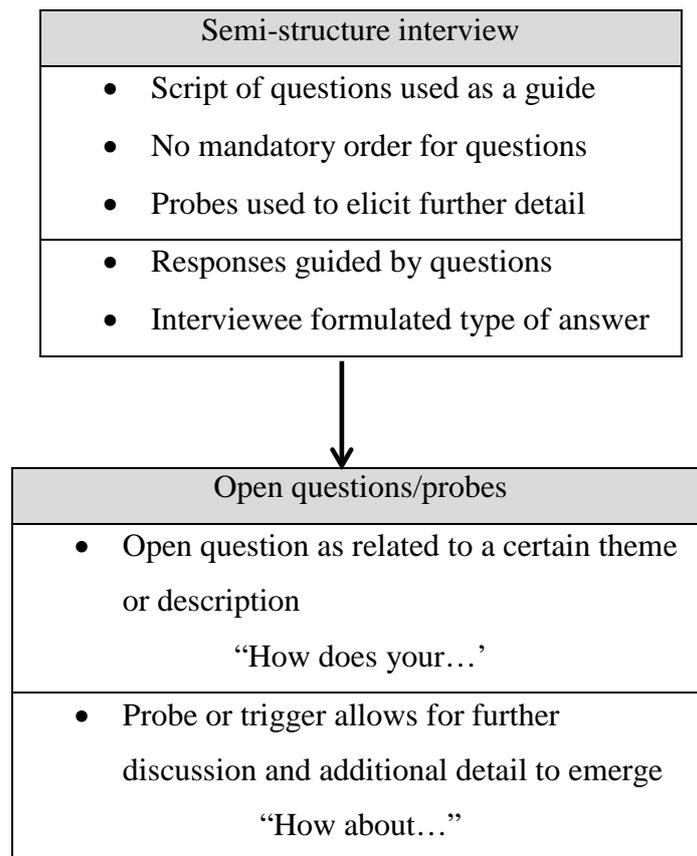


Figure 8. Type of interview and question approach employed for this research (Adapted from Roulston, 2010, pp.11-14)

3.5.2 Interview protocol

As discussed, Stage 1 of the research involved a qualitative exploratory design where the method used to collect data involved semi-structured interviews. Interviews were conducted to explore the experiences and understandings of industry practitioners in relation to implementation operations: those associated with environmental planning policy and the influences upon on-site construction environmental management operations. Stage 1 of the research was granted approval from the Human Research Ethics Committee: approval number H-2012-0262 (refer Appendix 2).

3.5.3 Interview method

With interviews classified as being in-depth and semi-structured in nature, a variety of standardised question types and topics were presented to interviewees. Given the nature of the interview type, probes were also developed and used in each interview. Their purpose was to be a mechanism to encourage the interviewee to discuss a theme more in-depth and also enable the interviewer to examine any specific issue or issues that arose. In this manner, an understanding of these issues could be explored and more fully developed.

The interviewer and the interviewee had defined roles; however, the semi-structured nature of the interview permitted more open communication channels than those associated with a formal structured interview. The intent was to allow the interviewee the opportunity to answer questions but also raise any issues, comments or discuss any experiences they thought were valid to the topic. Therefore, there was scope to deviate from the set questions to explore any themes that arose during the interview.

3.5.4 Participant numbers

Interviews were conducted with key stakeholders from the development and construction industry including certifiers, town planners and construction managers who provided the bases to identify relevant issues and themes. Interviews were conducted with practitioners who held either a regulatory role or were employed within private sector organisations. Following the guidance of Creswell and Plano Clark (2011) a small numbers of interviews were undertaken to ensure a rich data set was obtained and issues would emerge.

3.5.5 Participant characteristics

Participants that contributed to the research were adults greater than 18 years of age. The target group were employees of the organisations including: local government, building certification, development and construction firms. Participants included:

- certifiers and town planners from local government organisations involved with assessment, certification and/or regulation of development;

- private certifiers responsible for building certification works; and
- industry developers and construction managers responsible for on-site construction operations.

Participants were selected from industry based upon inclusion and exclusion criteria to ensure familiarity with the theme under investigation.

3.5.6 Inclusion and exclusion criteria

Inclusion and exclusion criteria were identified to ensure that participants would have the knowledge, understanding and experience with the phenomenon under investigation. The inclusion and exclusion criteria are now presented.

Inclusion criteria:

- involvement with the development and construction sector and the EP&A Act. Participants were required to be familiar with the regulatory controls so issues concerning its impact in relation to the environmental outcomes from construction projects could be ascertained. Participants required a knowledge and experience with development assessment processes (either lodgement or assessment of applications) and/or construction operations (either on-site operations or certification): all areas associated with policy implementation activities; and
- participants were to include certifiers and town planners from local government, private certifiers, developers and construction managers due to their involvement with the phenomenon investigated by this research.

Exclusion criteria:

- no knowledge or experience with the regulatory policy and its applicable controls;
- no knowledge or experience of construction, assessment and/or certification activities associated with development; and/or
- trainees, cadets or apprentices will be excluded as they are not considered to have sufficient experience and knowledge pertaining to the research domain.

3.5.7 Participant source

The research focused on practitioners from the development and construction industry, across the government and non-government sectors. To determine which firms were to be approached to participate in the research, the following criteria was applied:

- local governments who approved the most number of development applications from the 2010-2011 period as identified in the NSW Department of Planning and Infrastructure 'Local Development Performance Monitoring 2010-2011' report were selected;
- private firms that employ Category A1 accredited certifiers were selected as they have no restrictions on their accreditation and can certify a range of buildings and structures, including small scale residential to large complex industrial and commercial projects; and
- building firms, associated with the Australian Institute of Building Board or its committees were selected as the institute is a peak industry body.

3.5.8 Recruitment and consent

Participant recruitment was conducted through third parties. Third parties were personnel who had authority to consent to employees of their organisation participating in the research. They were approached by telephone and informed of the study. They were then emailed an organisation information sheet, organisation consent form, participant information sheet and participant consent form. Consent was obtained from organisations. Organisational representatives then disseminated the participant information sheet and consent form to applicable personnel. Potential participants were required to read the information sheet and return the completed consent form with their contact details. Contact was made with potential participants either by email or phone. Following which a date, time and venue for the interview was determined. Each participant was required to participate in one (1) interview. Interviews went for approximately one (1) hour. The interviews were conducted face-to-face or on the telephone as determined by the participant. The location of each face-to-face interview was conducted at the workplace of the participant.

3.5.9 Interview question themes

Initial interview questions were designed to acquire demographic data (Refer Table 6). Questions considered participant position, roles and responsibilities, time in both the current position and industry (refer Table 7). The information was sought to highlight important variables in relation to responses to themes and also relationships between participants.

The second set of interview questions were open-ended and reflected the various stages of the implementation process from application preparation, to site operations. Participants were able to answer in the manner they best thought appropriate. They also had the opportunity to embellish any answers or focus upon an issue they raised as salient. The adoption of a semi-structured interview technique was considered a means by which the interviewee would be given independence to raise and discuss issues they thought relevant to the question theme without constraint.

The interviewer used an interview sheet to guide questioning which contained a list of questions and probes to assist the discussion. The sheet was printed on A4 paper to allow the interviewer to make notations during the interview. The interviews were recorded which meant that the notations were minimal to maximise discussion and avoid distractions.

Although multiple participants were interviewed, the questions and probes remained the same. Using identical sets to initiate a response had the potential to increase the understanding of each practitioners view upon a theme. The final question asked whether the interviewee had any additional comments and this provided an opportunity for the participants to highlight any ideas and issues they felt of relevance to the topic but they had not yet covered.

3.5.10 Interview process

Each interview followed the same process to ensure maximum reliability. Consent forms for both the organisation and participants were collected prior to any interview being undertaken. The interviewer and the participant would meet at a pre-determine venue, date and time or the

interviewer would call the participant at the pre-determined date and time. Where possible, the interviewer would attend the office of the participant to conduct the interview.

The interview commenced with the interviewer introducing the research including its purpose, along with issues related to confidentiality and duration. Each participant was informed that the interview will be recorded and they were then provided with the opportunity to ask questions, clarify any aspect of the interview or research process. The interview then commenced. First, demographic questions were addressed to the participant one at a time. The themed questions were then introduced and the interviewer used probes to encourage conversation and maintain focus.

3.5.11 Post interview procedures

Once interviews were completed, the interviewer reviewed notes taken. Each interview recording was then transcribed and reviewed against the field notes. Coding and theme identification was undertaken, the process of which will be further discussed in this chapter.

Table 6. Demographic questions from Stage 1 interviews

Demographic Questions	Interviewee	Position
		Roles and Responsibilities
		Time in Position
		Time in Industry

Table 7. Question themes employed in Stage 1 interviews

Question themes	Probes/Triggers	Sub-level
Environmental Performance	Environmental management unit Environmental scientist/officer	
	Training: Environmental management Environmental regulations On-site operations	
	Monitoring Auditing, reporting on-site operations	
Design/Approval Processes	Environmental performance considerations	
	Extent of practitioner involvement with development application meetings	
	Statement of Environmental Effects	
	Construction Environmental Management Plans	
Site Operations	Notification of on-site requirements	
	Approval documentation	
	Standard on-site practices	
	Senior management/Director or Environmental officer	
	System for implementation	
Monitoring and Compliance	Monitoring on-site operations	Non-regulatory and regulatory: Audit processes Reporting processes
	Audits/reporting frequency	Daily/weekly/monthly Development consent Statement directions On-site operations
	Audit practitioners	Regulatory employee Non-regulatory employee
Information Sources/Advice	Government agencies Government sources Internet Professional institutes Industry networks	
Policy	Extent to which policy impacts performance	Degree of control Regulatory interpretation Construction environmental management plans Voluntary and regulatory

3.6 Stage 2 research design

Stage 2 focused upon case study research design and methods. It employed an emic approach that is context specific. It afforded an inside view to explore the extent to which generalisations may be shown in each case and also across all case studies. The approach considers a range of stakeholders in specific contexts to understand what happens in the real world as applicable to the research phenomenon. Four (4) case study projects were explored involving semi-structured interviews and documentary evidence. This section will now describe the case study approach in the context of this research and detail the design and subsequent protocols employed.

3.6.1 Case Studies

According to Yin (2009), *'A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident (p. 18)'* and such research:

- *'copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result*
- *relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result*
- *benefits from prior development of theoretical propositions to guide data collection and analysis'* (p. 18).

For this research a case study approach is employed as a research method to investigate multiple cases: to understand the real-life phenomenon. Research of this form allows for *'...in-depth exploration; are an examination of subtleties and intricacies; attempts to be holistic; explore processes as well as outcomes; and investigate the context and setting of a situation'* (O'Leary, 2005, p. 116). It is noted that the use of multiple case studies also aligns with the phenomenological approach that is used to guide this research.

Case study research was used in this research as the phenomenon under investigation related to a range of project types and as such it was necessary to explore different scenarios to understand its action in context and across multiple settings. A qualitative design was employed using interviews to elicit the real life experiences of practitioners – their opinions and perspectives - which was supported by documentary evidence: all case study methods. The intent of this research being to obtain rich data to provide a holistic understanding of the phenomenon implementation.

There are multiple benefits associated with case study research. For example, the cases explored may hold such characteristics that the study is considered to hold intrinsic value. New variables may be exposed about a topic or theme that can contribute to the body of knowledge (O’Leary, 2005). The study may involve a single case study: single-case design, or multiple case studies: multiple-case design (Yin, 2009) to fully understand and make sense of the phenomenon under investigation (Quinlan, 2011). Furthermore, case study research enables a range of cases to be explored which is the scenario for this research which involves four projects. Importantly, using this form of design – multiple case design – contributes to the outcome making the evidence more convincing, more vigorous: improving the validity of the study (Yin, 2009).

Yin (2009) explains that multiple-case design can be elected for two primary reasons related to literal replication and theoretical replication. Yin (2009) explains that ‘*Each case must be carefully selected so that it either (a) predicts similar results (a literal replication) or (b) predicts contrasting results but for anticipatable reasons (a theoretical replication)*’ (p. 54). Therefore, the first concerns literal replication that looks purely at whether the same results occur. In contrast, theoretical replication attempts to examine diverse or different outcomes for the same reasons (Yin, 2009). Yin (2009) states that both literal replication and theoretical replication may be addressed within a study where a small number of cases are examined: usually four to six (Yin, 2009). In this research a total of four cases or projects were examined. Therefore, both forms of replication are involved: literal replication to see whether the same experiences and processes occur across projects and theoretical replication to cross compare themes divulged through interview experiences and document analysis.

3.6.2 Limitations

The disadvantages of using case study research as part of this research were acknowledged to ensure that where possible they were considered in the overall design. Three (3) primary issues associated with case study research are now identified and measures to mitigate as related to this research are discussed:

1. lack of rigour: rigour may be questioned where systematic protocols have not been adhered to or where biased views have been introduced and influence outcomes. In this research, the use of multiple methods has been employed to maximise rigour, a process identified by Yin (2009);
2. lack of scientific generalisability: Yin (2009) argues that case studies '*like experiments, are generalizable to theoretical propositions and not to populations or universes*' (p. 15). The research undertaken here will be employed in this manner to contribute to the development of theories, a process explained by Yin (2009) as central to case study research; and
3. extensive time and resources: given the data collection processes associated with case study research they are often considered too time and resource intensive. Interview engagement, transcription, analysis immersion, combined with other techniques such as document analysis, all contribute to time and resources. As part of this research, time and available resources were considered at the initial stages and accordingly designed into the study to help minimise future issues (O'Leary, 2005; Yin, 2009).

3.6.3 Case study strategy

Table 8 summarises the research design components as employed for this research. Case studies are classified according to the research intent. Stake (2005) identifies intrinsic, instrumental and collective as the relevant categories. The intrinsic approach attempts to obtain a more in-depth understanding of a particular case. While, the instrumental approach differs in that it is focused upon providing insight or a more thorough understanding of a particular issue. The final approach – collective – was employed for this research as it

involves multiple cases to elicit richer detail and ultimately a more in-depth understanding (Stake, 2005). The collective exploratory approach was employed to provide a more richer and deeper understanding of the phenomenon implementation.

Table 8. The research design components as employed for this research

Research Component	Design consideration	Methods
Type	Multiple case study design	Four case study projects
Multiple sources of evidence	Interviews Documentary evidence	Triangulation
Category	Collective approach	Multiple cases to elicit in-depth detail
Research question	<i>How does policy implementation influence the disparity between policy intent and outcome?</i>	
Purpose Success Criteria	Explain the disparities between policy intent and outcome in terms of policy implementation	
Unit of analysis	Implementation process	
Linking of data	Analytical technique	Cross-case synthesis
Interpretation criteria	Ten preconditions for perfect policy implementation	
Replication	Multiple case study projects	Literal replication
Unit of data collection	Results	Interviews Documentary evidence

Yin (2009) defines five (5) components of the research design. First, the study question must be defined. As outlined in Chapter 1, the question for this research is:

How does policy implementation influence the disparity between policy intent and outcome?

The second step concerns propositions. According to Yin (2009), exploratory research may not have specific propositions as the topic is subject to exploration. However, with this research there still remains a need to state the purpose and criteria to define successful exploration (Yin, 2009). In this research the purpose aligns with the research question and the need to explore implementation activities. Subsequently, the ability to identify issues impacting upon successful outcomes structure the criteria.

The next component concerns the unit of analysis – defining the actual case used in this research. A case may be an individual but also extend to an entity or event such as decisions and programmes (Yin, 2009). Importantly, for this study the implementation process has been identified as a unit of analysis (Yin, 2009). The unit of data collection, therefore, applies to the results obtained from the interviews and also from the documentary evidence.

The logic in linking the data was also a consideration in this research. Multiple analytical techniques may be employed to approach this issue: pattern-matching, explanation building, time series analysis, logic models and cross-case synthesis. However, it was cross-case synthesis that was applicable to this particular research given it is common to a multiple case approach (Yin, 2009). Importantly, it is relevant as the individual cases have been undertaken as a pre-designed part of the same research project. Each case has been viewed as an individual study in which there is an aggregate of findings (Yin, 2009). The final design component relates to the criteria for interpreting the findings. In this respect, the Hogwood and Gunn (1984) ten preconditions to perfect policy implementation are employed as a lens by which the results may be interpreted.

Another important area to identify in design relates to replication as formerly discussed. There are two main forms: literal and theoretical, both of which are considered applicable to this research. Literal replication was relevant to see whether the same experiences and processes occur across projects and theoretical replication to cross compare themes divulged through interview experiences and document analysis. Essentially, the process involved multiple individual case study projects and a comparison of the results across all four.

According to Yin (2009) the use of multiple sources of evidence is to maximise the benefits of the evidence sources. This research employs multiple sources of evidence – interviews and documentary evidence – which introduce the concept of data triangulation. Yin (2009)

identifies that data triangulation is aimed at ‘...*encouraging you to collect information from multiple sources but aimed at corroborating the same fact or phenomenon*’ (p. 116). For this research it involves the convergence of evidence in that every case study uses different sources of data to explore the phenomenon. Construct validity, is to an extent, addressed through data triangulation: multiple sources of evidence provide multiple measures of the phenomenon (Yin, 2009).

For this research, the Stage 2 case study projects involved interviews with practitioners and analysis of documentation being the development consent. Interviews as a method of data collection have been previously discussed in this chapter and the same principles applied in Stage 1 are also of relevance to Stage 2. Therefore, the discussion will now focus upon documentation as a source of evidence in this case study research.

3.6.4 Documentary evidence

Documentary evidence is a source of data that may be employed in research and may include authoritative sources, person communication and historical documents to name a few (Rapley, 2007). Documentation is an important aspect of the data collected for this research as it provides a basis for understanding the legislative or regulatory requirements imposed upon each of the construction projects: the interpretation of the policy into development controls by the regulatory officer, the human element. As part of this research historical sources of documentation were used which refers to ‘...*organization’s records, minutes, and policy documents, or to any of the materials mentioned before that have been authored or produced within a particular historical period of interest to the researcher*’ (O’Leary, 2005, p. 178).

The advantage of using documentation as a data source for case study research is its stability as it may be repeatedly reviewed as the information is an exact record containing specific detail (Yin, 2009). Additionally, documents are a data source not created by the researcher; therefore, they are only subject to the interrogation of the researcher (O’Leary, 2005).

Documentation may be sourced from a wide range of areas which as classified as primary or secondary sources. Primary sources generally relate to original material: first hand accounts of the phenomena. While, secondary sources are second hand accounts in that they are distant

or written based upon a primary source – not the original (Rapley, 2007; Quinlan, 2011). Primary data sources were used in this research as they concerned the final consent for each of the case study projects.

Under the EP&A Act, for each project, the regulatory policy mandates that an application for development be submitted to the consent authority for assessment. Their role is to review the proposed project and determine whether it is suitable for the locality, primarily assessing social, economic and environmental factors. Upon successful completion of the assessment process, a regulatory approval document is issued - the development consent - that contains a listing of all the conditions of consent that must be complied with. The development consent documents were examined to determine the extent to which they incorporate environment controls. The documentation enabled an assessment of the controls placed upon each of the case study projects. To effectively understand the standards set by the regulatory authority and for comparison against the experiences of participants in terms of the implementation activities concerning that documentation.

In terms of documents as a source of data for research, there are limitations primarily associated with reporting bias, the incomplete nature of the transcripts and the ability to retrieve the required document (Yin, 2009). O’Leary (2005) argues that documents as a source of evidence are still an artificial account and must therefore, be used with caution. The documents used for this research were the development consents related to each case study project. These documents are legal in nature, publicly available and complete. It is noted that the development application documentation may provide additional detail on environmental considerations from the initial stage of the process. However, this information is not publicly available as it is confidential both from a regulatory perspective and in a commercial sense. In addition, the approved development consent makes reference to the ‘environmental’ related documentation submitted with the development application and this was considered suitable for the intent of this research.

3.6.5 Interview Protocol

Stage 2 of the research involved a qualitative exploratory design involving case studies – a multiple case approach – to establish influences in a context specific setting. The research involved a total of four (4) case study projects. The use of multiple case studies in this research affords an opportunity to collect data in different project contexts and increase the robustness of the study (Yin, 2009). This research is concerned with small to medium scale local development that falls within Part 4A, Part 5 and/or JRPP/local government determination under the regulatory policy. There are various approval systems for each type of development. For the purpose of this research each case study project must adhere to the following criteria: first, the development must not be exempt development or complying development; second, projects that fall within the scope of this study are small to medium scale residential, industrial and commercial developments (e.g. aged care facilities, commercial premises); and finally, projects must not be major projects in terms of airports, mines, railways and other such large scale developments.

A commentary on the types of development and approval system relevant to the case study projects, in accordance with the environmental planning policy, is detailed in Appendix 1. Stage 2 of the research was granted approval from the Human Research Ethics Committee: approval number H-2013-0348 (refer Appendix 3).

3.6.6 Approach

For each of the case study projects approximately five to seven (5-7) interviews were conducted with key practitioners involved. Electing this number of interviews per project enabled coverage of the key practitioners associated with the various implementation activities. In addition, this number of participants enabled issues to emerge while minimising data saturation (Creswell and Plano Clark (2011). As explained by Creswell and Plano Clark (2011), when larger numbers of participants are interviewed, less detail can be obtained. Interviews were conducted to explore the perspectives and understandings of industry practitioners of the themes in relation to actual real life construction projects.

3.6.7 Documentary evidence

Development consent documentation for each construction project, available via the local government internet site or at their office, were used to provide an analysis of on-site environmental management content. This enabled an assessment of whether consideration was given to environmental on-site impacts at the design and consent stages of each case study project. Interview data would provide support on whether such considerations were implemented in accordance with the consent and whether any additional environmental measures were administered.

3.6.8 Interview method

In line with Stage 1, the interviews conducted in this stage are classified as being in-depth and semi-structured in nature. A variety of topics and themes were presented to interviewees which pertained to implementation processes. Given the semi-structured nature of the interviews, probes were employed to assist discourse and ensure maximum coverage of themes. In this manner, an understanding of themes could be explored and more fully developed. Both the interviewer and the interviewee had defined roles; however, given the interviews were semi-structured with open questions, they promoted unrestricted dialogue. The intent was to allow the interviewee to discuss question themes but also provide the opportunity to raise any issues, comments or discuss any experiences they believed to be valid to the research.

3.6.9 Participant characteristics

All participants involved in the research were adults greater than 18 years of age. Participants were professional practitioners associated with one of the case studies and included: building surveyors, town planners, construction managers, site managers and engineers. Inclusion and exclusion criteria was established. The intent was to ensure that participants would have the knowledge and understanding of the phenomenon under investigation. Criteria for this research is now identified.

Inclusion criteria:

- involvement with the development and construction sector and the EP&A Act;
- familiarity with the regulatory controls so issues concerning its impact in relation to the environmental outcomes of case study projects can be ascertained;
- knowledge and experience with development assessment processes (either lodgement or assessment of applications) and/or construction operations (either on-site operations or certification); and
- professional practitioners such as certifiers, engineers and town planners from local government and non-government sectors, in addition to developers and construction managers due to their involvement with the areas investigated by this research.

Exclusion criteria:

- no involvement with the nominated construction projects;
- no knowledge or experience with the regulatory controls within the Act;
- no knowledge or experience of construction, assessment and/or certification; and
- trainees, cadets or apprentices will be excluded as they are not considered to have sufficient experience and knowledge relevant to the research domain.

3.6.10 Participant source

Similar to Stage 1, participants for Stage 2 were sourced from the development and construction industry, across the government and non-government sectors. However, participants involved in this stage required knowledge of at least one specific case study project. Participants were sourced from multiple organisations including:

- local government, for example, certifiers, engineers and town planners involved with assessment, certification or regulation of development;
- private sector, for example, certifiers, engineers and town planners involved with assessment, certification or regulation of development; and
- private sector, for example, construction managers and site supervisors responsible for on-site construction operations.

3.6.11 Recruitment and consent

The 'Lead Contact' for each case study project was the Construction Manager. Construction Managers were contacted from organisations who are considered to be Tier 1 or Tier 2 companies. This means they will be involved with a diverse range and scale of projects. The Construction Manager was required to distribute organisational and individual consent information to each potential participant. Each project has a number of defined roles, for example, one building surveyor accredited to act as the certifying authority and one local government planner employed to assess the development application. Such practitioners were offered the opportunity to participate in the research.

When a participant agreed to participate, organisational consent was first obtained followed by written informed consent from the participant. Contact was made with potential participants either by email or phone. Following which a date, time and venue for the interview was determined. Each participant was required to participate in one (1) interview of approximately one (1) hour duration. All interviews were conducted face-to-face or on the telephone as determined by the participant. Where possible face to face interviews were conducted and this occurred at the workplace of the participant.

3.6.12 Question themes

The interview script consisted of a set of demographic questions and subject specific question themes. Question themes are shown in Table 9 and Table 10, respectively. Questions were open-ended allowing for participants to frame responses and highlight issues they believed to be important. The structure of the interviews, along with the format of the questions provided the participants with the opportunity to elaborate upon issues as they deemed necessary.

As per Stage 1 process, the interviewer employed an interview sheet to guide questioning which contained a list of probes to assist the discussion. The sheet was printed on A4 paper to allow the interviewer to make notations during the interview. Each interview was recorded to minimise distraction through notations and maximise discussion. Across all interviews, process, questions and triggers were the same. Using identical questions to initiate a response may potentially increase the understanding of each practitioners view upon a theme. The final

question – additional comments – again afforded the participant the opportunity to highlight any further issues or areas they felt necessary to raise. The information below highlights the question themes and probes used during the interview process. The first set of questions were demographic in nature, related to areas such as position, roles and responsibilities and time in industry. The context specific question themes were designed to elicit responses deemed appropriate by the interviewee as related to that topic.

3.6.13 Interview process

Interview processes were identical to Stage 1 in that each interview followed the same protocols to ensure maximum reliability. Consent forms for both the organisation and participants were collected prior to any interview being undertaken. The interviewer and the participant would meet at a pre-determine venue, date and time or the interviewer would call the participant at the pre-determined date and time. The interview commenced with the interviewer introducing the research including its purpose, confidentiality and duration. Each participant was informed that the interview will be recorded and they were then provided with the opportunity to ask questions, clarify any aspect of the interview or research process. The interview then commenced. First, demographic questions were communicated to the participant one at a time. The question themes were then introduced and the interviewer used probes to encourage conversation and maintain focus.

3.6.14 Post interview procedures

The post interview procedures followed those undertaken in Stage 1. Once interviews were completed, the interviewer would review notes taken during each interview. Each interview recording was then transcribed and reviewed against the field notes. Coding and theme identification was then undertaken which will be further discussed in this chapter.

Table 9. Demographic questions from Stage 2 interviews

Demographic Questions	Interviewee	Position
		Roles and Responsibilities
		Time in Position
		Time in Industry

Table 10. Question themes from Stage 2 interviews

Question themes	Probes/Triggers	Sub-level
Information Transfer	On-site paperwork	Development application
	Paperwork assessment	Statement of Effects
	Additional paperwork	Development consent
		Environmental plan
Roles and Responsibilities	On-site operations	Practitioner
	Environmental measures	Internal auditing
	Implementation methods	External auditing
Training and Education	Training	EP&A Act
	Project specific training	POEO
		On-site operations
		Reactive
		Proactive
Regulatory Interpretations	Penalties	
	Local government advice	DA/SEE/DC/On-site
	State government advice	Experience
		Outcome
Compliance	Auditing	Internal programme
	Environmental incidents	External programme
	Processes	Internal procedures
	External Agency involvement	External references
Organisation	Environmental management system	Purpose
	Additional controls	Intent
		Implementation

3.7 Stage 1 Data Analysis

The data collected from the Stage 1 interviews was subjected to thematic exploration. Quinlan (2011, p. 426) defines the thematic approach as '*the analysis of data through the use of themes*' (Quinlan, 2011, p. 426). In order to make full use of the richness of the data and to increase the robustness of the analysis, a coding structure was applied to the data analysis phase. Codes employed within this qualitative research look at sections of data, analyses them into terms or themes and through this analysis enable development of ideas for interpreting the segments (Charmaz, 2006, Quinlan, 2011, Roulston, 2010). The codes represent labels: tags given to particular topics or themes that represent some aspect or meaning attributed to the data (Miles and Huberman, 1994; Roulston, 2010). Strauss and Corbin (1998) elaborate, stating that coding relates to the '*analytic processes through which data are fractured, conceptualised, and integrated to form theory*' (p. 3). In this respect, the process of coding for this research aimed to link concepts with ideas and in doing so moved beyond the raw data and established more abstract ideas.

Data coding is a process often employed with phenomenological research. Van Manen (1990), a phenomenologist, identified three main approaches to the analysis of data: the holistic or sententious approach, the selective approach and the detailed reading approach. The third type of approach was employed by this research to help fully understand the phenomenon under exploration. With this approach the researcher read every line of the data and considered what each sentence or cluster revealed about the phenomenon under investigation (Van Manen, p. 93).

The process also considered the approach by Moustakas (1994) who employed phenomenological reduction in his research in which the process involved the identification of what he termed 'meaning statements': breaking down data into statements of importance as related to the phenomena under investigation. Subsequently, data obtained in this research that is of a nature either irrelevant to the theme being explored or of a repetitious nature was excluded. Rather, the focus was upon those particular meaningful statements which are clustered into themes to provide a rich in-depth description and understanding of the experience (Moustakas, 1994). The actual process of coding implemented will now be discussed.

3.7.1 Three stage coding approach

The coding for this research followed a three part process:

- Primary coding – open coding
- Secondary coding – axial coding
- Tertiary coding – selective coding

Each coding stage involved a different level of analysis which will now be detailed.

3.7.2 Primary coding

Primary coding, or open coding as identified by Liamputtong and Ezzy (2005), relates to the initial coding of data collected, the first level of coding: examining the data for ‘...*differences and similarities between events, actions, and interactions...*’ (Liamputtong and Ezzy, 2005, p. 268). Therefore, in the context of this research this first level of coding relates to the classification of responses from participants into general codes. It was used to aid in the identification of variables or issues that may assist to understand the case and phenomenon: reading the data to identify coding concepts.

3.7.3 Secondary coding

Axial coding moves towards development of the primary codes: examining the code in further detail and ensuring it is appropriately representative: ‘...*fully elaborated and delineated*’ (Liamputtong and Ezzy, 2005, p. 269). The second stage elicits a higher level of abstraction from the data. For this research the secondary level of coding was considered a process of exploring relationships in the data that occur amongst the concepts or issues that arose. In this stage concept integration occurs – data organisation – so that the number of overall concepts was eventually reduced (Quinlan, 2011; Roulston, 2010). The responses in this research eventually become categorised into more specific types.

3.7.4 Tertiary coding

Tertiary coding, or selective coding, is this third stage in the process and involves code comparison where a core code or vital codes become central for many of the axial codes: these final stage codes were identified to allow for examination or analysis to discover interactions amongst various categories (Liamputtong and Ezzy, 2005). In terms of this research more developed themes were extracted as the core categories and their properties were more fully described. Quinlan (2011) highlights how a description of the phenomenon in which *'the researcher develops a thick description of the meaning, structure and essence of the experience'* (p. 429).

3.7.5 Computerised qualitative data analysis

Coding, for this research, was undertaken with the assistance of a qualitative analysis software package: QSR NVivo qualitative research software (NVivo): a tool for data storage and organisation. NVivo is a tool used to 'manage, access and analyse qualitative data and to keep a perspective on all of the data, without losing its richness or the closeness to data that is critical for qualitative research' (Bazeley and Richards, 2000, p. 0). NVivo enables the storage of information in attributes of documents or nodes. Concepts and categories can be created and are stored at nodes. Following which, these nodes may be explored, edited or linked with other associated files (Bazeley and Richards, 2000).

It is noted that NVivo is not a tool that undertakes the data analysis process, rather, it allows for data storage and organisation (Liamputtong and Ezzy, 2005, p. 269). Given the multiple case study approach and subsequent interviews conducted as part of this research, NVivo was employed to assist with data management. As identified by Liamputtong and Ezzy (2005), the use of such computer aids assists with data *'to be stored, coded, and retrieved more efficiently and flexibly than is possible using the techniques of cut and paste and the filing of bits of paper'* (p. 275). However, the use of computer aids has also been acknowledged as a monotonous process that can impact upon timeframes (Liamputtong and Ezzy, 2005). With this research these negative variables have been reduced through knowledge and use of the computer tool: primary to tertiary coding conducted using the programme. Codes were

reviewed to ensure that they were suitable and representative to also avoid the problem of a profusion of codes or conversely, insufficient codes.

3.8 Stage 2 Data Analysis

Multiple sources of evidence were collated for each case study involved in Stage 2: interview data and documentary evidence. The data for each case study project was analysed as an individual project and a final cross case synthesis undertaken.

3.8.1 Interview data analysis

Interview data analysed was subjected to thematic exploration as described for Stage 1. Therefore, the three (3) tiered coding process was undertaken; primary coding, secondary coding and tertiary coding. As detail on the coding process employed for Stage 2 has been formerly described in the Stage 1 data analysis section, the discussion will turn towards the analysis of documentary evidence.

3.8.2 Document analysis

O’Leary (2005) explains that document analysis is the ‘*collection, review, interrogation, and analysis of various forms of text...*’ (p. 177). The document analysis process identified by O’Leary (2005) has been employed in this research which is summarised in Table 11.

The first stage undertaken as part of this research related to review. The authenticity of the text needed to be established. For each case study project the government issued development consent formed documentary evidence. These documents, available in the public domain, required verification of their authenticity and credibility. This was confirmed through confirmation of details such as Development Consent number, allotment numbers, address and project description. The verification process was conducted with the construction manager, local government authority or their website where available and as appropriate. The

documents were then reviewed to understand their agenda and determine whether there was any obvious bias in the content.

Table 11. Stages of the data analysis process (Adapted from O’Leary, 2005, p. 179)

Data Analysis Stage	
Review	
	Assess authenticity and credibility
	Explore document agenda
	Identify obvious bias
Interrogate	
	Elicit background information: purpose
	Explore content: themes and issues
	Explore witting evidence
Reflect/refine	
	Acknowledge analysis as a iterative ongoing process
	Reflect on issues with gathering. Reviewing and exploring the data
Analyse the data	
	Thematic analysis

Next, the data was interrogated. This involved reviewing each document to ascertain background information and purpose. As part of this process O’Leary (2005) explains the researcher must explore the documents and look for witting evidence. Witting evidence which defines what the document is meant to impart and unwitting evidence reflecting any other issues or areas that arise from reviewing the documents. The content can be explored by either an interview approach or noting occurrences approach (O’Leary, 2005). The content of the development consents used in this research were explored using the interview approach. The document analysis was aligned to reflect an interview in the sense that the document is considered a respondent and provides information (O’Leary, 2005). In a process aligned to thematic analysis, the documentary evidence was reviewed multiple times and this involves exploring content and themes. The review of the documents was a process of abstracting elements or issues that may be of some importance and grouping those of a similar context.

3.9 Stage 1 and 2 synthesis

As previously discussed, the questions presented to interviewees related to implementation operations, rather than the ten preconditions. The intent was to elicit rich data that would provide individual experiences and insight into implementation activities without a biased focus towards the ten preconditions. Figure 9 provides a schematic of the framework employed in this research. Stage 1 data obtained from interviews were to be subjected to a multi stage coding process. A list of codes were established from this process.

Stage 2 involved a multiple case study approach with interviews and documentary evidence. Interview data was to be subjected to the same coding process as identified for Stage 1. Following which a cross-case synthesis was to be undertaken and a details list of codes established. Yin (2009) identifies that *'Cross-case syntheses can be performed whether the individual case studies have previously been conducted as independent research studies (authored by different persons) or as a predesigned part of the same study. In either situation, the technique treats each individual case study as a separate study. In this way, the technique does not differ from other research syntheses – aggregating findings across a series of individual studies'* (p. 156). In relation to this study, the use of cross-case synthesis enabled a view of the themes that emerged across the four case studies, to develop issues related to the research question.

Stage 2 documentary evidence was to be analysed for environmental related content to establish whether all impacts had been duly considered during the assessment and conditioning process. In addition, the analysis was undertaken to identify any issues that support interview data analysis. In the analysis of a case study research design involving multiple cases, cross-case synthesis was the common technique applied for this research.

A synthesis of Stage 1 and Stage 2 codes was undertaken. A final register of codes was established from the outcome of the two stage approach. The final themes derived from the data analysis process were aligned with the ten preconditions to enable an understanding of implementation operations. The intent was to see whether difference exist within the classes of participants, determine what influences were impacting upon achieving successful policy outcomes and also to identify any outliers to the ten preconditions. This enabled a deeper understanding of implementation activities that actually occur on-site to explain what

influences contribute to the disparity between policy intent and policy outcomes as related to environmental planning policy and on-site construction operations.

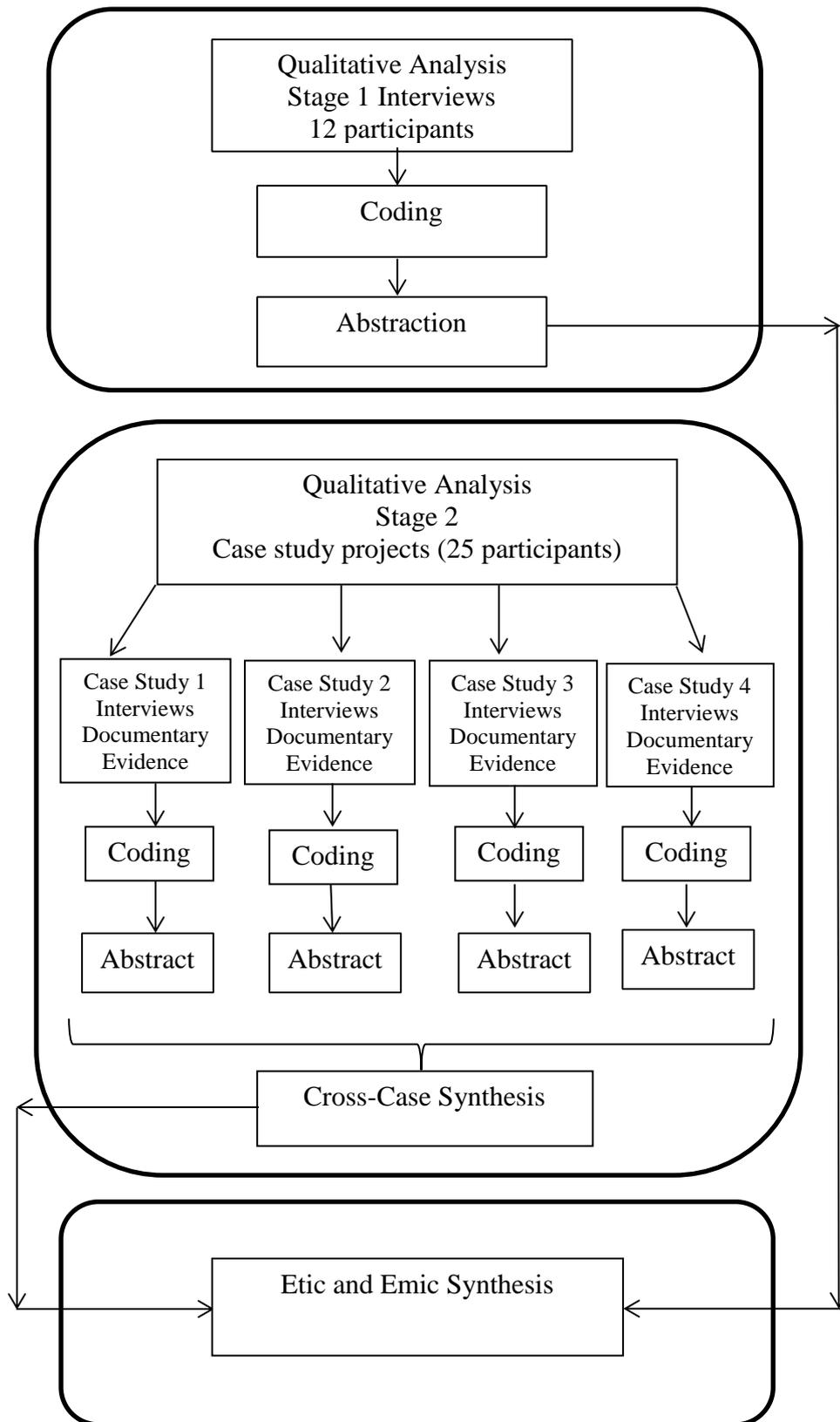


Figure 9. Stage 1 and Stage 2 framework

3.10 Summary

Chapter 3 introduced the philosophical perspective guiding the research. The worldview of Constructivism and the phenomenological inductive methodological approach undertaken to explore the research phenomenon were described. In addition, the qualitative exploratory design used to structure the research across two stages was defined. Stage 1 concerned a qualitative design involving interviews with practitioners who met pre-designed criteria to explore their experiences and understanding of the research phenomenon: an etic approach. Stage 2 concerned a multiple case study approach with four case study projects involving interviews and documentary evidence: an emic approach.

Stage 1 and Stage 2 data analysis processes were detailed. Stage 1 employed a three stage coding approach. Stage 2 data was subjected to the same coding approach and a cross-case synthesis undertaken given the multiple case studies. A final synthesis and register of codes was established from the outcome of Stage 1 and Stage 2. The final themes derived from the data analysis process were aligned with the framework by Hogwood and Gun (1984) - ten preconditions to perfect policy implementation - to enable an understanding of the phenomenon for this research: implementation. Establishing the philosophical perspective, the research design and methodology enabled data collection activities to proceed. The following two chapters report the results of the data analysis process.

Chapter 4: Stage 1 analysis

Chapter 4 relates to the Stage 1 data. Interview data was collected and subjected to an analysis to identify patterns and variables. The chapter first presents a descriptive evaluation, following which the discussion turns to the thematic analysis: identification of themes that emerged during data analysis.

4.1 Introduction

Within Chapter 3 the phenomenological approach used to guide the research problem was described. The qualitative explorative design was undertaken as a two stage process: Stage 1 interviews and Stage 2 case studies involving four (4) construction projects with interviews and documentary evidence. Chapter 4 relates directly to Stage 1 in which semi-structured interviews were conducted with specialist practitioners involved with the development and construction sector: an etic perspective. The intention of this analysis was to elicit their understanding of, and experience with implementation processes as related to the theme of this research: a more generalised understanding from specialist practitioners. Chapter 4 describes the Stage 1 data analysis which includes thematic analysis.

Semi-structured interviews were conducted with participants who were selected due to their knowledge and experience with the regulatory controls contained within the regulatory policy: the EP&A Act. In addition, they had direct experience with development assessment processes and/or construction operations. Industry professionals interviewed included certifiers, town planners and construction managers. Questions were structured in two parts: demographic questions and themed questions to elicit individual practitioner experiences concerning on-site environmental management operations. Question themes were open ended to enable a comprehensive range of issues to arise with regards to implementation processes; thus, reducing the risk of bias from concentrating solely upon the Hogwood and Gunn (1984) ten preconditions.

Chapter 4 is presented in three parts:

- Part 1: descriptive analysis: This section describes participant details including their position, role and responsibilities and length of time in the industry;
- Part 2: thematic analysis: Details of the themes that emerged from the data are discussed; and
- Part 3: summary: The findings from Chapter 4 are summarised.

4.2 Descriptive analysis

Twelve (12) semi-structured interviews were conducted with participants who met the following criteria:

- experience with the development and construction sector and in particular the EP&A Act;
- familiarity with the EP&A Act regulatory processes and the subsequent impacts in relation to environmental outcomes of construction projects;
- experience within industry provided an understanding of development assessment processes (either lodgement or assessment of applications) and/or construction operations (either on-site operations or certification); and
- industry position would be related to certification, planning or construction operations.

Given the use of the regulatory policy - EP&A Act - participants were sourced from across NSW. Interviews were conducted at work office locations where possible or via telephone conversation. Interview format followed the approved design including written consent prior to participation, recording of interviews and transcription.

4.2.1 Main industry sector groups

Interviewees represented three main sectors as illustrated in Table 12. These included government and non-government sectors primarily related to building surveying, town planning and construction management. Government and non-government actors present a variety of different roles within industry. For example, government building certifiers generally play a regulatory assessment role: employing the EP&A Act against the development application lodged to determine compliance and whether consent is to be granted. While, private building certifiers, who also perform a regulatory role, use the EP&A Act and building codes to assess the development from a construction perspective to ascertain compliance.

Table 12. Industry sector groups interviewed

Industry sector	Number of participants
Building and planning (government)	7
Building (private)	2
Construction management (private)	3

It was seen as important to garner an understanding of the experiences from both sectors, across a range of professions who maintain involvement with EP&A Act implementation processes and subsequently, environmental management operations. Given their often opposing responsibilities, this was seen as having a significant bearing upon their attitudes and experiences in relation to the policy environment, construction operations and environmental practices and ultimately would produce a richer data set.

4.2.3 Description of positions

Table 14 provides a description of the participant positions. It is noted that within the industry, role titles and descriptions for the one profession can differ across organisations. Furthermore, an individual may be responsible for multiple professional roles. Titles may also be ambiguous in design: making it difficult to determine underlying professions, for example, ‘development officer’. Table 13 depicts positions in their elemental form to show the range of professionals who met the selection criteria and were subsequently interviewed.

Table 13. Industry sector positions

Description of position	Sector	Number
Mgt building/planning/compliance	Government	2
Building surveying	Government	2
Town planning	Government	1
Compliance	Government	1
Building engineering	Government	1
Director/building surveying	Non-government	2
Mgt development/construction	Non-government	1
Project/construction management	Non-government	1
Snr project/construction management	Non-government	1

Two participants held management positions and maintained appropriate industry experience, in addition to managing both building surveyors and town planners. As such these participants have been categorised separately as they provide an additional level of interest. One government interviewee identified their role as a compliance profession in relation to both building and environmental control. Although related to building this position has been identified separately, given it is a role that extends into the environmental realm. This is a similar situation with the building engineering description as the interviewee explained their position as related to multiple domains. In summary, a broad range of professionals from both sectors participated in Stage 1.

4.2.4 Time in industry: years of experience

The figures identified in Table 14 and Table 15 provide an indication of the nature of the sector, in terms of industry experience, from which the participants were drawn. Figures relate to the participants total years of experience in industry. These tables must be interpreted with caution. First, they are not representative of the industry as a whole, rather they relate to the sample interviewed as part of this research. Second, within any sector there are individuals with minimal experience and those who have long serving experience. For example, within the government sector, three employees had more than 20 years experience.

However, the figures do provide useful information showing cohorts with significant experience in industry. The government sector highlights a mixed cohort with both highly experienced and novice practitioners. The non-government sector overall presented a different scenario: a more experienced cohort of practitioners. Interestingly, multiple non-government practitioners commented on how they commenced their working life within the local government sector and after obtaining a level of expertise moved into private practice: learning implementation activities associated with the regulatory government environment prior to shifting sector. A number of non-government practitioners explained the reason for their jump into the private arena was due to the EP&A Act restrictions. Quite simply, large scale developments were generally given to Ministerial authorities or panels for assessment; whereby, such complex and challenging projects had left the local government domain.

Practitioners claimed they preferred to work in the private sector as consultants preparing documentation for applications or performing the role of regulator so they could be involved with these more interesting projects.

Table 14. Industry sector and mean years of experience

Industry sector	Mean years of experience
Building and planning (government)	17
Building (private)	30
Construction management (private)	25

Table 15. Industry sector groups interviewed

Description of position	Sector	Years of experience
Mgt building/planning/compliance	Government	40 & 15
Building surveying	Government	5 & 12
Town planning	Government	5
Compliance	Government	20
Building engineering	Government	24.5
Director/building surveying	Non-government	40 and 20
Mgt development/construction	Non-government	40
Project/construction management	Non-government	15
Snr project/construction management	Non-government	20

4.2.5 Roles and responsibilities

Interviewees were asked to provide details on their roles and responsibilities associated with their position. Importantly, a broad range of activities has been shown which subsequently gives consideration to multiple stages of the implementation process (refer Table 16).

Table 16 Roles and responsibilities

Description of position	Number	Activity
Mgt building/planning/compliance	2	Administration management Team leadership and supervision Team regulatory responsibilities: building surveying, planning, engineering and compliance
Building surveying	2	Development consent approvals Pre-DA advice Fire safety Critical stage inspections Promoting PCA services
Town planning	1	DA assessment Pre-DA meetings Advice Referrals
Compliance	1	Environmental compliance Erosion and sedimentation control related to construction activities Education of construction operators
Building engineering	1	Development assessment Asset management Construction of roads and facilities
Director/building surveying	2	Strategic direction, Policies and procedures Resource management BCA assessments and reports Construction certificates Site inspections and surveys (fire safety)
Mgt development/construction	1	Sourcing opportunities Expressions of interest Tender management Construction contracts (former project manager and construction manager within the same organisation)
Project/construction management	1	All project management activities Business development
Snr project/construction management	1	Construction management activities related to commercial development

4.3 Theme analysis

The data analysis process involved a review of each interview transcript to identify emergent themes. Given the close nature of the construction phases: pre-construction (development application submission and assessment) and on-site operations, many interviewees highlighted similar themes in response to different questions. The following looks at each of the question themes and the predominant topics and ideas raised by interviewees are highlighted and illustrated with quotations from interview transcripts. Each of the identified positions was assigned a key code as presented in Table 17. When quotes are used throughout the text, the code is used to identify the relevant professional which provides insight into the government and non-government sectors. Appendix 4 shows the range of topic codes resulting from the analysis of Stage 1 interviews.

Table 17. Key codes assigned to professionals

Description of position	Key code	Sector
Mgt building/planning/compliance	MBPC1 & MPBC2	Gov
Building surveying	BS1 & BS2	Gov
Town planning	TP1	Gov
Compliance	C1	Gov
Building engineering	BE1	Gov
Director/building surveying	DBS1	Non-gov
Director/town planning	DTP1	Non-gov
Mgt development/construction	MDC1	Non-gov
Project/construction management	PCM1	Non-gov
Snr project/construction management	SPCM1	Non-gov

It is noted that part of the implementation process involves a development application (DA) lodged for assessment with the regulatory authority and the approval document: the development consent (DC) issued by that authority which contains the conditions (Refer Appendix 1 commentary for further information). It is important to note at this stage, that across industry many refer to the DC as the ‘DA’. Therefore, as we move through each theme, many participants do interchange the terms and refer to DA. However, which stage of the process the participant refers to can be determined from the question theme under discussion and their response. For example, when a participant discusses the DA conditions or DA requirements, in formal terms it is the DC conditions to which they refer.

4.3.1 Environmental performance

The intent of this first topic was threefold. First, it was aimed to focus the attention of the interviewee towards the research theme. Secondly, due to the generic nature of the question it served to ‘break the ice’ building a rapport between the interviewee and interviewer. Thirdly, the question was designed to elicit an overview of environmental issues considered important to interviewees as viewed from this level of industry implementation: regulatory and non-regulatory. A wide range of issue emerged from this initial interview theme. For example, those pertaining to conditions of consent, inspections, training, compliance, management planning, accreditation and auditing. Full details of final topic codes are shown in Appendix 4. A range of these issues will now be explored to illustrate the story of implementation: regulatory policy, on-site management operations and environmental performance as experience by those involved with implementation activities.

Most interviewees commented on how policy was specifically formulated to manage environmental performance. Within the government sector, environmental performance was considered a role of local government, as one participant with approximately 5 years industry experience commented that:

TPI: “Environmental performance is something that is - it's at the core basically of what we do. The whole point of assessing DAs and putting conditions on their consents is to make sure that the environment is protected, not only during the construction or whatever they're building. But then the operational side of things after they're in and operating as well. The main way that we deal with it in our branch is obviously to live by the controls that we've already set in our LEP and our DCP.”

Obviously a passionate response to this initial question that highlights an understanding of the intent behind the policy; however, it may demonstrate a confidence in the internal policies formulated to assist implementation activities. Conversely, those with much more time in industry presented contrasting opinions based upon their working knowledge and experience within the system at an implementation level. When discussing how well environmental issues are pulled together, MBPC2 made the following comments:

MBPC2: “How well? I'd have to say from a deep green perspective not very well. Or not well enough. Environmental issues need ‘to be incorporated more fully and acknowledged by the Land and Environment Court that environmental compliance is a fundamental aspect of the EP&A Act...”.

In addition, the comment was made by the same practitioner that *“seemingly over the past few years the environmental performance is certainly taking a back seat.”*

Across the interviews it was highlighted that through the EP&A Act local level policy was able to be developed and other controls implemented when issues arose that were in need of further clarification, direction or regulation:

BS1: “...we have a local environmental plan that sets out certain core requirements as well as the EP&A Act and its regulations. We also have our development control plan which also requires provisions for certain types of development and what they're required to do.”

The statement from BS1 reflects that by TP1 where such documents are used as the central focus of assessment processes. However, these documents are not considered comprehensive in nature and make reference only to certain environmental activities (see for example, www.newcastle.nsw.gov.au/Development/Land-Use-Planning and www.maitland.nsw.gov.au/PlanningDevel/DCPs). In discussion over the development assessment process, most government authorities identified that under local level policy they developed and used internal checklists to identify town planning and environmental issues that were required to be addressed:

BS2: “Part of that is like a checklist that includes information that needs to be submitted and that's where we'd be asking for things like the sediment erosion control details, waste management plans...”

Similar to locally developed policies, checklists were often viewed as holistic in nature. They were considered to provide comprehensive coverage of all environmental issues. It was these policies, enacted under the EP&A Act, along with the subsequent assessment processes and checklists that gave rise to what many considered to be the ‘environmental issues’ associated with the development and construction industry.

The depth of coverage identified by practitioners depended upon the profession and areas of consideration generally included: waste management minimalisation plans, sedimentation and erosion control, stormwater management, noise pollution, water quality, dust and vibration. Interestingly, in reviewing the transcripts it became clear that ‘environmental issues’ of concern tend to have a focus upon two primary areas:

- complaints: tangible areas, such site sedimentation and erosion, that have the potential to impact neighbours from which complaints are lodged. Therefore, these become high priority issues in need of resolution; and
- regulated areas: those themes that have specific well-defined regulatory targets that must be achieved as non-compliance can result in penalty. A typical example of this area relates to energy efficiency measures that are enforceable by legislation.

Areas associated with other outlying impacts including energy and water consumption were generally not considered. Interestingly, when discussing whether locally developed policy is comprehensive, from an industry perspective, one such response was:

PCMI: “No, not usually. There’s usually individual conditions, like waste control, siltation again, silt control, that type of thing, runoff.”

One government officer explained:

MDC1: “...the standard templates guide people to ensure that they provide the information as required. But whether that could be improved, I mean everything has the potential to be made better and to streamline the system and make it more user friendly. I’d say certainly that there’s always room for improvement.”

The need for policy and industry compliance brought forth the topics of accreditation and training, themes raised by multiple practitioners. Many organisations highlighted the use of internal environmental management plans:

MDC1: “All of our planning and design and construction plans, we’ve got dedicated environmental management plans, all accredited to 14001. So we have the EMPs there.”

In general, there was much reliance placed upon accreditation schemes and management plans both within the government and private sectors. It is noted that if an organisation was accredited or had a management plan then there was a strong conviction and belief amongst interviewees that everything 'environmental' was okay as there was a piece of paper that stated so. This was regardless of who the approving body was, whether it was an internally developed plan, the content of the plan or whether there was any subsequent external auditing process. Many interviewees were not able to elaborate on the purpose, content or other such details associated with their environmental plans. There was a general consensus that they were in effect and the appropriate people were addressing the necessary requirements:

MDC1: "...quite a number of our personnel are Green Star accredited, so there's quite a strength within the business in terms of sustainability and environmental awareness from that aspect.."

Although an awareness of environmental issues was apparent, in terms of training the responses from practitioners were mixed. In general it was made clear that training was not normally aligned with regulatory policy or environmental management:

DBS1: "...training is relevant to the BCA and the support legislation, not particularly with regard to the environment side."

Most interviewees simply stated that there was no training undertaken. The following was apparent in relation to the status of environmental management education and training:

SPCM1: "So I suppose really my comment would be it's very much third in the line behind safety and quality management which are also third party accredited." "Environmental management hasn't really achieved the importance of those other two [safety and quality assurance] as yet in the construction business."

This information becomes important to this research when the role of different professionals is discussed, particularly in reference to their responsibilities for environment management operations. Following this initial topic of discussion, the questions posed to interviewees concerned the different stages of implementation to elicit a more in-depth understanding of activities and experiences across all facets of implementation.

4.3.2 Design and approval processes

The design phase consists of the preparation of the development application by the applicant, the subsequent assessment of the submission by the regulatory officer and where appropriate the approval documentation. In discussing the associated processes, what may be considered the pre-construction phase, a range of themes emerged around development application processes, assessment, environmental statements pre-lodgement meetings and conditions of consent.

The policy documentation prepared by local government authorities has been considered a support mechanism for both assessing officers and DA applicants for this stage of the implementation process. There is a heavy reliance placed upon the documentation prepared – a belief all environmental issues are considered appropriately – the implementation process reliant upon human interpretation and action:

CI: “Then we’ve got our DCP and our LEP. Our LEP is really strong. It basically says that council must be satisfied that the development will not cause environmental issues, something like that. Most developers are actually really appreciative of the help at the early stage because they weren’t getting that previously; or maybe they don’t have people who know, who have the knowledge to be able to go I can see a problem here.”

In overall terms of the process, one officer explained that:

TP1: “We have quite a strict lodgement process now. So we do require a lot of information up front, which is why we like to have the pre DA meetings, so people know what they're going to be required to do before they even lodge the DA. We'll have a pre DA meeting and we'll break down everything for them.”

Subsequently, duty counter, pre-DA and lodgement meetings were highlighted as a systems process – implementation operations - by most interviewees. First, applicants have the opportunity to speak with a duty officer, generally a town planner or sometimes a building surveyor. Essentially, their role is to provide advice on the proposed development: whether it is permitted and controls:

MBPC1: “So just on that, as soon as an applicant comes through they have to speak to a duty officer - so we have duty officers - to make sure that, for one they have all the required information to ensure that the process runs smoothly. It's up to the duty officer, whether it be a planner or a building surveyor, to identify what the applicant requires.”

This in itself presents a quandary: differing professions and expertise providing advice yet not necessarily responsible for assessment of that project. Also the qualifications and experience of the practitioners concerned to provide environmental management advice is questionable.

Secondly, applications may be reviewed at a pre-DA meeting. Prior to the submission of a DA, the applicant would meet with a government representative to review their development proposal. It appears to have been developed in an attempt to streamline the DA process: informing the applicant of whether their proposal is firstly permissible and secondly, if so, then what documentation is to be submitted with the DA. For example:

BS1: “Then basically the DA - a pre-DA meeting is basically when they're ready to lodge the assessing officer that's been allocated to that job goes through and determines whether there are any additional reports or requirements to be submitted”.

This is an important comment as this occurs without any internal referrals to specialist practitioners: the potential for additional information may change during the assessment process. Government interviewees also identified that the officer who ran these meetings, whether a formal or over the counter approach, was generally the town planner and sometimes the building surveyor depending who was rostered on. The case was similar for the assessment stage:

MBPC1: “Generally when it is determined that the application is going to go to a building surveyor then generally it will just be held within the building surveyor's area.”

Again the issue over qualifications and experience is raised, particularly where a practitioner is not an environmental specialist. Given the potential for the duty officer to be different to the assessing officer and that they must also assess multiple specialist areas, PCM1 made the following comment:

PCM1: "The communication from the authorities has always been poor. You can go in with a list of a dozen questions that you have and rarely you're going to come out with a dozen answers. Even if you do come out with a dozen answers you move forward thinking okay we're good now, and then when you come to get it signed off they've got another dozen constraints that you didn't know about or no one mentioned that this was an issue. That's the historic complaint from developers and builders - is that you think you've got everything in hand and then something will - they'll come up with something and you wonder whether it's just for the sake of being difficult or where did that come from, all those sorts of things. It's just very, very frustrating."

PCM1 also highlighted the subjective nature of the policy implementation process, stating:

PCM1: "So much of it is interpretation and one person's interpretation could be completely 180 degrees different to someone else's interpretation. Whilst that's getting debated time's going along and you could have a whole team of people sitting on their hands."

Other local government authorities went a step further with pre-lodgement meetings to unify the process:

BS1: "Then obviously we have a pre-lodgement meeting, which they've got basically the plans drawn up to reasonable completion. They might bring some data in and ask for technical officers, being our environmental management officers that deal with those types of issues, to come and give their opinions, if there is anything that they say might suggest to make the process go a little bit quicker rather than asking for the information at a later date."

Theoretically, this enables information required to be identified up front. Additionally, internal government practitioners can be brought into meetings to discuss environmental considerations. It is worthwhile noting, that this is possibly a loop hole. Given the town planners assess applications and have the authority for referral at their discretion, the applicant may not request an environmental specialist to be present at this pre-lodgement meeting to avoid any further environmental issues being raised at this stage of the process.

Even with assessment checklists in place, the abilities of those to cover all relevant issues may be questioned. With internal referrals there is still a 'subjective interpretation' as to what needs to be referred and to whom. A process that has been identified as left up to the assessing officer which is generally a town planner with any referral to remain at their discretion.

Appropriate coverage, of environmental issues was in fact identified by multiple government interviewees:

BS1: "It depends on I suppose the author of the document. Unfortunately that's one area that has really failed in New South Wales in terms of even though the Act really stipulates what is required and a statement of environmental effects is required to be submitted with an application."

However, it must be noted that one local government organisation employed environmental specialists for the sole purpose of development assessment – to ensure environmental issues were given appropriate consideration. However, with such a referral process in place, communication and collaboration between internal parties is questionable as an environmental specialist must still be invited to attend, based upon the discretion of the town planner. This does not always occur and presented issues further into the assessment and on-site processes:

MBPC2: "So yeah it certainly - now, as to whether or not we're involved in pre-DA meetings I'd have to say sometimes, probably not as often as we would like. Because our view, from my branches perspective, from an environmental perspective, I believe that the sooner issues are brought to the attention of people the quicker that they can get on to deal with it rather than leaving it until after the DA is issued, or submitted I should say. Then it's too far down the track, they've already...gone and done their planning, they've already got their consultants there or the consultants are already set on a path and then sometimes they've got to change that path. Which is problematic. So I'd much prefer ...to be involved with far more pre-DA meetings than what we currently are. But we're still pushing that barrow."

This highlights concern over responsibilities for regulatory processes including interpretation and assessment: all implementation operations due to human interpretations and intervention. Additionally, the theme of power and authority is raised as a culture exists with a strong hierarchal focus. Identifying such internal conflict, MPBC2 acknowledged the frustration from the public sector:

MBPC2: "Proponents get really frustrated because - and I've been in the same situation myself - you submit a DA and then you're asked to provide this information but you don't know whether or not you're going to get approval to do it. Then you're expected to do all this huge amount of work and outlay a lot of money and there's no guarantee at the end of the day that they're going to approve it. It's all that risk, all that risk is put up front on the proponent."

Therefore, internally, the communication channels between officers demonstrate a level of difficulty. Often planners make decisions as to whether environmental issues exist and they exercise discretion as to whether environmental practitioners are invited to Pre-DA meetings or whether applications are referred to them for review and comment. Again a factor of human decision making related to implementation processes that may impact upon policy outcomes.

Notably, construction interviewees identified that given the need to address environmental issues against the abovementioned concerns, they referred to specialist consultants in an attempt to ensure they had, where possible, addressed all environmental issues prior to formal submission of the DA. Others explained that they have developed internal protocols to be proactive and to help streamline the assessment process. However, as with responses to the initial question regarding environmental performance, environmental management comes back to what the regulatory authority require. In this respect, comprehensive coverage of environmental issues may be brought into question as the common response was:

DTP1: "... it's just a matter of providing the information to satisfy the council policy."

Construction organisations were seen to prepare environmental statements to lodge with their application and the story again depicted a focus upon the regulatory authorities issues. Essentially, a need to comply with local government requirements, as dictated by their DCP

for example, regardless of whether it adequately covered all environmental issues. Given the nature of the system, the following was identified in relation to environmental statement requirements:

BS1: It's quite comprehensive [from developers]. It's almost an EIS in size. Then others, so you can get the mum and dads who try their best to put the information in but they don't know what they're talking about. ..They don't have the expertise and they're allowed to lodge the applications and it's unfair for us to I suppose reject them...They've engaged a consultant, planning consultant to prepare all these documents and submit them in. Whereas mum and dads don't have that. They're scraping the barrel to get what they can do in...So they do answer some things, other things they don't."

This is important as it shows that the scenario exists where consensus regarding what is required remains to a degree ambiguous and there remains inequality amongst different types of developers: professional developers versus 'mum and dad' developers. It raises questions over whether environmental issues are appropriately addressed in such circumstances:

Adding to the complexity of the DA issue appears to be private certification (refer to Appendix 1 for a commentary regarding certification). Although a DA is assessed and determined by the local government organisation, with certain development types, the applicant has the choice of then using that authorities accredited building surveyor or a private building surveyor (accredited with the State Government) to issue the construction certificate that authorises on-site works to commence.

The privatisation of building certification received a lot of comment from the government sector, mostly negative. Interestingly, the change to introduce private certification and subsequently amend policy has caused much angst. Primarily, there is a belief that has emanated from the government officers that they had suffered a loss of power. The following response from the MBPC2 highlights the issue from a government perspective, in particular how they believe that it affects the ability to fulfil their responsibilities under the EP&A Act:

MBPC2: “The challenge that we're in now is that we have private certifiers in New South Wales. Now so that means that there is a challenge, there is a nexus in my mind between what we can ask for at the DA stage and the depth of detail and the clarity of what they're proposing versus - because we need that clarity to be able to attach the appropriate conditions of consent. Yet being challenged by case law that you can't ask for that level of detail before you consider the DA. So there's a real nexus between what you can ask for and what you can't ask for and what level of detail actually gives you the confidence to actually approve the DA and attach the appropriate conditions.”

An interesting sentiment was provided by TP1, acknowledging what may be considered a power struggle; yet, demonstrating their authority and capacity to mandate compliance:

TP1: “However, if a private certifier has given the CC and is the PCA throughout the process, we obviously have less control over what they do. So if we get any complaints from residents...we can take action upon the certifier or the developer, to make sure they're complying with their consent.”

In discussion, those responsible for regulatory assessment hold the balance of power in that they elect whether to seek internal referral from specialist practitioners. Their qualifications and experience in relation to environmental management responsibilities is also questionable. Processes were quite complex involving multiple stakeholders with different agendas. It was evident that privatisation of the certification system has resulted in a split within the regulatory system: us versus them. Local government found the current system to be ineffective and limited their ability to function as an authority. Construction managers found they sourced private certifiers given they are not restricted by business hours, nor bureaucratic processes to a degree, so a project can proceed over weekends, holidays and the like. Regardless, conflict was evident as was a lack of professional respect.

4.3.3 Site operations

The intent behind this implementation theme was to elicit important themes from participants that relate to on-site environmental management operations. A range of issues were

highlighted by participants under this theme. These will be discussed individually given their somewhat fragmented relationship.

4.3.3.1 Development consent

Regardless of the assessment process undertaken, one government interviewee acknowledged that in reality, environmental management at this level was a theoretical exercise.

Responsibilities could involve submission, assessment and conditioning activities yet site conditions and human involvement may in fact deliver different outcomes:

MBPC1: “So while it all looks good on paper, when it actually gets constructed it might cause a different result.”

From a site perspective, DC conditions were a prime focus. First, there was a conviction that the regulator, in their assessment, had identified all environmental issues: their assessment was comprehensive and professionally accurate. Second, it was clearly understood that only those issues in the consent would be reviewed at the completion of the project to determine whether final signoff would be forthcoming from the regulator. Therefore, the DC remained the significant focus for environmental issues.

DTPI: “...what we require at the end of the projects in order to satisfy that those conditions have been met. It generally depends on what the specific council has asked for in terms of those environmental protection measures.”

DBS1: “Well, from my point of view the majority of the work that I do on that side is governed by the DA conditions.”

PMCI: “It gets back to complying with DA requirements.”

In terms of the DC, on-site management project planning was a theme that arose with all construction project management participants in response to this theme. Management plans were identified as the key factor to ensure environmental protection from on-site operations. Safety, quality and environmental management were all areas identified within these plans.

SPCM1: “Part of our PMP is safety, quality and environmental management and the specifics are listed in an environmental management plan within the overall project management plan.”

MDC1: “I think we've got a very well developed on-site compliance. I think that's - not par for the course, but it's - there's very well defined procedures there. We have a 100 page document that will tell us exactly what to happen, be it a contamination issue, noise, noise monitoring.”

A hierarchal approach to dissemination of environment management issues was acknowledged by private sector operations with a focus still upon consent conditions:

DBS1: “It's just a case of being mindful of the DA conditions and reminding the site management of their obligations to maintain sort of appropriate levels of safety.”

Proponents highlighted how they believed these plans were comprehensive and incorporated conditions of consent to ensure the development consent requirements would be complied with. Essentially, the themes of compliance with the development consent were identified as significant:

DTP1: “...we're more driven towards satisfying the development consent requirements. Where they are prerequisites and requirements then certainly it does become a focus on site to ensure those things are done in order to satisfy the requirements of the consent.”

DBS1: “So that management plan actually highlights all of the DA conditions and gives comment on those conditions where appropriate, such as the environmental protection side of things. They do go to great measures to indicate how they're going to protect the vegetation and also prevent runoff from the sites, also dust suppression”

This presents a dilemma with a focus upon implementation in terms of the DC rather than a holistic approach to environmental management. From a government perspective, this was not always seen to occur. In effect there was a belief that upon approval of the application the consent documentation was not considered any more:

BS1: "In terms of the construction operations being guided by it, I would like to say that they read their conditions of consent thoroughly. It's quite common knowledge that a lot of them just park the application and only refer to it when required...mum and dads especially, as soon as they get their application approved it goes into the drawer and until they've come across an issue it doesn't come back out."

However, there were some proponents that were more positive:

BE1: "...we're on a constant improvement program where we're trying to educate developers and construction contractors who we have to deal with, in always pursuing best practice and things like that."

4.3.3.2 On-site inspections

Although the area of monitoring and auditing was covered under a separate question theme, it will be briefly mentioned here as it was commonly referred to in relation to on-site operations. In terms of government conducting site inspection activities during construction operations, it was noted that their role in such activities may be legislatively restricted where the PCA is from the private sector:

MBPC1: "I suppose we've got to acknowledge that council doesn't inspect all sites, even though they're the consent authority. Because it's opened up to the private sector therefore there's principal certifying authorities."

Again the issue of private certification has been identified as an issue impacting upon government duties. A movement of some power from government to the private sector and government interviewees believed that they were unable to undertake inspections. Interestingly, the EP&A Act does require the certifier to be responsible for construction inspections and compliance with DC conditions; however, environmental management (apart from those identified in the DC) are not within their realm of responsibility. This comes back to the local government officers; yet, it is apparent that once the construction side goes to a private certifier they no longer have anything to do with a site – it raises the question of whether the policy is unclear on their roles and responsibilities or this is an excuse to

continue the ranks of professional disharmony. One officer commented on an inability to attend sites given resource limitations:

MBPC2: "It's quite time consuming to go out and have a look and most of our staff are very familiar with the area now, so we know pretty much exactly which part of each stage is being developed. But we do still have quite a lot of input into the conditions themselves and - like in terms of environmental management..."

This highlights two important issues: an assumption that they know what is happening around their locality even when it is a dynamic and changing landscape and secondly, placing standard conditions onto a consent is considered a mechanism by which all environmental issues are covered.

4.3.3.3 Inspections

The role that the building surveyor, accredited as a private certifying authority plays in relation to on-site activities has been a significant area of contention. Fundamentally, these professionals undertake regulatory inspections as dictated by regulatory policy which relate to important stages of the construction process: footings, frame etc. The comments from many participants identify that these professionals are the key proponent in identifying on-site environmental issues and requesting remediation measures, but only at the critical stage inspection time.

Many government interviewees identified an internal compliance unit that could be called into action when required by the building surveyor. Therefore, this professional is ultimately considered one of the prime people responsible for on-site environmental management.

MBPC1: "So unless it's a fairly straightforward environmental issue that can be addressed by the building surveyor who's been allocated that job... it's bigger than I need to manage right here, right now. I'll hand it over to the compliance officer."

4.3.3.4 On-site activities

Under this theme, an awareness of environmental issues was acknowledged by the private sector which is worthy of note:

PCMI: "It's really an observation thing; the site changes every day so you've got to watch what's going on and be aware and address it."

Community involvement was highlighted by external agents as an important process. In relation to community involvement at this level of implementation, private sector interviewees commented on both community engagement and awareness as essential parts of the implementation process. Organisations needed to be proactive, engaging, develop good relationships and keep parties informed and this would assist projects to run smoothly.

Although a range of issues were identified under the theme of on-site operations, a primary concern related to the industry view upon the DC. It was the document that was either holistic in its approach to environmental management or that was considered irrelevant as it needed to be complied with to ensure project sign off. Again the certifier issue was raised but this time it reflected confusion over the role of certain implementation activities: the extent of practitioner responsibilities.

4.3.4 Monitoring and compliance

The discussion relating to monitoring and compliance was seen as a way in which on-site management activities at this implementation stage could be further explored. There has already been a range of issues identified by interviewees: the role of the PCA, resource restrictions and the like. In this section, these areas will be explored further in terms of the experiences of the interviewees in relation to monitoring and compliance issues.

4.3.4.1 Monitoring and auditing

Most interviewees identified that there were regulatory policy requirements in terms of on-site inspections. Critical stage inspections were required under the policy and primarily related to technical building operations such as construction inspections:

DBS1: "So we go there for the purpose of mandatory inspections under the regulations. But for each time we go on site we have a general obligation to satisfy, or to ensure, that all the conditions of the development consent have been met."

One interviewee provided a number of insights into their organisation responsibilities in relation to monitoring and auditing. They highlight how the restrictive compliance regime has changed to a more behavioural approach to monitoring and auditing activities:

MDC1: "It's more of a proactive way, looking at the behaviour rather than simply pure compliance, which we've found in the last 18 months is considerably more effective."

In terms of the type of programmes in place, there was reference to a range of inspections and audits were undertaken throughout construction operations which was a scenario reflected by their industry colleagues. These were the result of the developer or the construction organisation: not local government regulatory officers. Importantly, there was a high degree of intensity and complexity associated with this theme:

MDC1: "We do regular safety type walks, also include environmental aspects. The foreman might do one a week, the project manager does one every three weeks. Then we have our national and our states systems managers who audit our projects as well. That looks at quality, safety and environmental. We have a regional systems manager here...who also will go out and audit the projects. As a project manager I do a review of another project as well, and that'll include everything; safety, quality, environmental."

It was highlighted how safety was a common precursor for environmental monitoring as they often conducted together. The question of training and experience are again raised as it was identified that most of these professionals did not have any form of environmental qualification. In addition they made reference to common programmes and that government projects had a stricter and more onerous reporting scheme which needed to reflect environmental management operations:

SPCM1: "With environmental, it's part of the wider safety which does tend to take priority on-site...whilst we're looking at potential safety issues we could also be looking at environmental issues. Well most of our projects tend to have private certifiers rather than council certifiers and they do come out at key stages, but not specifically to monitor environmental concerns. I think that's something that's left up to the individual contractor."

4.3.4.2 *The government perspective*

In terms of government interviewees and their perspectives on how proactive environmental monitoring and auditing is undertaken by the private construction sector, responses were mixed:

MBPC1: “Obviously they have taken their commitment to their reports in good faith. So if they are stating that they're going to do this, that they actually do it.”

This shows reliance upon others and their professional ethics. However, the following comments reflect the views of most government officers. These are important comments as they present a picture of the status of industry relationships, professionalism and respect. Primarily, they demonstrate a reactive approach combined with a lack of awareness indicating system weaknesses that impact upon successful outcomes:

BE1: “They’ll usually only react to something after it's happened or when it's too late.”

MBPC2: “Now in the past local government used to go out and do staged inspections of every individual job. That has progressively been wound back by government but also been made more ineffective by the introduction of private certifiers as well. Private certifiers play by one set of rules and local government's got to play by another set of rules. In actual fact the days of regular monitoring on all - and I stress on all - as this probably, if it hasn't gone it's pretty close to being gone. Now with private certification you've got no idea what's going on. So it's really only responsive knee jerk reaction stuff.”

BS1: “Yeah, a lot of it is lack of awareness. Some of it is laziness...”

4.3.4.3 *Government monitoring*

A common theme raised by most government interviewees related to their reactive role in relation to monitoring and compliance. The comments are interesting given the way that many local government officers viewed the private sector, whereby they acknowledge that they themselves are not proactive:

MBPC1: “So obviously my role is more reactive...”

BS1: "Councils find difficult because there's no mandatory requirement for monitoring compliance and then you're offsetting between your statutory requirements and also your budgetary requirements. The resources and stuff like that are just very restrictive in terms of providing that. But in terms of other things it's just an ad hoc response. So we're quite reactive, yeah."

Construction operations provided an interesting insight into local government inspection regimes: external regulatory inspections by local government officers and the review of environmental records:

DBS1: "Never come across that, no."

This statement could reflect different scenarios. First, a lack of resources available to the local regulatory authority to undertake such inspections. Second, when environmental issues arise, are they of an insignificant nature that it is considered they do not warrant full investigation. What is meant by an environmental issue – is it related to a community complaint over dust or water consumption on-site. Conversely, are the provisions in place by industry of such a standard that environmental impacts are minimal.

A number of government interviews stated that their organisation had special compliance units. In many instances, community complaints were the mechanism by which such regulatory officers would take action and investigate environmental issues:

MBPC1: "Hence the compliance officer will go and look at it, then come back and try to make - they'll make an assessment of it, take some photos, come back and then try to work out a solution for the problem."

4.3.4.4 The changing landscape

Many government officials made comment on the changing landscape around operations, in particular the nature of a system where internal colleagues provide expert assistance with a focus driven by pleasing the community. When discussing whether the system has improved MPBC2 disagreed but also in his comment highlighted an older style of law enforcement that obviously remains in existence and is used when necessary:

MBPC2: “No I don't, [the new style] no absolutely not an improvement.”

Importantly, MPBC2 made an interesting statement to complete their response to this theme:

MBPC2: “There will never be full compliance on a lot of this sort of stuff, there will never be full compliance. But at least if it can be shown that people are attempting to comply and doing all things possible at that point in time to comply then everybody's a winner.”

4.3.5 Policy

The theme concerning policy brought forth a range of interesting comments from practitioners. Many discussed how they hoped the new government proposed changes to the system would bring about positive change yet most commented on how these would be unlikely to come to fruition given the political environment and history - past experience – with similar political proposals. The effectiveness of the policy, local policy processes and the subjective nature of assessment activities all elicited strong responses from participants.

4.3.5.1 EP&A Act amendments

During 2011 when the new coalition was brought into office, they proposed a revamp to the environmental planning system. During 2013 the White Paper was released commenting and providing recommendations on a range of issues addressed under the regulatory policy. In 2015, it is noted that only a small number of amendments have been made to the policy: the majority remain untouched. No significant overhaul of the planning system has occurred as initially promised by government. These interviews were undertaken in 2013 when proposed changes were underway. They reflect some hope but also some scepticism about change to the environmental planning landscape:

DTP1: “Obviously the Environmental Planning and Assessment Act was developed back in 1979 and has been piecemealed back together and pulled apart and so forth. Hopefully with the new review underway currently there might be some significant changes and hopefully improvements. I don't hold my breath though. It looks like it's going to be basically the same.”

MBPC1: “But personally, I don't think that it's really going to change all that much. I think the preface that we're going to will still be pretty much the same from a DA point of view. A lot of the changes are doing a more strategic stuff at the beginning.”

4.3.5.2 Policy effectiveness

The policy and its use in protecting the environment provided similar responses. In general, most were supportive of the regulatory policy, it appeared to by the system that was of concern – the implementation system involving human interpretation and action. In terms of the EP&A Act and its complexity, one interviewee considered it to contain a lot of motherhood statements from a guidance perspective:

DTP1: “In terms of how the Environmental Planning and Assessment Act...it does give you guidance and then also you've got different State Government bodies and stuff who produce manuals or guidelines on how you then you should achieve those requirements. But again, it's very hard for consumers to know what exactly they're after because, again, it provides a lot of motherhood statements and it's very complex.”

4.3.5.3 Local policy processes

In referring to the EP&A Act in relation to daily duties, multiple local government officers provided comments similar to the following:

DTP1: “It is difficult to navigate unless there's a development control plan.”

The statement may reflect a policy of such complexity that a local level policy is warranted to assist understand process. Alternatively, this could be the result of a policy containing motherhood statements which require interpretation at a local level to be undertaken and subsequently formulated into a policy.

From an industry perspective, the ability of local authorities to develop their own policy at the implementation phase was acknowledged and the following statement reflected those of the non-regulatory practitioners:

BS1: “Yeah I'm going to guess that the biggest criticism is the EPA act. It just sort of sets the framework to allow the council to develop the policies. Then you get the situation where each council develops their own policy and they all do it differently. Some are good at doing it and others poor at doing it.”

4.3.5.4 DCP impact

Multiple interviewees within the government realm again commented on how the DCP was a document that was used by industry as a mechanism to achieve approval: meet its requirements and an approval would be forthcoming:

TP1: “Yeah, I would say they probably do with an application just whatever the basic is, just to get the application in.”

When discussing DCP content, in relation to water and energy consumption, the answer from TP1 is worth noting. Their response highlights their knowledge as an assessing officer in relation to their own policy developed and used at an implementation level.

TP1: “To be honest I would have to reference the document on that front.”

A situation arises where reliance is placed upon standardised templates, yet the complexity of each project raises the question over the extensiveness of such documentation. Secondly, with such heavy reliance upon the DCP – daily use in assessment activities - by local regulators, it may be assumed that there is a familiarity with the document and its contents which is contrary to the comment by TP1. This shows a system where interpretation and assessment involve either standard assumed requirements or potentially practitioners may be employing their own subjective beliefs into the assessment process without reference to policy documentation.

4.3.5.5 Human intervention

Importantly, many interviewees, from both the public and private sectors, highlighted that where issues arose, they were often a direct result of human intervention at the implementation phase:

MDC1: “Now the EP&A Act provides sufficient controls to be able to control the various attributes of development. It's only a matter of whether or not the people who are applying the provisions apply those provisions with discretion. Discretion, the application of discretion is paramountly important to make sure that the person who's being regulated knows that you've still got the big stick there and you don't necessarily have to use it.”

SPCM1: “Well, I think - generally speaking I think the legislation in place is pretty good. It's not the legislation that's at fault, it's human error or human sort of ignorance, you know what I mean?”

4.3.5.6 Enforcement

Enforcement and the need for compliance elicited a range of responses; however, it was commonly acknowledged that society had moved towards a more harmonious system compared to the older style of strict regulatory enforcement. Collaborative relationships have been identified as a popular contemporary initiative; however, one interviewee preferred to maintain an older style of enforcement commenting that this new style of compliance was insufficient and about fast tracking development:

MDC1: “As I've said to people in the past you know I've got a big stick up behind my back don't let me pull it out. Now the EP&A Act, there's plenty of provisions there with enforcement of conditions of consent and so on and so forth. But I think it's - we have been indoctrinated over the last 10 to 15 years by the Department of Planning in relation to accommodating development. Stop being blockers, stop being over particular, allow development to continue at the detriment, in my view, of the environment. Whereas in years gone by we used to look at it from a holistic perspective. It seems to be along the path now of assisting and facilitating development irrespective.”

Industry practitioners identified their role as maintaining compliance with the DC conditions was a means by which to pacify regulatory officers:

SPCM1: “our enforcement role is simply looking at the development consent and ensuring that that's complied with - we don't tend to impose requirements over and above what the council policy is that's required.”

One regulatory authority commented on how difficult the actual enforcement process can be in society today particularly given the often non-specific nature of the policy:

MBPC1: "I will say - on behalf of the compliance officers - they struggle sometimes applying the EP&A especially in orders, because it's not quite - it falls short sometimes of actually being specific. So it sounds more like motherhood type statements more than specifics. Usually when it gets to that stage they're usually talking with the council solicitor because they're not that confident in - the ambiguity of the wording is stopping them from going forward. Or from going okay you have done wrong - it's very clear, you should, A, B, C, you didn't do it, bang. It's not written like that."

An interesting comment by one interviewee acknowledged that individually issues may appear small; however, combined the picture is quite different:

MPBC1: "So yeah, it is hard to keep on top of and only knows how mum and dads and all the - we do a lot of the development, even though it's not characterised of making a major moonscape on the environment like your subdivisions and your large industrial buildings do. But sometimes they're the ones that make the most environmental damage."

Overall this theme identified that the complexity of the system is not changing to any significant degree by the entrance of new political parties. Amending policy appears to be the mechanism by which State government views system reform; however, the process appears slow and fraught with obstacles. The reliance upon the DCP continues to be at the forefront of discussion as a tool for assessment and in determining compliance on-site. Importantly, under this theme the subjective nature of the system was truly acknowledged demonstrating how fragile implementation activities can be.

4.3.6 Information sources/advice

Across many organisations, regulatory and non-regulatory employees often need to seek advice or further information in relation to a specific issue. In relation to environmental management and on-site operations: implementation activities, this theme stimulated a range of responses from both the public and private sectors. Institutes, professional networks,

specialists and internal colleagues were all put forth as sources of advice and information. Overall, many identified that they would start with private agents and refer to government agencies only when necessary as a lack of trust was evident in conjunction with a professional expertise or willingness to assist.

4.3.6.1 Local government

Many local authorities discussed how they would seek assistance internally from specialised units. The comments were very interesting when local government officers discussed internal specialist advice, particularly given previous comments where specialist officers – environmental officers – felt excluded from DA processes and were only referred applications for comment where the town planner deemed it necessary:

BS1: “Generally - obviously we've got general expertise experts in different areas within my section and also in different sections and departments within council. If we needed to go outside because they didn't have that expertise or the like, we would look at the relevant departments that look after the legislation at the time.”

BE1: “The EPA is a very formal - we usually wouldn't deal with them...”

Where the required advice could not be sourced internally, often it was a case of seeking external expert assistance. However, this appeared to bring forth its own range of issues, given the tender process:

BS1: “...we just can't pick and choose. We obviously have to go out to tender to provide those services to council and not always do you get the one that you want.”

4.3.6.2 Industry

Industry portrayed a rather hierarchal approach to sourcing advice and information. Generally, this involved internal colleagues or units, followed by specialist contractors employed to work on the project. Networks were another common option followed by institute bodies. Depending upon the situation, government – State and local – may be approached.

SPCM1: “Really we go to specialist contractors. We have a qualified safety manager and that safety manager one of his responsibilities is environmental management as well...”

DTP1: “Probably in the first instance it would be the network that we have, again dealing with those projects most of them are covered up by specialists so we would tend to go to those people for more specific information. But there's certainly cases where we would go to state government agencies or departments for more specific information. Also for the council.”

4.3.6.3 State advice

There were mixed reactions from industry as to whether they would seek advice and information from a State authority:

MBPC2: “No, I wouldn't go so far as to say I know it all, but why would you bother wasting your time going to a state agency? ...but predominantly state agencies are a waste of time for local perspective.”

BS1: “State Government agencies. Unfortunately a lot of them are very reluctant to give opinions because they will be dragged into court. A legal issue, they don't want to provide, then they will direct you to a document they've produced and then you've got to make your own judgement in relation to those documents.

One participant highlighted the situation as follows:

MBPC2: “Unfortunately state agencies have been decimated of any long term professional staff over many years and it's really, really difficult to get a responsive answer and assistance out of any government agency. We are left, we are cut loose and left to deal with our own issues substantially now with very little assistance by any government agency. It is very difficult to elicit a productive response out of most government agencies to assist council. They're not in the business to assist council, they're in the business to monitor councils in their activities.”

4.3.6.4 Local government advice

The responses to approaching local authorities for advice and information was mixed. Some industry practitioners felt comfortable approaching local government officers:

DBS1: "For environmental issues I tend to use contacts at the local authorities..."

PCMI: "It can be a function of again what the issue is, but 90 per cent of the time, 95 per cent of the time, it's normally something you can go to council and confirm."

Others explained how contacting these authorities were often considered a last resort and this was even confirmed by one government interviewee:

DBS1: "Only if I've got good contacts there and I feel that I can talk to them without them sort of taking over and having a go at my customers."

MBPC1: "My first contact wouldn't be the council, because I'd be too worried that I'd be exposing myself..."

Interestingly, some industry participants highlighted unconsciously that building rapport served to establish more open relationships and afford the exchange of advice and information.

MBPC1: "Generally most people, certainly that I'm aware of, they know someone. Someone knows someone who can just go okay contact this person. That's a general vibe around that I hear."

One interviewee from industry discussed an internal organisational process by which they were building up a reference system of information. This could be used across the organisation and would contain a wealth of information related to project management and industry contacts, for example:

MDC1: "It's like an internal library. So, as we do our first project on a new sector or a new type of construction, that team will put some knowledge in there and it progressively grows and we can access that."

MBPC1: It would be nice if there was that kind of ability to register - each organisation could register themselves and a contact point in an area.

State government was generally not viewed as a source for which policy clarification could be obtained. The changing face of government at this level questions their role in implementation or whether they are solely policy formulators. Local government presented mixed responses. Many practitioners were confident in approaching local authorities for advice, while others considered this a dangerous avenue for fear of having further requirements imposed. Generally, specialist practitioners employed within the private sector were a favoured source of knowledge. Overall this presents a picture of multiple stakeholders, different agendas and a lack of collaborative relationships resulting in the need for individual interpretations of the same policy.

4.3.7 Additional comments

The intent of this theme was to elicit any further issues the interviewee felt were important but had not yet raised or only just considered. This would complement the areas already discussed by interviewees above in relation to implementation processes. A couple of the prime areas raised will now be discussed.

4.3.7.1 Safety, quality assurance and environmental management

A common theme again raised concerned the areas of safety and quality assurance with environmental management almost tagged to safety inspections to ensure its consideration:

SPCM1: "Look I think out of the three main management requirements of safety, quality and environmental, environmental is pretty much the poor relation, in the sense there isn't a great deal of focus on it. So I think to some extent the environmental management is working, but to some extent it's working despite the fact that people aren't really managing their practice as well as they should."

4.3.7.2 Private certification

The issue of private certification was raised throughout the interview process, primarily by local government practitioners. An interesting comment was made in relation to the disparity at the implementation phase and conflict between the policy and the certifiers:

CI: "One comment I will have is about private certifiers. The private certifiers, the board of something, their stance is that they only are responsible for certifying that a builder complies with the conditions of the DA related to the building. Any environmental controls are council's responsibility. I just think that's a huge loophole. We get people who ring up, just normal people, and are concerned about a building site. They say they rang the private certifier and they said ring council. The private certifiers' board who I spoke to about this said the reason they do that - there's a statement on their website - is about that because council has the legislative power under POEO and the EP&A to enforce these conditions whereas they don't. Others just don't care and it's usually ex-council employees who've got into private certifying who know the rules."

4.3.8 Summary

From an etic perspective, most practitioners identified that there is more awareness of environmental issues across the industry today; however, there were comments that there remained much room for improvement. Local government interviewees commonly highlighted the following:

BS1: "I think the environmental management has moved quite considerably since when I first started. So I think we've moved forward or I think there's a lot of scope to progress and provide clear guidelines to what people are supposed to do."

TP1: "I think what we do have at the moment gets the job done, but they are obviously times when things fall through the cracks and we do have issues, otherwise our compliance department wouldn't have a job. I guess the only way to improve that, other than what we're doing now, is to maybe increase the fines or have more resources, more staff to monitor it and manage it. Other than that, there's not really much else we can do."

Across industry, the following views were reflected:

MDC1: “The client is becoming more and more proactive, and I don't think it's really so much the legislation pushing them as the community, and the community awareness. There's increasing community activity, community awareness on those projects, and the nature to maintain their position as strong corporate citizens.”

PCM1: “We do it as something that we think we should be doing and so I guess you could almost say we like to do it. We feel better that we have done it and I think our team feel better that we are doing that contribution if you like. Awareness of these things and managing these things are all part of their work process now more so than ever.”

It was evident that practitioners were quite comfortable with the EP&A Act in many respects. Many local government officers were in favour of tighter controls to assist with regulatory enforcement. However, all in all, the policy itself did not present major concerns. Rather, the implementation processes at the ground level from local policy development, insufficient communication and collaboration, a lack of uniformity, in conjunction with the human subjectivity across the system presented a rather fragmented, incomplete and often dysfunctional environmental planning system.

DTP1: “My comment earlier was the disjointed nature of it” and a system “being driven by individual council policies.’

MBPC1: “Council was unrealistic in what they wanted. That was the other thing, every council seems to have a different level of discretion.”

To conclude, MBPC2 provides a number of salient comments, worthy of note in terms of the complexity of the system and the unfortunate status of environmental management today:

MBPC2: “I think that - I don't mean this as a derogatory remark however in the construction industry predominantly the people in the construction industry are there because they were good at doing something, building a house for example. But nowadays they've got to be expert in work health and safety, they've got to be expert in taxation and company law, they've got to be expert in industrial relations, they've got to be an expert in environmental

performance. But I would go so far as to say from my perspective over the many years that I've been in this game I would say that environmental performance has now, over the last five to 10 years not taken a back seat, it's been left on the road behind it."

Chapter 5: Stage 2 Case Study analysis

Chapter 5 relates to the Stage 2 case studies. A total of four case study projects were employed for this stage of the research, each relating to a different type of construction project: aged-care, multi-storey residential, commercial and educational. Interviews were conducted with specialist practitioners associated with each construction project: designed to explore and understand their experiences of implementation in the context of real life projects. In addition, documentary evidence – the development consent – was analysed for evidence of on-site environmental management content to supplement findings. The final part of this chapter concerns the synthesis of the data.

5.1 Introduction

Chapter 4 introduced the results from the Stage 1 data analysis. This initial stage reveals the emic perspective through semi-structured interviews with specialist practitioners with regard to their expertise over multiple projects. Chapter 5 concerns the Stage 2 data analysis in which four (4) case study projects were explored. The intent of the Stage 2 analysis was to employ qualitative exploratory research methods to explore the experiences of practitioners in relation to implementation processes, in order to understand the interplay between project participants and policy that leads to a specific level of environmental protection: an emic perspective. Each of the four (4) case study projects explored related to a different type of construction project: aged-care, residential, commercial and educational in which the following was conducted:

1. interviews with relevant industry practitioners; and
2. an analysis of development consent documentation.

A total of twenty five (25) interviews were conducted with industry practitioners who were selected due to their knowledge, experience and importantly, their association with the case study projects and implementation processes. Industry practitioners interviewed included certifiers, town planners and construction managers. Relevant documentation for each case study project was then analysed for consideration in terms of on-site environmental management.

Chapter 5 presents the case study projects in terms of a descriptive analysis: participant characteristic including their position, role and length of time in industry; and a thematic analysis: extraction of themes from the analysis. Analysis of documentary evidence if also provided. Following which details on the cross-case synthesis and the final Stage 1 and Stage 2 synthesis are provided.

5.2 Case study projects

Chapter 3 presented the methodology for this research with regard to the case studies; however, a couple of important points from that section will be discussed in the context of the projects. The research involved small to medium scale local development that falls within Part 4A and/or Part 5 of the EP&A Act (refer to Appendix 1 commentary for an explanation of development types). Therefore, case study projects were excluded from this research where they were categorised as either of the following:

- Exempt development;
- Complying development; or
- Major projects (e.g. airports, mines and railways).

The consent authority for each project was either the local government authority or the Joint Regional Planning Panel in that the development assessment and approval process involved a development application, statement of environmental effects and the subsequent release of the development consent. Four construction projects were elected for this research:

- Case study 1 (CS1): aged-care facility
- Case study 2 (CS2): multi-storey residential building
- Case study 3 (CS3): commercial building
- Case study 4 (CS4): educational facility

When discussing each case study, reference will be made only to the case study projects in terms of development type and approval process to maintain confidentiality in accordance with the ethics approval. The implementation process involved a DA lodged for assessment with the regulatory authority and the approval document: the DC issued by that authority which contains the conditions. As per Chapter 4, across the industry many practitioners refer to the DC as the 'DA'. Therefore, many participants used the terms interchangeably throughout their interviews. The stage of the process the participant refers to can be determined from the question theme under discussion and their response.

5.3 Interviews

Interview questions for Stage 2 were structured in two parts: demographic and theme related to elicit practitioner experiences concerning each specific case study project and on-site environmental management operations. Questions were semi-structured in nature providing an open dialogue to elicit a range of themes related to the research topic. The first part of the data analysis process involved a review of the interview transcripts related to each case study project to identify emergent themes. Topics and ideas raised by the interviewees are highlighted and illustrated with quotations from interview transcripts.

It is noted that where possible, both government and non-government practitioners involved with each case study project were interviewed. However, due to practitioners changing positions or professions this was not always possible. This is particularly the case with local government employees as it was identified that generally one officer is allocated control of an application and maintains the knowledge and experience of implementation activities. With each case study project different practitioners were involved. For example, CS1 was the only project to employ a building consultant.

5.4 Documentary evidence

The second phase involved documentary evidence: data analysis of the approved, publicly available, development consent for each case study project. DCs were reviewed for on-site environmental considerations: control measures employed to mitigate potential environmental impacts. Formal approval for development – DC – often results in a lengthy document full of conditions that specify what is required in order for the project to proceed. These ‘conditions of consent’ range in nature dependent upon the development type, size, complexity and so forth as interpreted by the assessing officer. Therefore, they are project specific; however, many are applicable from site to site. For example, the need for erosion control is a common condition that is applied to most projects.

For the intent of this research the development consent serves a dual process. First, it allows for a review of the conditions of consent to determine what issues were considered important

in relation to environmental management: how the policy was implemented to produce such an outcome. Second, it enables an analysis of issues in relation to the interview data to highlight any patterns or themes that emerge of environmental consideration. For each case study project, the development consent was analysed; however, it must be noted that only conditions related to environmental management are identified and discussed. Those not related to environmental management, such as traffic management and structural design, are outside the scope of this research and will not be discussed.

A table of conditions of consent will be provided for each case study project, divided into three columns. The first column identifies documentation submitted with the application, related to environmental issues, as identified within the DC. Towards the front of the development consent is a list of approved documentation that was used in the assessment. Commonly these documents are those submitted to the authority as part of the development application and include architectural and structural drawings, landscape plans, erosion and sedimentation control plans, hydraulic plans, accessibility and car parking, environmental statement and other such related documents. The second column identifies those conditions of consent within the development consent that are associated with environmental management during on-site construction management operations. While, the final column provides comment in relation to the conditions.

5.5 The regulatory environment

To explore the research question, in the context of this policy, an examination was undertaken of the case study projects. The research was concerned with small to medium scale local development that falls within Part 4A, Part 5 and/or Joint Regional Planning Panels/local government authority delegation under the Act. In general terms, each of the case study projects was subjected to a separate assessment and determination process in accordance with the EP&A Act. As the developments are considered local development they were considered under Part 4 of the Act that requires Council to consider issues under s. 79C such as social, environmental and economic issues (EP&A Act, 1979). Figure 10 illustrates the assessment and approval system relevant to the four (4) case study projects.

5.5.1 Project 1 and 4

For CS1 and CS4 projects, the type of development is considered Part 4 Local Development. Both projects come under the jurisdiction of local government who thereby become the consent authority responsible for implementation activities such as regulatory interpretation, assessment and conditioning development. For these three projects, the development applications were submitted to the local government organisation responsible for the local government area in which the developments were to be constructed. They were responsible for undertaking statutory functions including consultation, concurrence and assessment against s. 79C of the EP&A Act. With these three developments the assessment powers were considered within the scope of the local government organisations delegation and therefore they were able to perform the role of the consent authority.

The local government authority made a separate assessment and determination on each development. In the case of these case studies, all were approved. Subsequently, the consent authority released a development consent with conditions. Each consent included a listing the conditions to which the development was required to comply with including environmental issues.

5.5.2 Project 2 and 3

For CS2 and CS3, the type of development is again considered Part 4 Local Development. However, after an initial assessment by the local government authority it was deemed that both projects come under the jurisdiction of the Joint Regional Planning Panel. The process for assessment and approval was different for these two projects. The development application was initially submitted to the local government organisation responsible for the locality in which the development project was to be constructed. The local authority then conducted standard statutory duties including consultation, concurrence and assessment against the EP&A Act. However, with these developments, the applications were considered outside the delegations of the local government organisation and were referred to the Joint Regional Planning Panel, the consent authority, for assessment and determination (New South Wales, Joint Regional Planning Panels, 2012; 2014).

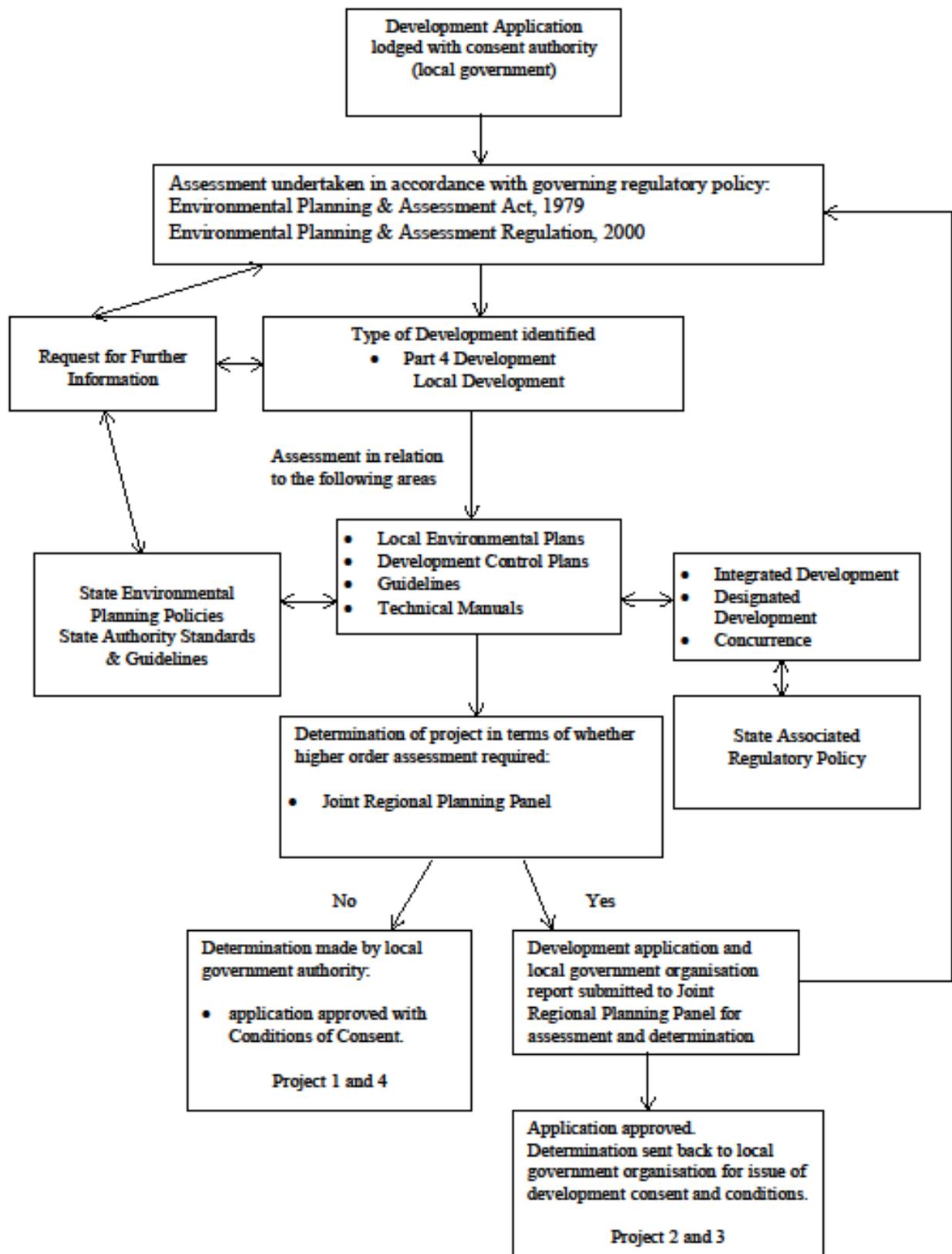


Figure 10. The environmental planning process as related to the case study projects

As part of this process, the local government organisation completed an assessment report with recommendations, including their decision on whether to approve or reject the application. The development application and local government authority report was then redirected to the Joint Regional Planning Panel under s. 23G of the EP&A Act. The Panel then became responsible for the application and for making the final determination. Their decision in relation to CS2 and CS3 was approval and this was reported back to the relevant local government organisation. Although not the consent authority, the local government organisation are responsible for the issue of the notice of determination with conditions and remain responsible for monitoring and enforcement of conditions of consent as per standard projects (New South Wales, Joint Regional Planning Panels, 2012).

5.6 Case study 1 – Aged-care facility

CS1 involved the approval and construction of an aged-care facility. The project involved approximately fifty (50) self-care dwellings under the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004. The project also concerned infrastructure and services associated with the construction of the dwellings. The development application was lodged with the local government organisation responsible for the area in which the proposed project was situated. The local authority, in accordance with the EP&A Act, was deemed the consent authority and provided an approval: development consent. A total of six (6) practitioners involved with this case study project were interviewed. Participants had involvement with the one or multiple implementation phases from development application preparation to on-site environmental management operations.

5.7 Descriptive analysis

The first series of questions presented to interviewees were of a demographic nature including position, role and time in industry. The results of these questions will now be presented as they offer an additional insight into practitioners and their background.

5.7.1 Description of positions

A range of practitioners were interviewed for this case study project: those professionals associated with pre and on-site implementation operations as shown in Table 18. In particular, the development manager was the client while the project manager and site manager were part of the construction firm.

Table 18. Practitioner positions

Description of position	Sector
Architectural Technician	Non-government
Building Consultant	Non-government
Project Manager	Non-government
Development Manager	Non-government
Principal Engineer	Non-government
Site Manager	Non-government

5.7.2 Description of roles and responsibilities

Role and responsibilities as defined by the practitioner are presented in Table 19. Interestingly, each practitioner identified their core role as project management. Although only one practitioner employed the title project manager and undertook traditional roles associated with the management and overseeing of the entire project, others continued to view their individual role in terms of a project management position.

5.7.3 Time in industry: years of experience

Time in industry and years in the current position are important to note. The results in Table 20 reflect the private sector and also a substantial amount of experience albeit an ageing workforce. However, given the management positions held by most interviewees, it would be expected that a significant amount of knowledge and experience would be required to achieve such status. Importantly, it identifies that the participants for this research have had a long association with policy and implementation activities.

Table 19. Practitioner roles

Description of position	Primary Role	Responsibilities
Building Consultant	Project Management	Client representative. Project management duties associated with client interests from quality assurance, subcontractor engagement and advising superintendent.
Project Manager	Project Management	Subcontract management, site management, budgeting, staff management, client liaison and reporting.
Development Manager	Project Management	Project and policy based work: organise and oversight the development operations.
Principal Engineer	Project Management	Project management duties associated with engineering design, staff management and all other relevant project management activities.
Site Manager	Project Management	On-site management activities, staff management including project teams, liaison with project managers and site foreman.
Architectural Technician	Project Management	Project management duties associated with DA documentation, construction documentation and construction administration.

Table 20. Time in industry and in current position

Description of position	Time in Industry	Time in Position
Building Consultant	45	45
Project Manager	15	6
Development Manager	35	2.5
Principal Engineer	10	10
Site Manager	27	4
Architectural Technician	17	17

5.8 Thematic analysis

As per Stage 1, the data analysis process for Stage 2 involved a review of each interview transcript to identify emergent themes. The following information reviews participant responses in the context of themes posed. Predominant topics and ideas raised by the interviewees are highlighted and illustrated with quotations. The final topic codes are shown in Appendix 4. Each of the practitioners was assigned a key code as shown in Table 21. Throughout the text, the key code indicates the author of the quote.

Table 21. Position codes

Description of position	Acronym
Building Consultant	BC
Project Manager	PM
Development Manager	DM
Principal Engineer	PE
Site Manager	SM
Architectural Technician	AT

A range of themes evolved from the interview data with regard to the first project. Primary ones will now be identified with a full listing of codes provided in Appendix 4. Many interviewees highlighted processes and in many cases the intent of such operations.

5.8.1 Information transfer

Under the theme of information transfer, the DC was discussed as a prime mechanism for information dissemination. All interviewees identified that they obtain a copy of the approved development consent and review associated conditions for a number of reasons. The first is to relay this information to all team members to ensure awareness of the conditions that need to be achieved throughout the project. Second, numerous conditions may need to be met prior to the certifier issuing a certificate to enable on-site construction operations to commence.

These conditions require immediate action to ensure project timeframes are met. Finally, this form of information transfer identified to all stakeholders those issues that must be addressed by the completion of the project in order to obtain final regulatory signoff. In general, it was identified that copies of associated documentation including management plans and drawings were also distributed to relevant practitioners and copies retained on-site:

SM: "I'll have the DA on site and I'll have the conditions, and any environmental conditions I'll certainly know about. That's part of my role to make sure that we adhere to those."

PM: "Obviously we had all the DA conditions and we had to meet all those requirements and follow those all through. We had access to all that information and then had to confirm and comply with all those requirements for all of those. We obviously had all of those at hand and I needed to develop a really good understanding to make sure what we were building was going to comply with those at the end of the day."

The comments by the above interviewees do in fact reflect the views of many practitioners, with the DC as the overarching document that must be complied with. In terms of operationalising such documentation, the focus remained with consent conditions. The PM highlighting potential ambiguity, the subjective nature of the system and the need to 'tick all the boxes':

PM: "The bush fire hazard assessment report dictated a lot of things but there's some grey areas in there where it's really just interpretational of whoever writes the report. Cross-liaising with a senior bush fire consultant and also council to make sure that, at the end of the day, what we constructed and when he did his final inspection, it all just ticked the boxes and there was no issue."

The comment highlights the subjective nature of the system and subsequently implementation. Again, the interpretation of the regulator is seen as most salient given the need for final project sign off.

The use of checklists was also raised as an important part of the implementation process associated with environmental management. Potentially, such a focus - checklists and ticking boxes - may be a concern as it has the ability to direct attention away from all areas of

associated with environmental management. This may be the result particularly where a condition of consent does not comprehensively address potential negative environmental impacts. However, many industry practitioners identified the use of a quality management system to ensure comprehensive coverage of all issues associated with the case study project which fell above the regulatory requirements:

BC: “Under a quality management system which I operate. There is a site based application of a quality management system. It's called various things, but it should be called a project quality plan. In that quality plan there is inspection and test reports, all manner of forms, if you will, request information, site inspection reports, non-conformance reports, corrective action reports and all that sort of thing, which are contained in the main quality management system. I condense it into a site specific project quality plan and I generate my concerns and questions on those forms.”

A number of interviewees commented on how information was also shared through practitioner meetings and site inspections which also afforded the opportunity to raise issues that would need to be addressed, discuss any concerns and clear up ambiguities:

AT: “We attended fortnightly meetings. Yes, all the consultants would attend. Yes, the structural engineer, the hydraulic engineer, electrical, mechanical...us, there was a landscape architect, the project managers etc. from [construction firm, development firm] and the site foreman.”

SM: “How we check it is we do weekly site safety walks. We have an environmental section where the guys are checking all that before they go out and sometimes I'll do it by myself, going around checking all the requirements like silt fencing.”

In effect the use of checklists, the DC, meetings and inspections were all identified as measures to enable information transfer and environmental awareness. However, all these mechanisms rely upon a correct implementation process at the initial stage of the project. An assumption that those responsible for interpretation and assessment activities have in fact been diligent and comprehensive in their coverage of environmental issues.

5.8.2 Roles and responsibilities

Roles and responsibilities elicited a range of viewpoints and experiences concerning on-site implementation responsibilities. The complexity of the case study project is demonstrated through the design and construction operations and also in terms of the development site: its location and conditions. Primarily, it was identified that the process to get to on-site stage is in itself quite lengthy and involved. Comments illustrate how a range of participants and activities are involved with the various implementation stages for this project. Importantly, the following comments identify primary process and the need to comply with consent conditions to ensure final sign off which is a primary focus, understandably given the economic consequences of not obtaining the final approval:

BC: "As you've probably been made aware, the [building name] project was a design, develop and construct. So that means that the client provides a concept design and seeks DA - or development application approval, and so the client who engages an architect undertakes the studies to see the demographics and whether or not they can put a particular type of structure or the number of structures and so on and so forth; everything the development manager is responsible for, including the business plan. Now we go to tender. The tender's not for construct. It is design, which means completing the design and develop the design, and then construct. So from that moment, the tender is awarded, and then the builder is responsible for the entire project and the DA conditions. The development application might be approved, but approved under certain conditions...the builder has to then complete the design under the conditions of the development application and satisfy the council. Now, once that is done - that's the DA stage - it then goes to construction certificate stage. Now we've prepared the drawings, and they go to a private certifier for review - not always a private certifier, but generally, these days, a private certifier - there's all manner of conditions. They have to satisfy most of the private certifier and the council."

BC: "So that's the private certifier, at the end of the project, has to sign it off, and the council - based on the information and the quality of the information they receive from the private certifier - issue an occupation certificate which is, you can now occupy. So it's very important that all the Is are dotted and the Ts are crossed, that all the DA conditions and consent conditions are met, otherwise you don't get issued with occupation certificate."

The site for the aged-care facility presented a range of environmental issues given its location in bushland. One practitioner provided an example of the complexity at the on-site implementation phase and issues to address under the management plan, that afforded an understanding of the type of communication, information dissemination and collaboration needed to achieve a successful outcome. Importantly it depicts a process with multiple human interactions and relationships within the implementation process:

PM: “the ecological impact assessment and the vegetation fauna management plan that were developed already. We had to follow that. It was quite strict. In terms of developing the site we had to - there was a 48 hour process where we had to get minimal machines in to clear an area to put up erosion control. Then once the erosion control was put up, we could then put a temporary fence in. Then when we cleared the trees down we had to do all the under scrubbing and leave all the major trees still, then all the under scrubbing, then wait 48 hours and in that time all the fauna would either move out of the trees or sort of go, oh hang on, something’s happening here and relocate. Then on top of that we actually had to do stag watching which is basically a couple of ecologists sitting under trees at dusk and dawn for a couple of nights prior to us moving the trees. Then we had to lower the trees slowly to make sure there were no animals in them. If there was, relocate them. A lot of it was really dictated by the flora and fauna management plans and ecological assessment and council’s requirements. In the DA conditions they had a whole ecological section, site clearing and all that and it related to the flora and fauna management plan. There was a lot of consultation between the ecologist and council to develop the DA conditions, definitely. To the point where council were dictating that, your site is here, there’s a tree that’s really close to that. you need to put a retaining wall around it.”

For this case study project the PM explained that the local government ecologist conducted inspections at this stage to ensure conformance with the management plan. Moving to operations following initial site set up, the DM identified that on-site operations and implementation of environmental measures was a hierarchal process:

DM: “We have a building consultant who we employ and they act as our eyes and ears on site. Then we also have a project manager who is the superintendent under the contract whose job it is to also look after our interests.”

This was a similar experience by other interviewees such as the PE who explained:

PE: “What happens is, I make sure the builder’s on site 24/7 and we go out and do intermittent inspections during construction. When we’re on site we do look at sedimentation and make sure that the controls are being in place. If they’re not we would raise that with the contractor.”

A range of practitioners were involved with this case study project given the complexity of the site. Multiple relationships were occurring simultaneously between government and non-government stakeholders. Although each may present a different agenda, the overarching area of focus was to establish the site in accordance with the consent to allow construction to commence.

5.8.3 Training

Relevant knowledge and experience are essential elements for a practitioner to perform their responsibilities competently. The PM, in reference to undertaking formal environmental training, provided a comment reflective of their colleagues by stating:

PM: “Really just researching for myself to try to understand the steps, talking to council and going, look this is my understanding. There wasn’t really any training. I think each project that we deal with or myself personally, you just try to get a better understanding of what you don’t know prior to doing it so that the steps are easily followed.”

As explained by others, it is all a matter of:

SM: “Just reviewing DA conditions.”

Essentially, on the job learning was the prime means by which learning occurred:

BC: “It’s funny. The short answer is no in a specific sense, as to going and attending a training organisation. I’m referring to standards... that are applicable to that project. So if

I've got a standard that - my library of standards - the soft copy and hard copy - are not up to date, then I have to reread every standard that is then applicable to that.”

Work experience as a sole form of training, learning and development, may present a range of issues. For example, a deeper contextual understanding of environmental impacts may be absent and there may be an increase in dependency relationships which has the potential to negatively impact implementation activities. Interestingly, with fifteen (15) years experience, the PM identified the unusual complexity of environmental constraints in the conditions for this project, potentially highlighting a reason in favour for formal training. However, it is noted that with the complexity of this project it did necessitate an ecological induction. Although it was considered an uncommon process throughout industry:

PM: “To be honest with you, this is probably the first project where I’ve had to deal in that detail, that depth. In the DA conditions there was a requirement for the ecologist to induct early on, any trades that were doing work in there. Just out of my limited understanding of it, I met with the ecologist on site and tried to understand the whole concept and what is stag watching.”

Another common theme concerned the employment of specialist practitioners:

DM: “We have in our team a manager in environmental sustainability so we have him, he’s an ecologist, whose role is to ensure that the environmental standards are adhered to and we usually have an ESD consultant on projects.”

Under this theme, it is apparent that there remains a heavy reliance upon DC conditions. Those responsible for environmental management whether pre or on-site construction phases possessing little or no formal training in the area of either legislative interpretation or environmental management. However, on such a complex project, industry brought in specialist practitioners to assist with implementation processes.

5.8.4 Regulatory interpretation

Many interviewees discussed the processes of seeking advice in which a hierarchal approach was most favoured. The initial point of contact depended upon whether it was a local or State policy related issue. The DM, in their lead position as the client commented that:

DM: "Actually I'd probably ask the planner in the first instance if it was an ambiguous DA condition. If it related to a particular discipline that we had a consultant involved, we'd probably ask them. We'd ask whoever you'd think might have an answer."

While the BC, directly employed by the DM stated that:

BC: "As I say, every question I ask goes through the superintendent, and the superintendent would either be in a position to answer the question or, if not, we'll seek advice from the respective consultant, including the PCA."

Given the range of environmental issues presented by this site, there was a wide range of responses from practitioners:

SM: "I think if it got to that point we would be in trouble and I think we'd be talking to an ecologist. My first port of call would be to my project manager and say hey look we've got this issue, what shall we do?"

PE: "If it's something to do with another consultant's area of expertise, I would in the first instance ask them. If they couldn't answer that then I would look to go to council to get a clarification or a final ruling on that."

Ultimately:

PE: "I guess you could use council and private certifier intermittently then because it's the authority that's going to be certifying the project, they would have the ultimate say."

One interviewee raised an interesting issue when discussing the abovementioned issues. The response below identifies that there is replication of reports across projects. Circumstances in

which practitioners may 'copy and paste' text from one job to the next. This introduces an issue where comprehensive assessments are avoided and information may be conflicting, irrelevant or completely bypass negative environmental impacts of the case study project:

BC: "...they will then go back to the consultant who prepared the drawings again. ...and say are you aware this is in your design, but this DA condition was site specific? That's quite important because a lot of people would tend to - because of commercial considerations - copy and paste from one job to the next and - perhaps I'll be kind and say overlook the site specific - so it has to be brought to their attention."

Moving beyond the realm of where to seek advice, a range of topics associated with penalties and environmental issues also shed light on the understandings and experiences of practitioners all to do with implementation around environmental management. All practitioners were aware that under the policy, negative environmental impacts were associated with large fines. The focus however, remained with just being aware of economic impacts associated with environmental damage, rather than the specifics:

BC: "Absolutely. Penalties - I think, what tends to get overlooked is the size, if you will - for want of a better word - the size of those penalties. A number of them are quite substantial."

PM: "I know there's big fines, I don't know what the dollar values are but if there's any chemicals go into ecological endangered communities and outside of our asset protection zone, that was quite paramount that we needed to make sure that didn't happen."

Awareness of enforcement provisions may be important but there needs to be an understanding behind their intent. As most practitioners had only 'heard' about such penalties given their numerous years of industry practice it becomes clear that they have not been involved with enforcement mechanisms. This raises the question of whether all their developments appropriately consider all environmental impacts, or whether they are just achieving the demands of the DC so all stakeholders are satisfied. Alternatively, it may be the result of a gap in the policy process where environmental incidents are not detected or considered beyond those identified in the DC.

5.8.5 Compliance

Compliance was raised by many as an integral component of implementation. Themes considered under compliance included auditing programmes, on-site incidents and processes of remediation. Commonly, it was acknowledged by on-site operators that local government did not attend the site to inspect once ecological site preparation had been completed. In the words of the SE: “*No, nothing.*’ However, the auditing, monitoring and reporting processes undertaken by the private sector reflected a different story:

SM: “...my reports are sent back to project managers. We do a fortnightly project review which I have to write down any environmental incidents we may have had.”

PM: “...as part of our FFC accreditation, we have another external third party auditor. He does random auditing and he actually audited this site... On top of that we had the client doing an audit on our site for environmental, safety, workplace health and safety... So obviously you have the ecologist for the council, then you had our third party auditor and then you had the client side, the superintendent, actually their company doing an audit as well. On top of that I always did a quarterly audit, which addresses environmental safety, all the WH&S requirements. It’s definitely a lot of reporting on that. Management plans that go along with that as well.”

SM: “Our company has federal accreditation which requires external audit of our system and our actual procedures. They come out to site every time to randomly choose one of our sites and do an audit of everything on that site including environmental systems.”

The above illustrates that there are multiple dimensions to auditing, internal and external involvement, along with numerous reporting processes. Effectively, multiple links, stakeholders and agendas. Yet the degree to which these implementation operations are effective remains unknown. The reports and their subsequent distribution is dependent upon the project and the position the practitioner holds within the scope of the project. In fact, it was identified to a degree that with environmental management operations, it was assumed that with documentation in place then everything was okay as someone would be responsible for such activities. In effect, it appears to still come down to the DC and compliance with this regulatory document.

A comment by the DM provided insight to implementation practices:

DM: “the council required auditing, reporting and taking - we were doing bush regeneration so they want nest box monitoring and photo points so they can see from every at the beginning, six months and then every 12 months over a five year period the changes happening. They’re asking for reporting. I think that’s enough. We wouldn’t be having anything additional internally into that.”

Resources are required both in organising and implementing such a programme from a non-regulatory side. This is also true from a regulatory perspective: responsibility for ensuring information is received or following up where not, reviewing documentation, taking action where matters arise. Given that no regulatory officers attended the site, only the ecologist at the commencement of the project, it must be questioned whether any further implementation activities occur after sign off.

According to interviewees, no major on-site environmental issues were recorded for this case study project. The main issue concerned maintaining sedimentation and erosion control measures given heavy rains experienced across the region. However, that does not guarantee that they did not occur. Respondent bias may restrict openness with such a theme. Or, quite simply, no major issues that required reporting were identified. The private sector may have appropriately addressed all environmental related consent conditions, fulfilling their duties. There may not have been an awareness of all negative environmental impacts at the DA phase and subsequently, as responses have shown, no further action taken given compliance with the development consent is the prime concern.

5.8.6 Organisational considerations

All interviewees associated with the actual on-site operations identified a range of organisational management plans and/or site inspection requirements that concerned environmental management:

PE: “We have an environmental management policy which is an authorised policy. That’s something that we comply with in our projects. It’s a general document. It covers things like

as part of our design we will undertake and review government regulatory authority requirements as well as do everything we can to aid in the design process to protect the environment.”

PM: “...they need to conduct weekly WH&S inspection and that’s where they check the silt fences, make sure the temporary fences are all up. It’s safe and all environmental controls are maintained and managed.”

Reflective of auditing programmes, a range of activities were implemented to encourage environmental management. However, the degree to which such issues are understood is questionable. First, safety and quality assurance were high priorities, followed by environmental management which was often ‘thrown’ into safety audit programmes. Those conducting such inspections either retaining an OH&S or construction related background. Qualifications related to environmental management were not identified by practitioners.

As a final comment under this theme, the BC identified a number of important issues. First, environmental management systems and accreditation are not necessarily viewed as important. Secondly, the system is often considered reactionary in nature when it comes to environmental management. Thirdly, medium (and small) sized organisations do not necessarily have management systems of a stature that provide environmental protection. As identified by one practitioner:

BC: “People put environmental considerations very low in a commercial sense, and they react to it. So, in other words, when something happens we’ll read the document. The quality management system of a medium to large size civil contractor, and all of the environmental concerns, is far better than the actual building contractor undertaking the works, absolutely.”

5.8.7 Other considerations

A number of interviewees raised additional issues they thought necessary to the research theme. The first brought the focus towards the subjective nature of the system. Although local

government was considered 'fairly diligent' even though their focus was upon the same standard environmental issues, the DM commented that:

DM: "They did vary a bit though. What they ask for - we had two different DAs and two different ecologists and we sort of got two different approaches on the one site which is a bit odd. The second one was probably the more stringent in her approach."

The comment provides insight into the human element – subjective interpretation –the ability to influence implementation operations which may be influenced by one's own values and beliefs. The second issue concerned conflict, between departments and potentially policies:

PE: "This one had multi-layers because it also had the Office of Water involved. Office of Water has sometimes different requirements to the bush fire, to the council requirements. It's actually got probably more than just council involved, we've got the Office of Water who often stress their powers to the types of vegetation and that type of thing. So it was interesting in terms of that and how those two are competing, not competing but different organisations have essentially different requirements and often they overlap or make it more onerous on the project."

This reflects the range of inter-agency authorities that may be involved with a project. In particular it highlights how legislative interpretation and assessment activities for the same project can result in quite different outcomes. The discussion and negotiation processes often involved with these implementation activities may significantly impact the final result. As a final issue, it was identified that increasing awareness of environmental issues was due to media and technology but again it was highlighted that there is still more to be done:

BC: "Of course, with all the awareness - internet and everything else, all the information that we have available to us - people are aware and are concerned. So the work that's being done on managing the environment...is just work by lots and lots of good people. It can be improved, of course. That's the idea of a quality management system. Would I like more? Yeah. Should we be recycling our own waste water and treating it on site, on a green field site? Absolutely, we should be, using anaerobic digesters and all that sort of thing and generating our own power so that we - to coin a phrase, we can only shit in our nest for so long."

Although a number of specialist practitioners believed further improvement could be made to the implementation system, it is interesting to note that possible solutions were not forthcoming. It was simply a case of we should do more but a belief that others will address this issue.

5.9 Documentation Analysis

The development consent was confirmed as authentic through the local government authority. The agenda was focused towards the community interest, not just environmental issues. For example, areas such as parking, traffic management, structural design, services and utilities, along with external colours and finishes. The development application had obviously been submitted with a number of consultant reports given their mention throughout the development consent conditions. However, only architectural drawings were identified as ‘approved plans’; therefore, a technicality as the conditions relate to various technical reports not considered ‘approved’.

The site of the project, prior to construction operations, was located in bushland. Therefore, within the development consent there were multiple controls or ‘conditions of consent’ that made consideration of environmental issues related to flora and fauna: vegetation removal. The majority of these conditions required certain works to be undertaken prior to commencement of construction activities. For example, flora and fauna inspections, tree relocation and erosion measures. Table 22 provides a summary of the conditions of consent related to environmental issues.

5.9.1 Considerations

As shown in Table 22, a range of environmental related issues were considered in relation to this particular case study project. However, there are a number of important issues that are raised from an analysis of the documentary evidence and these will now be discussed. First, there is no requirement for all plans related to environmental management controls to be prepared and approved by suitably qualified and experienced environmental consultants.

Table 22. Aged-care facility environmental development consent review

DA Documentation approved: Environmental issues	Conditions related to on-site protection	Interviewer comments
Vegetation and Fauna Management Plan	✓	The conditions commence with a list of approved plans. The Plan was not acknowledged as an 'approved plan' yet it was referenced across multiple conditions.
Conditions or Requirements imposed	Conditions related to on-site protection	Interviewer comments
Controlled Activity Approval	✓	Site location within close proximity to a water course. Approval to be obtained through the NSW Office of Water in accordance with the Water Management Act, 2000. Additional conditions from Office possible; however, unknown to consent authority at the time of assessment/approval.
Dust Control	✓	Details of system to control dust emissions during site operations to be approved by certifier. Visual assessment: consider qualifications and experience of certifier. No requirement for involvement of a suitably qualified and experienced environmental consultant.
Retention of native trees and vegetation	✓	Multiple conditions. Works undertaken prior to construction operations to identify protected vegetation: on-site operations concerned with protecting such vegetation.
Erosions and Sediment Control	✓	Multiple conditions throughout the consent: conflict as conditions refer to 'Blue Book' (standard industry publication or consent authorities policy and development control plan). No requirement for preparation by a suitably qualified and experienced environmental consultant. To be approved by certifier.
Stormwater Management Plan: Sedimentation basins to become retention basins	✓	Protect environment during construction operations To be designed in accordance to AS/NZS3500 To be approved by certifier. Condition requires drainage plans to be prepared 'generally in accordance' with the drawings by the engineer: ambiguous meaning. References other plans not approved at start of consent.
Ecology/trees	✓	Protect the environment during construction operations Ecologist, Arborist and Soil Erosion professional to supervise clearing, construction and conduct induction. Compliance certificate to consent authority. Requirement to comply with consent authority protocols: no mechanism to check, inspect or monitor. Requirement for ongoing monitoring programme – reports to consent authority: no follow up mechanism.
'Area' Vegetation and Fauna Management Plan	✓	Plan to be implemented prior to, during and post works. Involves requirement for an ecologist and nest box program. Requirement for ongoing monitoring programme – reports to consent authority: no follow up mechanism.

Tree Vegetation Protection	✓	Works and protective measures to be undertaken as specified by Arborist/Ecologist.
Waste	✓	Skip bin required. No further detail.
Soil	✓	Prior to any works details of disposal of soil or fill to be imported must be given to certifier. Certifier responsible for collection of documentation and assessment.
Bushfire Report	X	Works completed as part of the construction process. Relate to post development: protection of life. Prepared by consultant.
Surface water	✓	Surface water to be disposed of in a suitable manner. Must not be diverted onto adjoining land. Becomes role of certifier to administer.
Contaminated land	✓	An 'appropriately qualified consultant' to carry out remediation and validation of the site as per geotechnical report. Consider: 'appropriately qualified'. References geotechnical not identified at start of development consent.
Landscaping	✓	Prior to issue of final project certificate, the certifier to approve landscaping. Wording ambiguous: 'in accordance with council policy in accordance with plan by landscaper'. Landscape plan not noted as an approved plan at the beginning of the consent.

This raises a question of who is responsible for the formulation of plans in terms of qualifications and experience. It is also noted within the development consent that there are multiple conditions that relate to erosion and sedimentation control. These conditions refer to compliance with different policies developed by local government and industry. This may result in confusion as to which controls take precedence, particularly where a conflict may arise between policy content.

Multiple conditions require the certifier, in their capacity as a regulator, to be responsible for assessment, approval and inspection of different aspects of the development. The qualifications and experience of the certifier may not be suitable for all areas of responsibility thrust upon them. For example, the certifier is responsible for approval of landscaping. In these situations, the certifier would need to rely upon certification from the consultant responsible for the works as their specialist knowledge and experience may not be at all relevant to the condition.

Throughout the development consent there are multiple conditions of consent that define steps or action that is to be taken. However, in many instances there remains no mechanism to confirm works have been undertaken. Essentially, there is no condition or statement requiring regulatory review of the area to be confirmed. Compliance is therefore a result of the developer demonstrating to the certifier that they have complied with the conditions of consent.

There were also a number of conditions that were either ambiguous in design or left interpretation to the developer. For example, one clause read ‘...in accordance with council policy in accordance with plan by landscaper...’ and this may be considered unclear in design and potentially present conflicting information. Other clauses make a simple statement that ‘...an appropriately qualified consultant...’ is to be responsible for certain works such as the case with the geotechnical activities. Clarity by nominating a professionally accredited engineer, for example, would provide clearer direction and uniformity.

It is noted that the environmental impacts related to energy and water consumption have not been given due consideration as there is no approved document or condition of consent that reflects such controls. Additionally, areas such as waste make reference to a requirement for a skip bin. There is no construction environmental management plan that makes reference to separation of construction debris for recycling and other similar activities to reduce waste going to landfill.

In summary, the analysis of the development consent revealed close alignment with the interview data. Primarily, there was a focus upon certain environmental areas rather than a holistic approach to environmental assessment and management. This reflects interview data where those responsible for environmental related activities such as assessment, determining conditions of consent, undertaking inspections and compliance activities may not have a holistic approach or complete understanding of implementation concerning on-site construction environment management operations.

5.10 Case study 2 – multi-storey residential building

CS2 involved the approval and construction of a multi-storey residential building: four (4) detached eight storey buildings and a multi-storey carpark. With this project the development application was lodged with the local government organisation responsible for the area in which the proposed project was to be situated. However, the Joint Regional Planning Panel was the overarching consent authority for this case study project. They assessed the final application and approved the project, in which the local government organisation issued the consent on their behalf. A total of seven (7) practitioners involved with this case study project were interviewed. Participants were involved with the one or multiple implementation phases from development application preparation to on-site environmental management operations.

5.11 Descriptive analysis

As per CS1, the first series of questions presented to interviewees for this project were of a demographic nature. The results of these initial questions are presented to provide insight into interviewees in terms of their field of operation, roles and time in industry.

5.11.1 Description of positions

The interviewees for this case study project came predominantly from the non-government sector; however, the development officer responsible for the regulatory assessment at the local government level was interviewed (refer Table 23). In this project, the client employed the construction firm, in addition to two (2) external project managers to oversee operations.

Table 23. Practitioner positions

Description of position	Sector
Construction Manager	Non-government
Project Manager	Non-government
Site Engineer	Non-government
Team Leader	Non-government
Project Manager: External (1)	Non-government
Project Manager: External (2)	Non-government
Senior Development Officer	Government

5.11.2 Description of roles and responsibilities

The positions of practitioners for CS2 reflect development application preparation and assessment, on-site operations and management roles as shown in Table 24. This was an interesting project as the client employed external project managers to manage the construction firms construction, project and site managers: an additional tier in the system.

Table 24. Practitioner roles

Description of position	Primary Role	Responsibilities
Construction Manager	Project Overview	Entire project overview. Tendering and contracts management.
Project Manager	Project Management	Managing subcontractors. Client related issues. Administration: contracts, progress claims, budgeting. Management of activities: monitoring programme associated with safety, quality and environmental items.
Site Engineer	Site Management	Design reviews. Confirm designs are up to date prior to construction on-site. Clash detection: design ambiguities. Safety, quality and environmental issues.
Team Leader	Project Management	Team management. Meeting deadlines, preparation of documentations. Co-ordinating with consultants. Project resource management.
Project Manager External (1)	Project Management	Management of the head contract for the client. Variations, extensions of time, maintaining programme and client reporting.
Project Manager External (2)	Project Management	Co-ordination of consultants. Conflict resolution. Reporting to client on issues and overall project progress.
Senior Development Officer	Development Assessment	DA assessment. Advice and guidance. Pre-DA meetings.

5.11.3 Time in industry: years of experience

Interviewees brought a range of industry experience to this research (refer Table 25). All interviewees had at least ten (10) years industry experience or more, apart from one interviewee with around five (5) years in the sector. Their involvement with the policy, construction and environmental operations brings a wealth of experience to this research. The construction manager commented on how they had been in industry for thirty-three (33) years and prior to their current appointment this involved fifteen (15) years as a project manager.

Table 25. Time in industry and in current position

Description of position	Time in Industry	Time in Position
Construction Manager	33	5
Project Manager	23	14
Site Engineer	5.5	5.5
Team Leader	10	4
Project Manager: External (1)	12	2.5
Project Manager: External (2)	20	2
Senior Development Officer	12	3.5

5.12 Thematic analysis

The data analysis undertaken for this case study involved a review of each interview transcript to identify emergent themes. Predominant topics raised by interviewees are highlighted. Each of the practitioners was assigned a key code as shown in Table 26. Throughout the text, the key code indicates the author of the quote.

Table 26. Position codes

Description of position	Acronym
Construction Manager	CM
Project Manager	PM
Site Engineer	SE
Team Leader	TL
Project Manager: External (1)	PME1
Project Manager: External (2)	PME2
Senior Development Officer	SDO

5.12.1 Information transfer

For this particular case study project, two (2) development consents were issued. According to the TL, a number of pre-DA meetings were held with between the developer and local government authority. The SE explained that the first related to clearing works and the second for construction and commissioning operations. As early as the tender process it was identified that environmental management issues are both identified and considered; however, the focus of the DA was again evident:

CM: “We actually like to demonstrate to the clients the importance that we put in relation to environmental. With our tender submission, we would have submitted a draft environmental management plan. We do that on every project...we've got a base template that the company uses. We take the key issues that we identify out of the DA and run from there. Usually what we try and do, is with the DA, what we do is we do a responsibilities matrix, which we find is an excellent way of managing and monitoring responsibilities in relation to the DA.”

The intent of the matrix identified by the CM was to allocate and manage responsibilities associated with the development consent. In this manner, it was stated that progress with regard to conditions can be monitored to ensure all are addressed by the completion of the project. It serves as a control for the development consent but assists with information dissemination and awareness as all environmental measures associated with the project. This is particularly important, as the SE highlighted that in a ‘construct’ contract there may be conditions that the construction firm do not have control over. Again responses reflected a strong focus upon development consent conditions.

It was also identified that environmental management was addressed through the development of management plans with many organisations. Standard templates were often employed:

PM: “Yeah, so we will have standard pro forma of these plans in our head office, but we will make these site specific to the project.”

CM: "...we have a suite of management plans that we do for the projects...So they'll involve a quality management plan, the safety management plan and the environmental management plan. Now that environmental management plan will be an overarching document. So there's a whole suite of plans that we put together, which the team work through and develop and make them site specific."

From an external PM perspective:

PME1: "The DA we have a copy of and that usually forms part of the contract with their contractor, so they know what they need to do to make sure that council are happy."

An important issue was raised by one practitioner in relation to the initial environmental statement developed to submit with the development application:

PME1: "The statement of environmental effects we don't usually - that's usually something more upfront to get it through council and then it kind of disappears basically. It's more of the architect and council getting through those documents."

Yet, this document is of prime importance as it identifies all potential environmental impacts and subsequent mitigation measures: in reality, the consent appears to be the document of focus. Most other documentation is retained on-site by various personal and the use of technology has assisted in the management of documentation although it is questioned whether this has an impact upon acquisition of information for on-site practitioners:

PME1: "In terms of paperwork I mean there's not so much hard paperwork on-site, more so the head contractor would keep all of that and they would undertake their audits and file them and keep a hard copy on site. Yeah all of our stuff mainly gets filed away in project files. Because we don't generate those documents it's usually say [construction firm] that will generate those. They'll go through the process and then just scan a copy and send it to us and we'll just file that away. So yeah the use of paper on site is heavily reduced especially on the client's side, but on the head contractor side you do go through a fair bit more."

From a regulatory viewpoint, the SDO explained how:

SDO: “generally any DA that comes in we assess it all under the 79C criteria, which is - there's five criteria there which are very broad.”

Although the SDO commented on the broad nature of the criteria, they did consider there to be sufficient guidance available for this process of assessment given the requirements have been in the regulatory policy for an extensive time. Essentially template documents have been developed by regulatory authorities to assist with this process. Potentially this may be a limiting factor to a holistic view of environmental management. It was noted that there are also additional policies that need to be considered during the assessment process:

SDO: “We've got - this council has actually implemented an entire template which is probably going on 12 to 15 pages as a template. These are the matters you've got to consider. Within that - it covers air, water quality, biodiversity, community effects everything. On top of that, within - this council's then got a lot of DCPs - Development Control Plans. Your guidance notes on what you need to consider from everything - again, from flood risks through to ecology, tree management, the way the building looks, your setbacks. Then you also have State policies.”

Interestingly this theme identified that the environmental statement lodged within the initial DA provided detail on environmental areas considered for the project, yet it was not identified as a document provided to on-site construction practitioners. From an assessment perspective, the system illustrates a complexity of implementation operations with template documents, control plans, guidance notes, and additional State policies in which there may be conflict with local level policy. Even from a regulatory perspective the ability to manage and comply with such a large range of documentation has the potential to derail a focus upon all areas associated with environmental management.

5.12.2 Roles and responsibilities

Discussions concerning on-site activities were able to identify a hierarchal order associated with responsibilities and the implementation of environmental measures. In moving through the hierarchy it was explained that:

CM: "So we'll have a - overarching responsibility for the site will be the site manager. He'll be aware of the site environmental management plan. He'll have an understanding of it and he'll be responsible for guiding the foreman, et cetera, et cetera, in relation to the control measures...we'd have a site engineer...and one of their key roles will be environmental management. They'll be doing surveillance reviews and facilitating audits or sitting in with audits."

The site manager and site engineer maintain responsibility to a large degree for on the ground works. However, further up the hierarchy the CM and PM manage such operations. On this particular project the two (2) additional external project managers were employed to oversee the operation on behalf of the client. They commented on specialist involvement:

PME2: "There is, but there's a separate environmental consultant that does environmental audits and inspections and issues the reporting."

The range of issues that were presented by the project site and subsequent environmental constraints warranted a specialist to oversee such operations. The degree of involvement on-site or the effort by the operators was raised by PME1:

PME1: "There's a lot of requirements even through the DA for this larger project on the bigger jobs yeah these guys do it but I guess on the smaller jobs that sometimes goes by the wayside."

Under the theme of roles and responsibilities, private certification was again raised as a significant issue impacting upon the sector. Local government believed that they had lost many regulatory powers and were therefore unable to perform previous regulatory functions. Due to privatisation there was a belief that their ability to assess and monitor environmental activities was limited. Given this perceived loss of power by the local government organisation, it has affected the development consent process as:

SDO: "No, unfortunately that whole private certification thing pulled that away from us. Then it's all in their hands. Once the DA goes out, we don't see it again. I think if anything it - once the power got taken away council, I suppose, with certification is that it led to more conditions. They now want a lot more information upfront to make sure that the remedial action plans and end results are determined prior to issuing a DA. In the old days you could say, okay we'll sort it out on site. But now it's been taken out of our hand. We need to know it was undertaken properly."

This demonstrates how local government organisations are attempting to request as much information up front as possible, given regulatory constraints. In this manner there is potential to identify environmental concerns and add additional conditions that consider environmental operations. The SDO brought up another topic of interest when discussing consents: concurrence. During the assessment process there may be a need to obtain concurrence from a State government authority such as the water authority. However, the system becomes more complex when the land is owned by the Commonwealth: Crown land which may be leased to organisations such as educational establishments or health facilities:

SDO: "They - we can't issue a consent without their concurrence, so - same goes for - interesting thing goes for being a crown authority. We can't issue a refusal without - and we can't issue a consent with conditions that they don't agree to. If we were of the mind to refuse it, we weren't allowed to refuse it either without going through the Minister. So you've got to get the Minister's approval before you can refuse something. So a lot of applications can end up in limbo, which I've got some that are very old. Can't resolve a certain matter and you can't refuse them, and you can't come to a head..."

A situation whereby the government authority is presented with a dilemma. There remains a need to follow due process yet it may be just to ensure they are seen as doing the right thing as ultimately their ability to restrict or control such development is in effect limited.

The theme of roles and responsibilities highlighted a range of issues that concerned implementation. First it illustrated a rather complex system which for this project involved multiple project managers in effect managing the project managers. An additional tier of complexity even though, to an extent, the aim of the project was to simply comply with the DC. The need for additional managers within the system brings about additional relationships

and compliance checks which may serve as impediments to implementation. Involvement by environmental practitioners was identified as dependent upon project complexity and although one was employed for this project it was not identified as common practice. The role of the certifier was again raised but predominantly in relation to power loss by the consent authority which was seen to impact upon their ability to appropriately perform their regulatory duties.

5.12.3 Training

Two of the most salient comments about training and education of those responsible for on-site environmental management operations came from PME2 and PME1:

PME2: “It's funny because our company is a registered training authority. It's predominantly a training organisation but they don't train any of their own staff.”

PME1: “Yeah in terms of environmental our role isn't to make sure that they're adhering to...it's more to say that they're in line with their environmental management plan...So no I haven't undertaken any training environmental-wise, it's more of a reference to what you're doing and it adheres to the DA and your environmental management plan as well.”

All interviewees argued in favour of training. Some requested it saying important for their organisation but as it stands there was no opportunity available. However, the degree to which training was approached differed amongst organisations. In terms of the CM and PM, these industry practitioners all explained how in-house specialist practitioners assisted training – formal and informal – where environmental issues were topics:

CM: “It's usually in-house...we're fortunate to have internal resources, like we have environmental specialists. We have two or three people, who assist us with the preparation of the site specific plan. So they'll review with us the DA conditions, any specific environmental management requirements. Ensure that's incorporated into our plans.”

PM: "Yeah, we do have training courses. I know we did one in the last project which was methodologies and it was actually for our labour, training them how to install a silt fence and how to actually carryout works that are on a plan."

However, the government system reflected a different scenario. Generally training related to significant changes in legislation that would impact daily operations and it was therefore held by the policy formulators: State government:

SDO: 'Not really. There's no formal training that council really pays for anymore. So a lot of the information and legislation updates are by internal communication with colleagues. The - there are the occasional people that come in from certain government bodies or even internal people that give talks or speeches on certain legislation changes if they're more complicated and that we turn up to. Yeah, those type of things, yeah, where they're led by the State ... this is a big a change. We want it to be implemented so here's your training - it's yeah.'

Industry experience, on-site practical experience, was again considered a prime source of training combined with specialist practitioner guidance where available:

PM: "Other than that, personally, I'm really working off experience in the industry and experience in similar projects and then also relying on our own experts, environmental expert."

SDO: "...it's a big deal to head off for more ongoing training unless you're going to pay for it yourself they'll support you. But - so a lot of on the job learning."

Responsibility for one's own personal development was highlighted by one practitioner explaining that professional development was ultimately left to the discretion of the individual professional. Rather than being a mandatory requirement or being offered by their organisation.

Outside of formal training, methods to notify of policy change or environmental related issues were generally via networks:

PME2: "These days you'll get sent an email saying this has, here's what you need to know. That'll be through - a legal firm that we use will issue just a general statement to project managers and builders. Similarly consulting firms...will issue out a general statement about changes in planning laws."

For specialist practitioners, training was not identified as common practice. With no practitioner identifying specific training or professional development related to environment management or regulatory processes. Although random areas such as sedimentation were addressed, comprehensive guidance was not readily available. Rather, this was left to the environmental practitioner when available on a project, yet they were identified as not normally on-site during all stages of construction.

5.12.4 Regulatory interpretation

The theme of regulatory interpretation brought forth a strong division between those who formulated local level policy and those responsible for its regulatory implementation. Even within the local government arena it was apparent that there remained a separation between specialist practitioners within the same profession: strategic planners and development planners:

SDO: "Yeah, there's a whole bunch of them (planners) sitting over there as well that deal with the strategic background. They're the ones that write the DCP documents and our LEP and things. We're the ones that implement (different departments...)."

Such statements are important as they highlight not only an internal professional division but also a gap in terms of policy formulation and implementation operations. As explained by the interviewees, there is potential that the 'strategic' formulators' may not be equipped with an understanding and experience of implementation operations: causing a disparity. There remains disharmony between practitioners in this manner with a lack of professional respect and concern over a loss in power evident.

In discussing guidance, government employees sought internal organisational knowledge and State assistance when necessary. Advice from the policy formulators, the State government authorities, was often not forthcoming and this presented a dilemma to those local level agents responsible for implementation activities:

SDO: "It is again interpretation...we've got a strategy department as well, so between us we usually ... always find the answer internally. State government assistance... Yeah, it very rarely helps. ...a lot of the time it's just kind of like, oh yeah, we meant this but it's up to you guys now, so it's in your court. So we can be left with a lot of troubles and issues as a result. Even if they write back and say this was the intent of the legislation, it's still down to the interpretation. Then we could - we ultimately will discuss with our lawyers and go back to it with the - to the applicant as well and invite varying degree of discussion that way."

Conversely, in the private sector, a hierarchal approach was employed depending upon who held project responsibility. The type of project also impacted upon responsibilities in terms of whether it was a design and construction project or construct only. Where the organisation was involved with the design and construct process they had significant involvement with the DA stages of implementation and more knowledge and background behind conditions of consent. Alternatively with the standard tender and build projects the DA process is handled by a different team who were engaged before the construction firm. Essentially in this type of project, the construction firm is supplied with a copy of the DC without any background information or copy of the environmental statement:

TL: "...well I'd probably try and choose the most efficient way to get to a good answer I guess and quite often having someone in the firm, they would know and if they didn't know they'd certainly recommend talking to the council."

CM: "...if there's something unclear or ambiguous in the DA, we'll go back to the client because it's ultimately, usually, the client's DA. He would first go to the site resource, our site engineer. If they were unable to help, they would then escalate it up probably internally. If they couldn't help - being experts in their field, in the environmental field, they would obviously have contacts within the relevant departments and get advice. We find that you're better off to develop and build relationships with the relevant departments, rather than treat them like enemies."

Overall, internal assistance by colleagues was identified by most as the most preferable option. Following which consultant advice was sought where resolution to an issue could not be obtained internally. This form of advice refers to consultants who were involved in the project generally at the application preparation and assessment stage. Where necessary assistance was sought from the local government authority. However, a formal approach was generally adopted to ensure there was a written record of advice:

TL: “Yes, I guess there's always a bit of a fine line to cross between getting informal advice. To be honest, whenever I sort of manage to get some informal advice I actually normally put it back in an email because at the end of the day if you say well we spoke to the planning officer and they said this, it's not really that useful unless you can show an email or something.”

Interestingly, there was often a difference in the approach within organisations and internally on some projects. Some industry practitioners identified that they would go to whoever made the initial requirement. Clarification would be sought from that individual even if it was the local government authority. However, a second opinion was regularly sought from the environmental consultant or that practitioner who had knowledge of the DA discussions.

Within the theme of regulatory interpretation, communication and collaboration with the community and government organisations was identified as vital to project success:

CM: “...we have...another suite of plans, which is our community consultation. ... one of our key community relations over there is getting on well with [community]. So we put a specific plan in place for that one. What we've done there is we've - we've found being totally open and reflective in what we do is to - at the beginning of the job, we went around and introduced ourselves to all the key stakeholders in the area. All the way around there. What we do is we send out a monthly newsletter with photos showing them where we're up to, what we're doing. That's - to - taking those sorts of proactive measures have meant that we've had no complaint. Communication - effective communication.”

Communication was identified as importantly, mostly to prevent complaints to the regulatory authority which could impose constraints in terms of timeframes and budget. However, it was a practice commonly employed and may contribute to public relations in terms of the

community and potential clients. As with the first project, penalties associated with negative environmental impacts were acknowledged but the detail on what constituted environmental harm and the associated penalty was not forthcoming. Interestingly, the focus was to limit complaints as they brought forth an awareness of environmental issues and subsequently regulatory involvement.

This theme identified that there is no set standard of practice when seeking regulatory interpretation. Professional colleagues were a primary source of assistance. Specialist practitioners involved with the DA stage and the local government authority were generally second tier options when pursuing advice. State government was generally not considered yet they remain responsible for policy formulation and would ultimately have an understanding of the intent behind the policy and its directives.

5.12.5 Compliance

On this particular project, practitioners identified a range of auditing processes that were implemented to review environmental practices across the life of the construction project. The position of the practitioner, combined with their role in the project, dictated the type of programme and the degree to which they were involved. However, there were a number of constraints that impacted upon auditing:

PME2: “Important things are always cost and time. The steering committee's always concerned about the budget and [timing of the project]. So they're probably the two main focuses at the moment.”

The responses below are indicative of on-site operator auditing programmes:

CM: “We actually like to demonstrate to the clients the importance that we put in relation to environmental. We run a very unique risk management system, which is a little different to a lot of other construction companies. We call it our SQE risk management. So it's safety quality environmental risk management process. That is started at tender stage and it's run right through the life of the project. We actually internally report it monthly upstream.”

Other industry practitioners agreed with this process and added that:

PM: "We do our own in-house inspections as well and they do their inspections once a month. We'll do a weekly inspection, yeah, roughly."

PME2: "There is an external environmental safety auditor. There's a program auditor. The individual design consultants do inspection and auditing. So yeah, there's about seven different disciplines that do independent auditing including costs. We do an overall one, compile it. Yeah, probably a monthly basis."

Therefore, it can be seen that environmental management has been a consideration within project planning. Although a specialist area, it commonly forms a part of the safety realm. Whether this actually results in good environmental management practices remains questionable. An external rating system was also identified as a mechanism by which to encourage on-site operators to comply with, and consider environmental constraints. Ultimately the ratings an organisation achieves can affect their future opportunities:

PME1: "I mean there's a good system in place called a CPR which is a contractor performance report. Environmental is an item in that report so if the contractor isn't performing in any aspect, environmental being one or safety or time or whatever, then you can downgrade them and with a lot of the government projects especially with the Department of Commerce, there's contractors out there that rely on that sort of work and if you get a certain score on a project that can have a major impact on the work you get in the future. We have a government CPR and if we rate them poorly on even just one it gets - an environmental I'm pretty sure is pretty highly scaled so if you put them down as an unsatisfactory that will have a pretty big impact on their track record."

Interestingly, the project managers responsible for the rating to be applied to the contractor in relation to environmental issues revealed no environmental expertise. Rather it relied upon compliance with the DC and other such documentation.

The line of thought around compliance mechanisms highlighted once again private certification and the importance of inspection regimes. In terms of regulatory inspections, the

PCA must attend the site given their legal responsibilities. However, a number of specialist practitioner comments reflected the one from CM:

CM: "Do local government come up there very much? We don't - we haven't seen anyone as yet."

It is important to note that this may be the result of a lack of resources and legal powers to undertake inspections given the PCA environment. They are provided with minimal resources and this impact upon their ability to undertake any non-regulatory activities. Multiple local government practitioners identified that given constraints they are reactive in that their ability to intervene comes from community complaints. Similarly, many commented on the loss of power experienced by the government sector since private certificate and this was the reason behind why inspections were not undertaken.

5.12.6 Organisational consideration

In response to this theme, organisational protocols to address environmental concerns reflected those identified previously for this project:

CM: "We certainly do. As I said, we take the environmental risks on our job as seriously as we take quality and safety. So we have a - as I said the safety quality environmental risk management system... we're looking at environmental, quality and safety risks, because obviously the hierarchy of controls is elimination. So at tender stage, if we can see something that's a risk to any of those items, we will try and eliminate them at that point..."

External contractors identified organisation plans; however, in general these were aligned with quality assurance operations:

TL: "We do have a QA system and that does cover all those kind of aspects. We do internal audits on that system as well and that sort of covers almost all aspects of the office and how we manage it and record it."

PME1: "We do but a lot of it's in relation to paperwork and recycling and that sort of stuff."

The situation above shows how internal organisational management plans often reflect quality assurance responsibilities and even when inclusive of environmental management, it was evident that they concerned more internal administrative operations. Pre and on-site construction operations were generally not aligned with these plans. Again the DC formed the policy by which environmental management associated with pre and on-site activities were assessed and conditioned. A belief that all environmental concerns had been identified and mitigated appropriately:

PME2: “No. Basically there's - organisation, no. So they just rely on the DA requirements. That's what we basically audit the project on.”

5.12.7 Other considerations

Multiple interviewees raised additional areas associated with this research theme. The first identified that there were many environmental areas of concern with the allotment on which the buildings were to be erected. As an example, bushland area dictated a range of controls given the riparian zone that needed to be protected with fencing. Many trees were a habitat to native animals and the species had to be retained across the entire site. Additionally detention basins and temporary storage areas needed to be installed. Although many environmental issues were considered for this particular project, it is one that practitioners identified as unique, particularly given that from an industry perspective it moved beyond those issues of a tangible nature and considered resource use:

PM: “We are providing the client with records of our waste. I think it could even be the fuel consumption on the job maybe as well. Not that I know too much about that, it is what it is, but part of that five green star arrangement is for the client to actually have an external environmental consultant check up on the job every month.”

Additionally, project size dictated how effective and efficient the process was:

SDO: “...[developer] are generally very good. There's - the bigger the project the easier it is. The budget's more professional, people - they know what's required. They know if there's a question from council, it needs answering, it's legitimate. The mums and dads [developers], if

you want to call them that, they're hard work. It's a small - an extra change to their stormwater plans, means another couple of hundred dollars to them, which is - in the scheme of the budget is a lot. ... a thousand bucks on a big project is nothing...

System complexity was identified as impacting upon implementation. Specialist practitioners were often needed to interpret regulatory policy and development the DA or undertake assessment. Yet, such specialist advice was normally seen to come from a planning professional regardless of their experience with environmental related issued:

SDO: "You need a good planner now to interpret the controls. The schemes that are coming in from good, local architects, there's no paperwork behind it and we end up going back, going, you don't comply here, here, here. What are you doing? You need to get a planner on board."

The way in which the system itself – as an implementation measure – has evolved creates complex local level policies which require professional interpretation. In this context, the division between those responsible for obtaining the development consent and those for its implementation are two separate entities. It appears from multiple comments that there is no requirement for these two entities to communicate or collaborate. It is simply a process of the former doing what is necessary – meeting all local policy requirements – to obtain a consent.

Mistrust and a lack of professional respect was quite evident in regard to on-site operations from a local government perspective.

SDO: "We've always referred to planners and architects as just enemies really, out in the field, which you shouldn't be."

A comment that depicts the nature of the industry, highlighting a lack of respect, an inability for collaborative partnerships and a viewpoint that contributes to fragmentation and ultimately influences that impact upon successful policy implementation.

In terms of on-site actions, the SDO was not involved past the issue of the consent:

SDO: "Oh that's what I really want to know. Because I know that even with this scheme, a lot of the promises and the words that were put through to get the DA through and now even the report. But not necessarily these conditions because you kind of - when you approve things, you go, you must carry out the development in accordance with these plans. In this particular instance it was in accordance with about 15 documents. I'm not - I really can't picture it..."

There is a belief that DA documentation will contain information as necessary to ensure a consent is forthcoming and such conditions do not necessarily flow through to on-site operations.

5.13 Documentation Analysis

The development consent for CS2 was confirmed as authentic through the local government authority. As with CS1, the agenda focused towards community interests which included environmental issues. Standard areas such as parking, traffic management, and structural design were areas conditioned. The development application had been submitted with a number of consultant reports and these were all identified at the front of the consent. The site contained dense bushland; therefore, multiple environmental areas were considered. With this case study project, approximately twenty (20) consultant reports and/or drawings had been submitted and approved within the consent. Therefore, the actual conditions were quite small as they just made reference back to reports and drawings for ensuring environmental protection. Table 27 provides a review of conditions related to on-site operations.

5.13.1 Considerations

As seen in the former case study project, a similar range of issues and concerns are raised from an analysis of the development consent documentation. Again, there was no consideration of all environmental issues such as on-site energy consumption or water consumption. The consent was further limited by it not considering areas such as water contamination, dust monitoring or other such on-site environmental issues. Similarly,

multiple conditions related to sedimentation and erosion control with conflicting requirements.

Of interest with the documentation for this case study is that this project referenced a construction environmental management plan and a waste management plan. Waste management was identified as a necessary inclusion within the construction plan and again as a separate condition specifying what was needed. Ultimately there would be a degree of conflict between conditions. The construction plan was to be prepared by an architect and this in itself may raise an issue of qualifications and experience in terms of environmental management and on-site construction operations.

Upon formulation of these plans, they were to be submitted to the certifier as confirmation of completion. However, there was no requirement for them to be submitted for the purpose of assessment, approval or for ongoing regulatory monitoring. Within the development consent there were a few additional plans relating to environmental management; however, many related to the post construction stage of the process.

In general, there was no regulatory requirement for monitoring, evaluation or reporting of environmental management issues. Presumably, evaluation and related activities would be addressed in the development of the plan and hopefully enforced by the developer during on-site operations. The analysis of documentation for this case study project confirmed that environmental management is not a holistic process. Rather it is focused upon several prime areas where issues such as assessment, enforcement, monitoring and the like remain inadequate.

Table 27. Multi-storey residential environmental development consent review

DA Documentation approved: Environmental issues	Conditions related to on-site protection	Interviewer comments
Erosion and Sedimentation Plan	✓	Relevant to protect the environment during construction operations. Drawings prepared by engineer.
Stormwater Layout Sheet	X	Although built during construction, relates to post construction operations. Prepared by engineer.
Hydraulic, Fire and Water Supply sheet	X	Although built during construction, relates to post construction operations. Prepared by engineer.
Landscape design statement	X	Although works completed as part of the construction process, relates to post development. Prepared by consultant.
Waste Management Plan	✓	Relevant to protect the environment during construction. Prepared by architect. Consider qualifications and experience. Conditions related to construction environmental management plan including waste management and also waste management as a separate entity.
Energy Efficiency Report	X	Although built during construction, relates to post construction operations. Prepared by engineer. Not related to on-site construction operations energy usage.
Vegetation Management Plan	X	Monitoring to ensure specific vegetation is not impacted during on-site construction operations. Considered an area related to 'overall environmental sensitivity' of the development. Prepared by ecologist.
Operational Waste Management Plan	X	Plan relates to waste collection upon operation of the building – residential waste collection service rather than on-site activities. Prepared by client.
Hollow Tree Survey	✓	Undertaken prior to construction operations to identify trees to be protected: on-site operations involves protection of trees. Prepared by ecologist.
Arboricultural Impact Assessment	✓	Undertaken prior to construction operations to identify vegetation to be protected: on-site operations concerned with protecting such vegetation. Prepared by environmental consultant.
Statement of Environmental Effects	✓	Summary of all aspects of the development and incorporates activities such as sedimentation and erosion control. Prepared by town planner. Consider qualifications and experience in relation to environmental issues addressed.
Additional Conditions imposed	Conditions related to on-site protection	Interviewer comments
Construction Environmental Management Plan	✓ (2/6 conditions related to on-site operations and environmental activities)	To be developed prior to issue of construction certificate (building approval). Documentation to be made available if needed. No submission to regulatory authority required No monitoring or reporting required. Considers: health/safety, site security, sedimentation, waste management, traffic management and 'unexpected finds'.

5.14 Case Study 3: commercial facility

CS3 involved the approval and construction of a commercial facility. The project involved a large building that was to be used for commercial operations. The DA was lodged with the local government organisation responsible for the area in which the proposed project was situated. The Joint Regional Planning Panel was identified as the overarching consent authority for this case study project. They assessed the final application and approved the project, in which the local government authority issued the consent. A total of seven (7) practitioner involved with this case study project were interviewed. Participants had involvement with the one or multiple implementation phases from development application preparation to on-site environmental management operations.

5.15 Descriptive analysis

The following discussion relates to the initial questions presented to practitioners. The demographic information considers the description of the practitioners position, their role and industry experience.

5.15.1 Description of positions

A range of practitioners were involved with CS3 from the government and non-government sector as shown in Table 28. The building surveyor, accredited as a certifier, is authorised under policy to act as a regulatory officer even though they are not a government employee. Common roles are identified in Table 29.

Table 28. Practitioner positions

Description of position	Sector
Senior Development Planner	Government
Manager	Government
Building Surveyor	Regulatory Officer: PCA. Non-government
Project Manager	Non-government
Development Manager	Non-government
Principal Planner	Non-government
Environmental Consultant	Non-government

Table 29. Practitioner roles

Description of position	Primary Role	Responsibilities
Project Manager	Project Management	Management of the entire project. Administration, contract management, programming and co-ordination.
Building Surveyor	Certification	Certification. Assessment of project documentation in line with technical building codes. Site inspections.
Development Manager	Project Management	Sourcing opportunities Expressions of interest Tender management (former construction manager within the same organisation)
Senior Development Planner	Development Assessment	Development assessment and determination
Manager	Management	All management responsibilities. Delivery of community services.
Principal Planner	Development Assessment	Review of complex statements. Team management. Fee proposals. Quality assurance.
Environmental consultant	Environmental Assessment Team Management	Team management Environmental assessment Town planning Review of environmental factors

5.15.2 Time in industry: years of experience

Many interviewees had long term experience within the industry (refer Table 30). The development manager has been in the position for 2.5 years; however, they have held a construction manager position prior to this and within the same organisation.

Table 30. Time in industry and in current position

Description of position	Time in Industry	Time in Position
Project Manager	6	1.5
Building Surveyor	17	3
Development Manager	44	2.5
Senior Development Planner	11	1.5
Manager	18	3
Principal Planner	20	2.5
Environmental Consultant	17	1.5

5.16 Thematic analysis

The data analysis process for this case study involved a review of each interview transcript to identify emergent themes. The subsequent discussion highlights interviewee responses in the context of question themes. A key code was assigned to each practitioner as shown in Table 31. Throughout the text, the key code reflects the author of a statement.

Table 31. *Position codes*

Description of position	Acronym
Project Manager	PM
Building Surveyor	PCA
Development Manager	DM
Senior Development Planner	SDP
Manager	MGR
Principal Planner	PP
Environmental Consultant	EC

5.16.1 Information transfer

The importance of the development application was highlighted early in the interviews for this case study. This was in addition to the heritage report as the site was of Aboriginal significance. As explained by the DM:

DM: "I suppose that we shouldn't forget was that it was in a very environmentally sensitive area. The [site] area and the [area] is very much an up-in-the-world sort of heritage-type area. So we had to maintain strict control of stormwater, any potential pollution."

The PP was associated with the preparation of the initial documentation, the DA. Their comments set the scene for the complexities of the development, particularly from a professional involved.

PP: "...we'll look at what the proposal is and how it is consistent with council's controls, like state and council planning controls, so any state environment planning policies. Council controls the local environmental plan, the DCP, so we'll be preparing the statement in

support of the application. Then there is all the appendices which go with that and depending on what it is, you might need a traffic statement. If there's any ecology issues, tree removal issues, so all the specialist reports, so ecology reports where they're needed, bushfire...heritage."

Given the heritage nature of this case study project, the assessment process involved obtaining approval from the NSW office of Environment and Heritage:

SDP: "The Office of Environment and Heritage have specialists ... they give us their approval before we determine the application" as "They have to get a licence from the Office of Environment and Heritage, the State Government for the works involving Aboriginal heritage areas. As part of that licence - it's much like a Construction Certificate - it includes things they've got to do. Inspections they've got to undertake. Part of that would be liaison with the local Aboriginal Land Council. But generally the sign off is OEHL, at the end of the day that their licence requirements have been met."

In addition, where the land is considered to be of Aboriginal heritage value, it is mandatory that the local Land Council be consulted:

SDP:" The local Land Council, it's part of the professional report. Like they have to consult with them, get their sign off, any comments or input they have."

This introduces a range of actors and agents at the commencement of the project in the preparation of the application and during its assessment. The approval process concerns multiple authorities who need to develop effective partnerships to ensure policy implementation success. However, from the start this was not evident:

SDP: "They would do an inspection or get certain information from them. ... they don't actually tell us specifically what the licence requirements are."

Therefore, the local government authority must undertake an initial assessment of the application; yet, have no information on what the licence requirements are. Such a process introduces a complexity given there is the potential for duplication of conditions, potentially a disparity and conflicting conditions.

The protocol for assessment of the development application was presented by the SDP. They explained how in accordance with their local policy, such an application is notified: adjoining neighbours and via newsprint. Importantly, the process involved the use of checklists and is considered concept based. There was a reliance placed upon the certifier at the next stage of the process to consider issues more in-depth, yet their ability to do such is restricted by regulatory policy and limited due to their professional area of practice:

SDP: "Like we've got a whole list of stuff - erosion, sediment control - that we condition as standard. But generally with a DA all they'd need is a general Statement in the Environmental Effects to give us an indication of how they're going to address it. As long as that can be achieved - because the DA is concept based and then you've got your Construction Certificate plans sort of following on with that. So at the DA stage that's sufficient for our assessment purposes."

For this project the SDP explained that there was a requirement for a Construction Management Plan (CMP) to be submitted. Interestingly, the term CMP differs to the former case study project where it considered a CEMP. There was no requirement for monitoring or review.

Due to the nature of the site upon which the development was proposed, extensive works were undertaken during the design phase to accommodate the significance of the site and establish it in a manner ready for construction work. In most cases, practitioners identified that compliance with the DC was of the utmost importance:

PM: "On all our sites the DA is a big one. Also in regards to environmental controls and what not we also have the copy of the AHIP, which is the Aboriginal Heritage Impact Plan."

DM: "We keep a set of drawings, specifications and then there's the sort of general administrative paperwork...subcontract documents, copies of site plans which would be the management plans of the project which would be safety, environmental quality that you're going to follow through the construction."

The PCA in their capacity as an accredited certifier, worked in the private sector, but maintains a regulatory role. They discussed the documentation they retain when on-site which includes approval documentation:

BS: "When we go to site, so we just take a copy of the file with us. The file will include - probably the most important things are the plans, the approved plans that the agent sent and the construction certificate information"

Although compliance with the DC forms part of the regulatory process, it was not identified as a document regularly used on-site. Similarly, the environmental statement was not provided as part of the process. The involvement of multiple agencies was required for this project, yet information sharing was not a two way process which may be seen as a hindrance to assessment and implementation.

5.16.2 Roles and responsibilities

As per the other case study projects, a hierarchal order was apparent to how responsibilities were approached. The process was summarised as follows:

DM: "We run our projects fairly autonomously. So there's a project manager usually based on site. Then a site manager if it's a larger project or a foreman if it's a smaller project. This project we actually staffed it with a project manager, a site manager, a foreman, an engineer and an administrator on site. So a much larger team than you'd normally put on a project of that size. The project manager generally has responsibility but it's very much at the site manager and the engineer level. The engineer to ensure that all of the environmental and other conditions are being implemented. But the site manager in terms of actually organising the work."

The comments by DM are important as they introduce a new professional responsible for environmental issues not previously identified within the other case study projects: the site engineer. Their experience related primarily to construction management operations yet environmental management was included as part of their project portfolio.

Management plans were highlighted as important documents under this theme, to ensure roles and responsibilities were clearly identified, all activities were undertaken in an appropriate manner, policy requirements were complied with and obligations met:

PM: "Internally, we have - as part of our project management plan - an overarching plan, like waste management controls. We actually track all our waste data and energy uses through - it's called NGERs, which is the National Greenhouse Energy Reporting, I think it is. We record electricity use, fuel consumption. I know it's a national thing, not a council or a DA based thing."

The Scheme requires that an organisation that achieves a certain threshold, annually report on specific variables such as those mentioned above by the PM, all aimed at national greenhouse gas reduction (Australian Government, National Greenhouse Energy and Reporting, 2015). Awareness of such a scheme is important; this programme demonstrates a compliance and enforcement programme. However, from discussions it was apparent that the full intent, process and impact was not clearly understood. Rather, it was just a requirement to be complied with.

Although the certifier previously identified that they do not normally retain a copy of the DC on-site during their inspections, they acknowledged that part of their roles and responsibilities were to ensure project compliance with the DC. Consideration of environmental issues formed part of this process regardless of the expertise of the practitioner:

PCA: "If we get a ...complaint about. So anything we can get a complaint about I'd certainly have a look at that on site, but with this particular one, with [site name], they were pretty good out there."

This presents a scenario similar to the former case study projects where there is a strong focus upon the DC and compliance with its conditions. Action pertaining to areas of environmental consideration was undertaken primarily from a reactionary perspective which evolved from community complaints.

In general this theme highlighted a quite structured approach to the division of roles and responsibilities. The area in need of consideration relates to the dissemination and use of

documentation concerning environmental management. In addition, qualifications and experience of those practitioners responsible for environmental management remains questionable.

5.16.3 Training

Each type of sector provided a different response to training and continuing professional development. A government interviewee commented on how their organisation makes provision for training; however, the examples provided highlight a preference towards those areas associated with policy change run by the relevant State government agency:

SDP: "There's a very wide ranging approach to that issue [training]. For example, when they brought in the BASIX system which governed water and energy efficiency. The State Government went through and had briefing sessions with a lot of councils. Other things the State Government makes changes to its policies and we find out because someone's had an enquiry and we look at the legislation website and it's changed. So they're probably two ends of the extreme. I think you develop a process, when an enquiry comes to you and you look at the - you know the process you need to go through and you're finding information as you go along. You don't know it all off by heart."

As highlighted previously, there is a range of agents and agencies involved with the policy implementation process. The former statement by SDP appropriately summates the feelings of many interviewees: it is unreasonable to expect every policy and issue to be known by every person:

SDP: "Yeah, well it's getting particularly worse now with the amount of changes they're trying to do to facilitate some of the planning changes they want. They're changing the State Environmental Planning policies all the time. Months between changes to the same document."

Apparently, the State government agency introduced practice notes to assist that were considered to be: *"quite helpful."* However, the comment was made that:

SDP: "Now they don't have time to do it, they're changing it [policy] so quickly."

Therefore, the process of assessment is complex and impacted upon by a continuously evolving policy landscape. In this respect, many practitioners perform their duties in a rather reactive manner. Reviewing policy irregularly through the assessment process and potentially using former experience rather than confirming whether policy change has occurred.

The PCA, acting as a regulatory authority commented on how it was a requirement of their accrediting body previously to undertake courses they provided. This was not now a practice as there were no courses on offer:

BS: "So since then it really only comes through as what's previously the BPB sort of bulletins every month. So they'll point out all the legislative changes as well as things that people are personally getting busted for. So they're handy to sort of - they're there every month and just make sure you're still up to the beat."

From a private perspective, the DM advised that accreditation programmes were of importance to their organisation:

DM: "Well we have - we're nationally code accredited as well as state accredited and we have independent third-party accreditation for safety, environment and quality. So it's really important that we maintain those systems to maintain accreditation because we could be audited. In the case of [project name], the client was [client name] but they had a consultant project manager and he audited our systems on a couple of occasions out there."

Accreditation programmes provide for an independent check upon operations. However, no practitioner identified that training was undertaken in relation to regulatory policy or environment management apart from those areas discussed above. Voluntary training was not a consideration and mandatory professional development concerned only those practitioners accredited under a formal scheme.

5.16.4 Regulatory interpretation

Within the realm of interpretation all interviewees acknowledged that regulatory policy made provision for penalties where environmental impacts occurred. Comments were in line with that expressed by the SDP:

SDP: "Yeah, not the specific amounts but the requirements. Who's responsible, the process for issuing [pins] and challenging them and taking legal action."

A salient issue raised by the SDP under this theme explained:

SDP: "We have compliance officers, so if there was non-compliance of the conditions of consent, for example, we'd send our compliance officers"

From the discussion, the era of inspections, particularly those related to environmental protection, appears to have ceased with this local government authority. Hence, the system is in effect a reactionary one, with community complaints the mechanism by which action is employed.

Similar to the other case study projects, the need to seek guidance or advice related to an environmental issue was raised and involved sequencing:

PM: "Initially, it would be internal, for sure. That could be anyone from - we've a regional OHS manager who assists us with a lot of our plans, our P&P plans, which include that enviro stuff.. We also have a legal firm"

DM: "Yeah we'll discuss it both with the authorities and rely on our experience or we have a systems manager who understands safety, environmental and quality legislation requirements so it's a mixed thing."

From a local government perspective, it was identified that:

SDP: "Usually we try internal assistance first. Then the relevant party, if it's State Government if it's their legislation we ask them. Then you've obviously got legal advice as well, which is a lot more common than it probably should be."

The common use of legal advice may present an alarming scenario. Is it the complexity of the regulatory policy that renders interpretation difficult or are the statements contained within that document general in nature that assistance is needed with interpretation, particularly give personal beliefs and their ability to influence.

In further discussing the regulatory policy and interpretation, the SDP commented that:

SDP: "It's fairly convoluted. At least the Building Codes consistent throughout the councils though. Whereas, LEPs, for example, are not and the language used can mean different implications. Even being a planner and you're trying to help out a friend in a different local government area and you've got to look up the LEP from scratch."

Therefore, each local government organisation has its own policy documentation and as such differences exist across localities that may impact upon interpretation. The nature of the system is such that interpretation has become a process involving legal advice which identifies a systematic problem. Such comments also show the disparity that exists across different organisations and operations associated with implementation.

5.16.5 Compliance

For most private sector practitioners, auditing regimes were implemented to monitor progress and determine ongoing compliance. For this specific case study project, the smaller nature dictated that focus was be upon internal auditing:

PM: "For this job we had internal auditing. So we, as a company, have an audit schedule...for different aspects of the job, and the environment is included in those audits. We have...a regional safety manager... He'll check that we're reporting those NGRS figures

and all those sorts of things. The site team; so more our project engineers and site engineers and cadets on site will maintain that reporting documentation. When we do we get internal audits I'll certainly attend them on site for those days. That's right. We do weekly inspections which encompass both health and safety, but also environmental. So we have a pro forma checklist...”.

In terms of this particular site, the PM explained that given the Aboriginal heritage considerations, a full time observer was present throughout the construction process. This was to ensure preservation but also to intervene should any artefacts of significance be discovered during excavation. In this manner there is another level to the monitoring of the site with an additional regulatory involved in the process yet a mandatory external influence given their professional expertise in this area.

Another issue raised during the discussion of this theme concerned energy usage and water monitoring. The DM explained that on larger scale projects then these are often considerations and mandatory monitoring and reporting is undertaken. With this particular project, it was considered to be medium in size and such environmental reporting was unwarranted:

DM: “On [site] I don't think we kept any particular records on that because as I say, it's not a large job by our standards so it didn't have a huge footprint.”

It was explained that during the construction process they hit rock and had to bring in a 45 tonne excavator and breaker. In doing so, this provided a good example of site specific conditions and how environmental issues on-site may present a scenario not typically expected from the DA paperwork side.

DM: “Well it's more with the site establishment. I think to ensure that the site is set up correctly, that it has all the necessary preventative measures in place and so on and then it's just a question of monitoring it. It's a bit hard to generalise. It's more on a case-by-case basis. “

Although an issue outside the scope of the DA and DC, discussions identified that no additional environmental concerns were considered in relation to this departure.

From a regulatory perspective, the PM identified the certifier as the regulatory practitioner who conducted inspections. With regard to environmental controls:

PM: “Now, he didn't really come out during the job to check environmental controls. The client's project manager certainly was checking that we had our siltation controls in place, but it was never formalised in a formal audit.”

The regulatory officers explained that a representative was in attendance every day to monitor Aboriginal heritage issues:

MGR: “There was a guy there every day during the whole construction. The Environmental Land Council. A Cultural Officer was there every day.”

However, the role of overall compliance was relegated to the certifier:

SDP: “You've got the contractors hired and you'd have your certification guys that would be more involved with checking the on-site stuff and ensuring compliance with the conditions of consent.”

Yet, the PM had formerly acknowledged that the certifier was not on-site to primarily review environmental controls. Rather the reliance was upon compliance with the DC and any environmental issues contained within.

For this project, compliance was a prime concern of the construction team and the State authority in relation to Aboriginal heritage. The regulatory authorities: the local government regulator and the certifier, did not undertake a compelling role in environmental management even though their regulatory duties may be seen to warrant such action.

5.16.6 Organisational considerations

The use of an environmental management plan, or a related strategy, was prolific within private sector firms. Comments reflected those presented in former case study projects:

PM: "We have our own internal environmental management plan... we'll do up a site specific one of those. So we have a pro forma document and we add and delete things as we need for the particular project, and then any intricacies around it."

5.16.7 Other considerations

Most practitioners discussed their experiences in relation to additional areas associated with implementation. Community conflict was raised and discussed in terms of how many issues associated with a proposed development were raised at the DA stage: during notification processes:

PM: "Generally, with a DA, that's where they're going to...dispute what could be going ahead. Usually, by the time I get to site it's a done deal and it's going to happen, so we try and make it as painless as possible, especially if there are concerns in the community."

They identified that community consultation at the on-site stage of the project was important and it was necessary to implement a system to ensure an open and collaborative process. Community complaints from development activities were identified as minimal with the implementation of such a process.

Regulatory policy amendments were topical, particularly amongst regulatory officers. The EP&A Act has often been subjected to review from which amendments are proposed to streamline and hence improve the environmental planning system. At the time the interviews were undertaken for this research, the government were proposing some significant amendments to completely overhaul the system. However, many interviewees commented:

SDP: "The more you see that stuff the more you realise it stays the same regardless of what changes they make. When I was in uni they had planned first - that they were planning - that was more than a decade ago now. The same thing it came out, really big changes and eventually it petered down to nothing. It didn't even get implemented. So it's - yeah, I'll believe it when I see it."

The MGR highlighted an important issue on this particular case study project. Usually the role of specialist internal practitioners and overseen by management, this project was different as there had been a history where acquiescence could not be achieved:

MGR: "It's very unusual for a Section Manager to be project managing a construction. But this one just happened to be - I'm not a construction guy, I'm not a builder, I've got no background in it but I had to go and broker a peace deal and get something to happen so they gave it to me. The only background I've got is the background in environmental management which was a long time ago."

5.17 Documentation Analysis

The development consent for CS2 was confirmed as authentic through the local government authority. As with the former projects, the agenda was focused towards community interests and these included environmental issues. Issues such as parking, traffic management, and structural design were again considered and subsequently conditioned. The development application had been submitted with a number of consultant reports and these were all identified at the front of the consent. The site contained dense bushland; therefore, multiple environmental areas were considered. With this case study project, approximately twenty (20) consultant reports and/or drawings had been submitted and approved within the consent. Therefore, the actual conditions were quite small as they just made reference back to reports and drawings for ensuring environmental protection. Table 32 reports on-site conditions from the DC.

5.17.1 Considerations

Documentary analysis identified similar issues to the former case study projects. Standard areas were focused upon as issues related to environmental management in that the approach to environmental protection was not holistic. Areas such as on-site energy consumption, water consumption, water contamination, dust emissions and the like were not given due consideration. There remained no regulatory requirement for monitoring, evaluation or reporting so that once a plan had been formulated the responsibility for compliance was at the

discretion of the developer and their ability to convince the certifier they had complied with the conditions nominated in the consent. Finally, there were numerous plans of an environmental nature but these related to post construction operations.

Interestingly, the conditions in the consent for this particular case study project were general statements in that many would refer the applicant to other policies or guidelines. It was then their responsibility to search out those additional policies and information to then determine how to address the relevant issue: an additional level of interpretation. One condition imposed by the local government authority related to sedimentation and erosion control. The condition provided the developer with an option for compliance. They had the choice on whether to comply with a regional policy or to elect to conform with an industry standard. Multiple options which interestingly may provide a mechanism by which the easiest or most cost effective solution to be selected, rather than a standardised process and policy to be complied with. This may impact upon the role of the certifier who on-site maintains responsibility of confirming compliance with conditions of consent. The condition imposed by the consent authority may mean the certifier has to be proficient in more than one policy related to sedimentation and erosion control.

A construction plan was required by the consent authority and it was to be submitted to the certifier. It then becomes the responsibility of that practitioner to make the determination on a range of issues from construction techniques, to equipment and materials, environmental considerations and traffic routes. Ultimately, they may accept the plan as complete with no further action in terms of assessment or follow up. With their area of specialisation they may rely upon the expertise of the consultant responsible for preparation of the plan.

The conditions from this case study align with former projects as the same issues appear to be raised continuously regardless of the type or complexity of the project. Qualifications and experience of those responsible for environmental management activities remains questionable. The often ambiguous nature of the consent or its referral to other policies and guidelines may reflect an attempt at uniformity or rather a lack of understanding and knowledge on a topic area whereby reference to another document is made to pass responsibility. Regardless, the development consent has shown that environmental management is unfortunately not a holistic process giving due consideration to all potential on-site construction impacts.

Table 32. Commercial building environmental development consent review

DA Documentation approved: Environmental issues	Conditions related to on-site protection	Interviewer comments
Statement of Environmental Effects	✓	Summary of all aspects of the development and incorporates activities such as sedimentation and erosion control. Prepared by town planner. Consider qualifications and experience in relation to environmental issues addressed within the statement.
Landscape Plans	X	Although works completed as part of the construction process, relates to post development. Prepared by consultant.
Aboriginal Heritage Impact Assessment	✓	Undertaken prior to construction operations to identify areas for protection or specialised construction operation and protocols. Relevant to on-site activities to ensure preservation of Aboriginal Heritage.
Bushfire Report	X	Although works completed as part of the construction process, relates to post development: protection of life. Prepared by consultant.
BASIX Report	X	Although works completed as part of the construction process, relates to post development energy efficiency. Prepared by consultant.
Additional Conditions imposed	Conditions related to on-site protection	Comments
Erosion and sedimentation	✓	Relevant to protect the environment during construction operations. Measures to be in accordance with Regional Policy and Code of Practice or the industry Blue book and maintained at all time. Selection on how to comply provided. No review, monitoring or auditing.
Waste containment	✓	Relevant to protect the environment during construction operations. Requirement for a waste containment facility.
Aboriginal Heritage	✓	Requirement to comply with the General terms of Approval from the NSW Office of Environment and Heritage and need to obtain an Aboriginal Heritage Impact Permit prior to issue of a construction certificate. No further instruction.
Acid sulphate	✓	Relevant to protect the environment during construction operations. Plan to be developed and submitted to the certifier prior to issue of a construction certificate. No further requirements.
CEMP	✓	To be submitted for approval to certifier. Consider knowledge and experience. No monitoring or reporting required. Consider: construction techniques, noise, vibration, equipment and materials storage, hours of operation and traffic routes.

5.18 Case study 4 – educational building

CS4 related to the approval and construction of an educational building. The project involved a large structure to be used for educational purposes including theatre style rooms and workshops. The development also involved related infrastructure and services. For this case study project the application was lodged with the local government organisation responsible for the area in which the proposed project was situated. The local authority, in accordance with the EP&A Act, was deemed the consent authority and provided an approval: development consent.

A total of five (5) practitioners involved with this case study project were interviewed. Participants had involvement with the one or multiple implementation phases from development application preparation to on-site environmental management operations.

It is noted that the environmental consultant for CS3 and CS4 were the same practitioner. They also identified that they had worked with local government for many years and also as a consultant which provided them with a unique understanding of both sectors. The responses to the fourth case study are particularly important as during this interview the consultant went into depth about implementation processes with emphasis upon environmental operations.

5.19 Descriptive analysis

The initial questions presented to interviewees were demographic nature. The results from these questions will now be presented as they offer an additional insight into practitioners and their background.

5.19.1 Description of positions

For this case study project, all interviewees were from the non-government sector as shown in Table 33. However, they represented a number of positions and organisations involved with the project which provided diversity.

Table 33. Practitioner positions

Description of position	Sector
Director	Non-government
Principal Planner	Non-government
Environmental Consultant	Non-government
Facilities Manager	Non-government
Project Officer	Non-government

5.19.2 Description of roles and responsibilities

Table 34 provides a description of the roles and responsibilities for each position. The practitioners interviewed for this case study project were involved with a range of policy implementation activities from initial preparation and design of development application documentation, to environmental assessment and on-site project management operations.

Table 34. Practitioner roles

Description of position	Primary Role	Responsibilities
Director	Management	Director of employees. Project management. PR, tendering to operational activities.
Principal Planner	Town planning	Review of statements. Town planning related activities. Fee proposals. Quality assurance.
Environmental consultant	Environmental Assessment Team Management	Team management Environmental assessment Town planning Review of environmental factors
Facilities Manager	Project management	Project management. Maintenance and repairs. Refurbishment. Safety.
Project Officer	Project management	All project management associated with maintenance of buildings: service management and progress meetings.

5.19.3 Time in industry: years of experience

Years of experience in terms of time in the industry and in the current position are shown in Table 35. These highlight that with CS4, practitioners interviewed had extensive experience within the industry which would assist in providing rich data.

Table 35. Time in industry and in current position

Description of position	Time in Industry	Time in Position
Director	56	45
Principal Planner	20	2.5
Environmental Consultant	17	1.5
Facilities Manager	35	7
Project Officer	28	8

5.20 Thematic analysis

The data analysis process for CS4 followed a review of each interview transcript to identify emergent themes. Participant responses in the context of question themes are provided.

Predominant topics and ideas raised by the interviewees are highlighted and illustrated with quotations. Each of the practitioners was assigned a key code as shown in Table 36.

Throughout the text, the key code indicates the author of the quote.

Table 36. Position codes

Description of position	Acronym
Director	DR
Principal Planner	PP
Environmental Consultant	EC
Facilities Manager	FM
Project Officer	PO

5.20.1 Information transfer

The case study project presented a range of environmental issues. Responses from practitioners demonstrated an awareness of such issues which reflects that information transfer has occurred within the system:

DR: “With this project there were a number of environmental issues. The first related to vegetation, specifically tree removal on-site. It was also in a bushland setting. An arborist report was required. There were also bushfire considerations ... in relation to asset protection zones.”

As part of the pre-DA process, multiple practitioners discussed the preparation of the environmental statement and the subsequent development consent as part of the information transfer process. They highlighted the importance of s79c:

PP: “We often attend pre-DA meetings. We have a pre-DA discussion with the council so we can highlight - get an understanding of what the high level issues are relevant. ... then we know what specialist reports we need, so we try and minimise the surprises that come up during the preparation of the DA and the delays and everything else.”

EC: “As part of the SEE you need to address relevant legislation including Section 79C of the Act. It's heads of consideration. They're issues that need to be considered under Part 4 of the Act. It's a series of dot points. There's environmental consideration, social impact and compliance with the objectives of the Act. Preparing the SEE also involved a visit out on site with the landscape architects, the architect and myself as environmental planner.”

However, the environmental practitioner discussed the types of environmental issues that are considered at this stage of the process and their neglect for on-site operations:

EC: “In terms of on-site construction the Statement of Environmental Effects would address things like the direct impact, like the building footprint. It may address issues such as storm water and waste water. It probably doesn't address things like where you keep the stockpiles or where you store your materials during construction or the sediment fences. In terms of on-site when you're looking at air you wouldn't be looking at air contamination from let's say the

machinery and different operations that are going on? Or you wouldn't look at water wastage on site during the construction operations. They're not things that are looked at in this statement. Are construction activities considered? No not typically. The construction issues typically don't form part of that consideration. So the final built form as in the building itself would have to comply with either building code requirements or Council's own requirements in relation to rain water reuse, energy use, but not during construction."

Given these comments, the EC then described the types of areas that require attention under the policy:

EC: "... it's in relation to the development footprint so it is things such as flora and fauna... threatened species... bushfire issues... visual impact... height of the building... traffic generation, access to the site and noise. It depends on the development which issues are triggered. Aboriginal heritage, European - or non-Aboriginal heritage and potential offsite discharge, more again during the operation in terms of air quality, water quality and noise and traffic."

This was confirmed by the PP who explained that initial town planning and post construction operations are predominantly areas of focus:

PP: "No there's typically no control plans or issues to go in the control plans or any controls in the LEP that relate to environmental impact. Well the Act says you need to consider the environment. In terms of Council they have the Local Environment Plan which is more a zoning based document with some controls such as height and floor space ratio. Generally, there is none for on-site. So they're just looking at these standard repetitious things like sedimentation, erosion, dust and noise. I mean the Act says you need to consider the environment. But it doesn't - it's typically not an issue that's been resolved through development assessment, the on-site construction issues."

Meetings were an important mechanism for communication and subsequent information transfer to promote effective on-site operations:

FM: "We had weekly meetings, contractor meetings, um, sometimes we were directly involved, sometimes we weren't. Basically it came down to environmental management and if

we needed to go up there and check... we had the heads of the contracting company, their project manager, their site manager, then us and our site people here, including myself and the project manager from our side, client and did basically full minutes and upgrades on how the progress was going and we all received documentation on that as part of the team.”

An awareness of environmental issues pertinent to the case study project was evident and this reflects a degree of information transfer. Comments from the environmental practitioner identify that on-site operations are not normally a consideration at this initial stage of implementation. Furthermore, it was common for consideration to be given to post construction operations.

5.20.2 Roles and responsibilities

The theme under roles and responsibilities evoked multiple discussions in relation to the development consent and construction management plans. Typically it was noted that responsibility for the plans rested with the applicant as they were not commonly requested:

EC: “The Construction Environmental Management Plan is typically something that's prepared by the contractor. Often they prepare it either through their own volition or it's a requirement of a government agency when they're working for the government agency. ”

In terms of environmental management on-site, the contractors assumed responsibility for such operations for this project:

PM: “we have to manage that as it's our site. You take an audit of the site or surrounding areas before you start and then what has to be remediated after.”

Although other practitioners were involved with this particular project, the PM considered their role to encompass the responsibility for environmental operations during construction. The allocation of roles and responsibilities were primarily defined by a practitioner's position and how they were placed in the structure of the project management team.

5.20.3 Training

In relation to training and professional development, mixed responses were provided by interviewees in relation to this case study project:

EPC: “Well in terms of environmental training we employ people who are university qualified in environmental science or science. In terms of internal training it's typically us who delivers the training. We're developing an environmental management system for the organisation. As part of EMS we deliver training to the relevant officers making them aware of the requirements of the EMS.”

There were multiple mechanisms identified by practitioners for maintaining knowledge of policy and amendments:

EC: “There are some agencies that send out updates and it's putting yourself on those lists for any updates that come out. The way I manage it is by when I prepare the reports I go directly to the legislation and check for relevant sections to see if there's been any updates.”

The use of email and bulletin system was supported by multiple practitioners:

PP: “If there's new legislation I mean the Department of Planning's quite good about letting us know so there's online information, and they'll send out notices. ... Sometimes they'll have workshops”

Although training was identified by the environmental consultant, it was not addressed by other practitioners on this project. Most relied upon industry network channels (government and non-government) to understand new changes or requirements. For these practitioners, training was generally aligned with State regulatory change in which that body was responsible for workshops to disseminate information and raise awareness of such amendments.

5.20.4 Regulatory interpretation

When discussing regulatory interpretation, most practitioners referred to internal colleagues or external professionals followed by government agencies. However, the environmental practitioner went beyond this process:

EC: “You have to go - in order to work out what they mean by environment you have to go back to the definitions in the Planning and Assessment Act. That helps you define what the word environment means which to a degree it does - it's typically everything around us. So it's a fairly broad definition still because it includes air, water and land. ...it's any part of the physical environment around us.”

The definition is very broad; therefore, interpretation forms part of the implementation process when preparing DA documentation and subsequently, during the DA assessment phase. This in effect identifies a subjective system where practitioner beliefs, understandings and experiences may influence how they approach and undertake their roles.

In terms of clarifying issues that arose, multiple options were available to practitioners. On this specific project regular meetings were held with the project team in which such issues were to be raised and a solution sought. In terms of who to contact in seeking advice:

DR: “The first option would be internal advice. Then consultants such as geotechnical, traffic, environment and bushfire. Then it depends upon the issue as it may require contact with council or need to be directed to the client. We use email networks and council seminars when held which is not very often.”

This was supported by the EC who also explained:

EC: “Typically if I wanted some clarification or advice or another opinion I'd start internally yes and then I'd go to other colleagues within the profession that I deal with and discuss the issues with them. If it's a question in relation to a Council policy I probably would go to Council. If it's a bigger issue in terms of state and even development or interpreting legislation I would typically go to other professional colleagues. Unless I have experience

with other professionals within government agencies there are people that I know who are forthcoming with advice and are fairly practical. Yes that's through professional networks. Department planning does have an information or an advice centre. ...the complication is some of the policies and some of the legislation is fairly specific and the interpretation is - you need to be at a fairly high professional level so you need to make sure you're speaking to the right person. So rather than just going to the advice centre you'd have to actually get one of the specialists ... who actually deals with that policy to get a more informed opinion. It's an information line. They have an information centre ... that you can call for copies of policies and other things. They're not really specialist people.”

Standard processes associated with interpretation were adopted on this project. Advice was sought from colleagues, professionals and where necessary the local government authority. In one case, the EC identified that a review of the regulatory policy and its definitions may assist with interpretation.

5.20.5 Compliance

Construction practitioners identified that they undertook all auditing and inspection regimes. The PM allocated to the project was responsible for periodic inspections; however, daily compliance checks were undertaken by the on-site construction professionals. Apart from the certifier's mandatory inspection regime specified in the EP&A Act, regulatory compliance inspections did not form part of this project:

PP: “There were not requirements in relation to construction activities. Apart from again the standard conditions of erosion and sediment control no going outside - waste to go to a licensed landfill.”

The certifier was identified as the practitioner responsible for environmental management issues on-site:

EC: “Typically Council often have people who go out and check the sites as part of their overall work. Often it's the building surveyors who are driving around those areas that may see some inappropriate activities that may impact on the environment. They may either pass

that information back to their environment officer or contact the certifier to resolve those issues.”

The EC raised a salient point commenting on local government organisation legal powers:

EC: “Typically they'll [local government] have specific conditions around erosion and sediment control, management of water and management of waste. Part of the reason for that is if they put that in as a condition there would be a requirement for someone to review the CEMP and there's no real post approval method or process in which Council can request post approval assessment of things such as a CEMP. Once a development is approved they can go to Council or a private certifier to get the construction certificate approved. In the background of all this there is the other - or the Planning Assessment Act and associated legislation that says you can't pollute. However in terms of a straight management plan there's no real follow on once the development application has been approved. No again there's no post approval reporting that Council can request. They basically will reference policies or guidelines such as the blue book for the erosion and sediment control and complying with that.”

This affirms former statements across other interviews where local government practitioners identified that the DA process is the only stage in which they can be involved with the development and provide conditions. Their powers in this process are limited under the policy and this impacts upon what documentation they can request and conditions that can be applied.

5.20.6 Organisational considerations

Most practitioners identified that their organisation maintained policies and protocols but not necessarily related to environmental management. Many responses were similar to the following:

DR: “Quality assurance is important within our firm. Typically what we do - anything that would be prepared before it went out would be reviewed or verified by another professional.

Just a technical review to make sure it's accurate. We maintain accreditations individually and also as an organisation. The Quality Management System, ISO 14000. We demonstrate our accreditation with tenders.”

There was a belief, in line with former case study projects, that accreditation achieved environmental compliance related to all areas. However, the environmental practitioner identified that with the ISO system:

EC: “In relation to the work that we do it would have little to no impact on construction because it typically revolves around our internal system such as printing, paperwork, lighting and vehicle use.”

5.20.7 Other considerations

Important to this case study project, one practitioner identified the importance of communication to ensure the smooth operation of a project: to achieve timeframes, come in on budget and avoid any community concerns:

PM: “Communicate, communication is the main thing’ and “Let everybody know what is happening and what is coming up.”

Subjective interpretation was highlighted by the EC as an issue with the existing system:

EC: “...most Councils have standard conditions of consent and they can be formalised for a particular type of development. They may just use the same conditions or in many cases the person assessing the application will choose the standard conditions that they would like to put on. It is like a checklist and they don’t necessarily have to do a full assessment. Once they’ve decided to approve it then they’ll use the conditions that they choose relevant. I mean most of the people, if we’re talking about town planners, won’t have the knowledge of environmental impacts to full assess the potential impacts. The during construction issues typically aren’t discussed pre-assessment or during the assessment process.”

EC: Possibly at a Council level their EHO's may have through experience some awareness of environmental issues. Whether they have the specialist qualifications or more experience to address all of the issues I doubt it. They more rely on advice from independent experts or reports provided by me acting on behalf of the proponent. Sometimes it's the case where you have to educate the town planner. You talk through the legislation and you do need to often refer to other policies or guidelines that Council may not be aware of or fully cognisant of. I guess in part it's a justification process for any conclusions that you've reached."

In the context of town planners being responsible for DA assessment, this raises concern over their qualifications and experience in making determinations on issues associated with environmental management activities. The EC also identified that there is a disparity between what is required for large against small to medium scale projects:

EC: "On larger scale projects on-site operations are generally considered. Okay so they have someone who's qualified and trained and has the experience in the environmental area to actually look at that application and assess the environmental side of it. With the operation of large scale projects an environmental impact statement is generally required. Are environmental specialists required for the formulation of such plans? Well no not so much. They just may make it a condition of consent that they have an independent person who does have those qualifications checking the on-site construction activities."

5.21 Documentation Analysis

The development consent for case study 3 was confirmed as authentic through the local government authority. As per the other case study projects, the agenda focused upon the overall interests of the community and this included environmental considerations. Standard areas such as structural, stormwater and building codes were all areas conditioned (refer Table 37). The development application had been submitted with a number of consultant reports as identified throughout the conditions. These were not identified as 'approved plans' at the commencement of the consent. The number of conditions was relatively small, relying heavily upon the need to comply with either existing reports presumably lodged at the DA stage, or other policies.

5.21.1 Considerations

The development consent condition for this particular case study project included a range of standard conditions pertaining to environmental management from sedimentation, to tree protection and dust management. Similar to former case studies it again did not provide a holistic approach to environmental management as many environmental impact had not been given due consideration. Again, there was no requirement for specific environmental plans to be prepared by suitably qualified and experienced environmental consultants.

With many conditions in this consent other consultant reports, policies, guidelines and standards were referenced. The development application is lodged with the consent authority and it includes all relevant consultant reports. It is identified that with this development consent heavy reliance is placed upon those reports and the like submitted at the development application stage. First, this requires that the initial information lodged with the application will be made available to the developer and that appropriate information dissemination will occur. Secondly, that they will then take responsibility for ensuring compliance with the content of the reports and policies, as generally there were no additional requirements specified for monitoring and reporting by the consent authority.

The development consent contained an interesting statement ‘...generally in accordance with plans.’ This indicates that plans were developed or were to be developed, yet, strict compliance with those plans is not necessarily mandated. Such an ambiguous statement is open for interpretation and potentially may result in non-compliance with a plan. Within the consent there was also a requirement for a plan to be submitted to the consent authority. However, there was no requirement for any further action on behalf of the consent authority or the developer. This means that an assessment of the content and validity of that plan may not occur and implementation on-site is not guaranteed. Therefore, if plans are inadequate there appears to be no mechanism for any action. The development consent for this case study project shows an approach to environmental management that is incomplete and ultimately may not be able to achieve ESD. There remains an inability to appropriately address all environmental impacts on behalf of the consent authority, no mechanism to monitor or report upon implementation which is a task at the discretion of the developer and ultimately their ability to demonstrate they have complied with the conditions of consent for final sign off upon completion of construction.

Table 37. Educational building environmental development consent review

DA Documentation approved: Environmental issues	Conditions related to on-site protection	Interviewer comments
Landscape Plan	X	Although works completed as part of the construction process, relates to post development. Prepared by consultant.
Bushfire Report	X	Although works completed as part of the construction process, relates to post development: protection of life. Prepared by consultant. Not identified as an approved plan at the start of the DC.
Additional Conditions imposed	Conditions related to on-site protection	Comments
Stormwater	X	Although built during construction, relates to post construction operations. No requirement for preparation by a suitable consultant. Requires compliance with council DCP, AS/NZS and 'generally in accordance' with the drawing prepared and submitted by a consultant. Consider ambiguity of such a statement. Then it specifies what the design need to include.
Erosion and Sediment Control	✓	Designed plans to be prepared. Requirements that the plans are to be submitted to Council prior to commencement of works.
Tree Protection	✓	References arborist report which is not identified as an 'approved plan' at the start of the DC. Nomination of those trees to be retained and protected and measures.
Waste	X	Relates to post construction operations.
Waste Management Plan	✓	Plan to be prepared and needs to be complied with – no reporting, monitoring, approval required.
Dust Control	✓	Appropriate measures to prevent emissions. No further detail or approvals.

5.22 Synthesis of data

Data was synthesised as described in Chapter 3 pertaining to the methodology. Following a cross-case synthesis of case study data in Stage 2, a further synthesis of Stage 1 and Stage 2 data was undertaken. Table 38 provides a synthesis of final topic codes in reference to both stages. A detailed account is provided in Appendix 4.

5.22.1 Documentary analysis

The synthesis presented in Table 38 highlights subtle differences amongst cases. In general, the majority of themes were seen across all four case studies. For example, auditing, conditions of consent, development assessment, environmental constraints, organisational hierarchy, organisational planning, organisational position, planning, professional beliefs, protection of the environment, regulatory operations, reporting protocols, satisfaction, specialist knowledge and training. This indicates that similarities exist amongst cases and how common themes reflect standardisation of operations and complexities. However, the synthesis also identified five areas applicable to only some of the cases. As an example, community engagement was relevant to CS2 and CS3, integration to CS1 and CS3; while, risk management was related to CS1 and CS4. This presents an interesting situation particularly in regards to why issues such as community engagement are not considered in the same light as other case studies. Importantly, it highlights a number of themes that may be additional to the Hogwood and Gunn (1984) conditions.

Table 39 shows environmental management areas pertaining to on-site construction management operations as identified within the development consent documentation. Overall there are multiple issues in need of consideration. First, there remains no standardisation of conditions amongst local government authorities. Each locality continues to employ their individual set of standard conditions. Furthermore, each list provides a focus upon certain environmental issues which may detract from a holistic approach to environmental management.

Across development consent documentation, not all environmental issues were given due consideration such on-site energy consumption, water consumption and ground water

contamination. Hence, a holistic approach to environmental management was not observed across any case study project. It was evident that the same tangible or topical issues were continuously identified as prime environmental concerns. Yet, conditions surrounding these areas such as sedimentation were still not stringent in their content.

Multiple conflict conditions were evident within the same consent. This may create a situation of ambiguity, misunderstanding and ultimately ineffective implementation operations. Furthermore, there were many generalised conditions with no specific detail. Without appropriate information or instruction, the ability to comply with a condition remains at the discretion of the developer with their values, beliefs and interpretations of the condition impacting upon implementation operations.

Across all case study projects there remained an over reliance upon the need to consider or comply with other standards, policies and codes. Reference to additional plans and documentation may effectively leave the task of environmental management interpretation, assessment and implementation at the discretion of the developer and potentially a team without the necessary qualifications or experience in policy and environmental management.

Finally, all development consents and associated conditions placed responsibility upon the certifier to act as the consent regulator: assessment, inspections, monitoring and compliance. Although ensuring compliance with the consent forms part of the regulatory duties of the certifier, many areas for which they are given responsibility by the consent authority are not within their area of expertise. There is an evident reliance upon this practitioner to enforce appropriate environmental management controls.

Table 38. Thematic code synthesis

Topic code	Case Study 1	Case Study 2	Case Study 3	Case Study 4
Accreditation	✓	X	✓	✓
Advice	✓	✓	✓	✓
Auditing	✓	✓	✓	✓
Community engagement	X	✓	✓	X
Contractual obligations	✓	✓	X	✓
Conditions of consent	✓	✓	✓	✓
Determination instruments	X	X	✓	✓
Development assessment	✓	✓	✓	✓
Environmental constraints	✓	✓	✓	✓
Information dissemination	✓	✓	✓	
Integration	X	✓	X	✓
Management planning	✓	✓	✓	✓
Organisational hierarchy	✓	✓	✓	✓
Organisational position	✓	✓	✓	✓
Planning	✓	✓	✓	✓
Policy operationalisation	X	✓	✓	✓
Prioritisation	✓	✓	X	✓
Professional belief	✓	✓	✓	✓
Protection of the environment	✓	✓	✓	✓
Regulatory operations	✓	✓	✓	✓
Regulatory reliance	✓	✓	✓	✓
Reporting protocols	✓	✓	✓	✓
Risk management	X	✓	✓	X
Satisfaction	✓	✓	✓	✓
Specialist knowledge and understanding	✓	✓	✓	✓
System performance	✓	X	✓	X

Table 39. On-site construction issues

Issue	Project 1 Aged Care Facility	Project 2 Commercial Building	Project 3 Multi-storey Residential	Project 4 Educational Facility
SEE	✓ (1)	✓ (1)	✓ (1)	✓ (1)
Dust Control	✓ (2)	X (0)	X (0)	✓ (1)
Flora and Fauna	✓ (10)	X (0)	✓ (8)	✓ (8)
Erosion and Sediment Control	✓ (7)	✓ (1)	✓ (4)	✓ (1)
Stormwater Management	✓ (1)	X (0)	X (0)	X (0)
Aboriginal Heritage Impact	X (0)	✓ (2)	X (0)	X (0)
Waste Management	X (1)	✓ (1)	✓ (3)	✓ (1)
Acid Sulphate	X (0)	✓ (1)	X (0)	X (0)
CEMP	X (0)	✓ (1)	✓ (1)	X (0)

Note: number in brackets makes reference to the plan/written condition related to that theme.

5.23 Conclusion

Chapter 5 provides an analysis of the data related to the Stage 2, case study projects and the final synthesis of the data from across both stages. In Stage 2 multiple case study projects were explored related to the following development types: aged-care facility, multi-storey residential, commercial and educational. Case study exploration occurred via interviews with key practitioners and analysis of documentary evidence.

From the interview data, no predominant issues were raised in relation to the regulatory policy itself and its effectiveness or ineffectiveness; rather, the theme identified as an issue concerned conflict amongst associated policy. Actioning policy involved a range of procedures, both formal and informal, that were in operations during implementation activities associated with protection of the environment. Given procedures and structures it was apparent that information dissemination occurred with practitioners and across teams, as are auditing and monitoring processes. However, there appeared to be a level of complexity given the multiple practitioners performing similar project management duties.

The focus of compliance related to the development consent and subsequent environmental conditions within. Issues associated with the subjective nature of the system were raised with comments related to ‘human intervention’, the process by which the policy is implemented and ultimately changed. The human element also brought forth professional belief systems that impacted upon activities given the degree of conflict evident amongst practitioners.

Documentary evidence demonstrated an awareness of environmental issues and incorporated a wide range of controls. However, three (3) predominant issues are noticeable. First, local authorities have no provision to follow up their controls. They specify requirements; however, their ability to mandate their involvement past the development consent stage appears limited particularly when the request for building approval goes to the private certifier. Secondly, those responsible for assessment activities and ensuring compliance with the conditions may not be adequately qualified or experienced to do so in all areas; therefore, they accept liability under the current system. In addition, the human element of the interpretation and application of the policy to the formulation of the development consent brings about inconsistencies.

As a final comment, the EC provided a quite apt summation of the status of on-site environmental management:

EC: “The early on assessment and review including work with the architects and designers typically revolve around the building footprint, the building design and the functionality of the building, rather than the during construction environmental issues. Post construction is important in terms of energy efficient, visual impact and potentially revegetating and landscaping. The during construction isn't typically a high priority.”

Chapter 6: Discussion

Chapter 6 provides a discussion concerning the data analysis. The chapter identifies each of the Hogwood and Gunn (1984) framework conditions: the ten preconditions for perfect policy implementation and synthesises the themes from the results of the data accordingly. As part of this chapter, there is a discussion concerning the additional influences identified by this research. Subsequently this introduces four (4) new conditions developed as they have significant impact upon successful implementation and policy outcomes.

6.1 Introduction

This research explores the disparity between policy intention and outcome from a policy implementation perspective: regulatory environmental planning policy and subsequent impacts upon on-site construction environmental management operations. Exploring policy implementation provides a mechanism to understand why policy is ineffective which can drive change to improve implementation practices and achieve successful policy outcomes.

Chapter 1 introduced the research problem and it was identified within the literature that construction operations continue to cause negative environmental impacts. The discussion then turned towards regulatory policy, a mechanism employed to address such a dilemma. Chapter 2 reviewed the literature related to policy theory, in particular that associated with policy implementation theory: the focus of this research. The chapter concluded with a discussion on the Hogwood and Gunn (1984) framework: ten preconditions to perfect policy implementation which were employed as a lens by which to explore the research question. In

Chapter 3 the methodological design was detailed involving a phenomenological two stage qualitative exploratory design. The first stage reveals an etic perspective through twelve (12) semi-structured interviews with specialist practitioners. It interrogates expertise over multiple projects. Stage 2 uses the framework to explain specific environmental protection outcomes for four (4) case study projects. A combination of semi-structured interviews and statutory and project-specific documentation are analysed thematically. Subsequently, Chapter 4 and Chapter 5 provided the analysis and the final synthesis of the data.

Chapter 6 reviews the results in light of the Hogwood and Gunn (1984) framework to provide meaning in the context of the research question. For each precondition there is a discussion as to intent following which the relevant codes from the final synthesis are explored. In this manner this research addressed the research gap by increasing knowledge and understanding of how policy implementation influences the disparity between policy intent and policy outcome, particularly in relation to environmental planning policy and on-site environmental management operations. The chapter concludes with a discussion of the additional conditions identified by this research, considered independent of the ten preconditions. Ultimately, increasing knowledge and understanding of the disparity between policy intent and outcome will assist with future policy planning: improve implementation and policy outcomes.

6.2 Ten Preconditions

To summarise Chapter 2, the Hogwood and Gunn (1984) framework concerns ten preconditions:

- Precondition 1: The circumstances external to the implementing agency do not impose crippling constraints
- Precondition 2: That adequate time and sufficient resources are made available to the programme
- Precondition 3: That the required combination of resources is actually available
- Precondition 4: That the policy to be implemented is based upon a valid theory of cause and effect
- Precondition 5: That the relationship between cause and effect is direct and that there are few, if any, intervening links
- Precondition 6: That dependency relationships are minimal
- Precondition 7: That there is understanding of, and agreement on, objectives
- Precondition 8:
 - That tasks are fully specified in correct sequence
- Precondition 9:
 - That there is perfect communication and co-ordination
- Precondition 10:
 - That those in authority can demand and obtain perfect compliance (Hogwood and Gunn, 1984).

In Chapter 2 it was discussed how perfect implementation is an unlikely phenomenon; however, where the conditions are not considered then policy implementation will be challenged and unlikely to achieve success (Hogwood and Gunn, 1984; Robertson-Wilson and Levesque, 2009). Throughout the literature the preconditions have been considered useful given their ability to provide a framework by which challenges to successful policy implementation can be identified (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013). The framework will now be discussed in the context of this research. Two tables are presented at the end of this chapter. Table 40 summarises the synthesis of the ten preconditions against the results of the data. Table 41 summarises the codes and their relationship with the ten

preconditions (refer Appendix 5 for further detail). It is noted that given the policy system is dynamic in which multiple topic codes may relate to an individual precondition as their operation may be entwined in real practice. Interestingly it was found that the codes across Stage 1 and Stage 2 were primarily the same. This highlights that the issues that influence policy success are quite uniform across the industry, regardless of whether considered from an etic or emic viewpoint: a general perspective or in relation to a specific context. It is noted that across both stages and within all cases, these influences were found to be an issue although they may not have been necessarily identified by all participants. For certain classes of participants some influences may be more important than others, primarily dependent upon position held within industry.

6.3 Precondition 1

Circumstances external to the implementing agency do not impose crippling constraints

According to Hogwood and Gunn (1984), external impediments may emerge to hinder the successful implementation of policy. Often, these may fall outside the scope of the policy programme and are therefore, unable to be managed. In the context of this research it is acknowledged that the regulatory policy remains in effect unless the State government elects to amend or rescind. Although, other State government bodies may be involved in terms of obtaining concurrence, the policy itself is supported by such agencies. However, at a local implementation level a different scenario exists as four primary topic codes were identified as influences upon policy implementation: accreditation, auditing, regulatory operations and community involvement.

6.3.1 Accreditation

Multiple practitioners highlighted that their organisation maintained accreditation with an external body. In relation to these case studies, accreditation was a voluntary initiative rather than one of a regulatory nature or a tender requirement. Therefore, accreditation presented no external constraint as termed by Hogwood and Gunn (1984). Rather, it was seen as a tool to demonstrate professionalism and organisational quality. However, this posed an issue as an

overreliance upon accreditation was evident: a belief that if accreditation was forthcoming then protocols and operations were perfected, satisfactory and environmental protection was complete.

6.3.2 Auditing

Auditing may be regulatory or non-regulatory in nature. Regulatory auditing was associated with the authority undertaking inspections or reviews to ascertain compliance with the policy or an associated policy such as the DC. It was identified that on-site regulatory inspections were generally undertaken by the building surveyor in their capacity as the certifier. This related to technical building inspections and determining compliance with the DC conditions including those of an environmental nature. Non-regulatory auditing was related to on-site operators maintaining programme status and complying with DC conditions. In relation to the interviews, no practitioner identified auditing as a constraint potentially because it was an operational activity rather than reflecting a political endeavour an idea presented by Parsons (1995). However, it is worth noting that in terms of environmental management, the focus is upon DC conditions which may direct attention away from other environmental areas of concern. Furthermore, it is important to note that the responsibilities bestowed upon the abovementioned practitioners may not be aligned with their areas of specialisation.

6.3.3 Regulatory operations

Aligned with auditing, such operations may be regulatory or non-regulatory but affect compliance. For example, non-regulatory operations were reflective of construction operators choosing to go beyond what is required to attain compliance. A firm may wish to identify that they are a 'good corporate citizen', going above the DC conditions by implementing additional environmental measures. This did not present a constraint to any project as such issues were factored into programmes and planned for accordingly. From a regulatory perspective, this introduces policy interpretation from the certifier for example, to determine if compliance has been achieved –subjective interpretation – which can hinder progress by halting works or requesting additional information. However, these were not identified as external constraints in relation to this research.

6.3.4 Community engagement

The general community may pose as an external constraint in light of complaint processes. In this manner the community is considered an external entity to the implementing agency; yet, their ability to lodge a formal complaint about a construction project will action a regulatory response. Such action will introduce a regulator to undertake an investigation and potentially impact upon implementation activities through enforcement provisions: penalties, stop work requirements and so forth. As explained by Hogwood and Gunn (1984) such processes present a challenge to implementation; however, there is potential for management of such activities. For the interviews undertaken with this research, practitioners identified that they attempted to maintain communication with their local community to alleviate issues. Across all case study projects there were no community complaints that hindered implementation operations. Generally, for small scale incidents, such as sedimentation barriers down due to heavy rains, it was identified that these were constraints easily rectified and managed.

6.3.5 Summary

Accreditation, regulatory operations and the community are all potential sources of external constraint upon a construction project. In general these issues were not identified as problematic or areas that caused constraint. However, as noted above, this may be indicative of: a.) well run projects with perfect environmental management operations; or b.) a complete focus upon only DC conditions which directs attention away from other environmental issues; or c.) practitioners areas of specialisation not being aligned with environmental management bringing minimal awareness of all salient environmental issues.

6.4 Precondition 2

That adequate time and sufficient resources are made available to the programme

Hogwood and Gunn (1984) assert that to achieve policy success, there needs to be both appropriate time allocated for implementation and resources to support activities. Short time frames may impose constraints limiting the ability to implement well-structured and planned

activities. Conversely, long time frames may hinder policy success given the emphasis by government - commitment and direction – to the policy may falter with time. Insufficient resource allocation may in fact render policy implementation untenable, particularly, where funds are not allocated appropriately across the programme of activities (Hogwood and Gunn, 1984). Interestingly, only development assessment and auditing codes were aligned with this second precondition related to adequate time and resources.

6.4.1 Development assessment and auditing

A prime focus for every practitioner related to the DC. There was a need to obtain approval for the development and then to focus upon the regulatory consent. The DC identified conditions that must be complied with as this would decide upon whether the project would receive final regulatory approval once completed.

The DC contained conditions related to environmental issues. Many expressed the opinion that the DC contained all the necessary environmental conditions – a comprehensive document. From the analysis of documentary evidence, the DC does not provide full coverage of environmental issues, for example, on-site energy and water consumption, atmospheric emissions (apart from dust) and other such environmental concerns were not considered across any of the case study projects.

Other practitioners argued that regardless of content, the DC was the prime focus as it achieved the desired outcome: final regulatory signoff. This is common of the top-down approach where the regulatory environment dictates action (Wang and Ap, 2013). Most commonly, construction practitioners argued in favour of the DC and also additional plans and requirements beyond those regulatory ones imposed to demonstrate their commitment to environmental management.

Any of these operations must involve time and sufficient resources to be appropriately implemented. It was acknowledged by a number of regulatory officers that they lacked the time and resources to enable any form of auditing programme or associated activities to be implemented. Ultimately, responsibility for compliance was left to the certifier. This was confirmed by private sector practitioners as local government officers were rarely if ever seen

on-site. Adequate time and resources are vital for successful implementation, otherwise, activities can be hindered (Hogwood and Gunn, 1984; Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013). However, for the case study projects, adequate time and sufficient resources was not identified as an issue by any construction operators. This indicates that either resources are not considered an issue within the private sector or resources are not prioritised post approval.

6.4.2 Summary

Overall, time and resources presented a division between the regulatory and non-regulatory sectors. Local government employees acknowledged insufficient time and resources to tackle auditing or compliance programmes, leaving such responsibilities at the hand of the certifier. The system of former times concerning proactive management had diminished to a primarily reactive practice of regulation. Conversely, private sector operators did not acknowledge time and resources as impediments to implementation operations. Therefore, they were either appropriate or not prioritised.

6.5 Precondition 3

That the required combination of resources is actually available

Precondition 3 is aligned with the former precondition. However, this time, it relates to the availability of resources when required during the implementation phase. Implementation is viewed as a series of activities set out into phases or tasks while are delivered in succession. Each phase or task requires an allocation of appropriate resources (Hogwood and Gunn, 1984). With regards to this research, the code of integration was identified as the prime variable that has the ability to impact upon the availability of resources and ultimately implementation operations.

6.5.1 Integration

As seen from the former precondition, government and non-government practitioners have different experiences with timing and resources. Integration was an area given even less consideration by practitioners. In terms of the availability of resources for environmental management operations, there was no concern raised, particularly in relation to timing. The need for various resources at specific times post approval phase was not presented as a concern for either regulatory or non-regulatory practitioners. Areas such as a bottleneck scenario or cash shortage state, as identified by Hogwood and Gunn (1984) were not apparent across any case study project.

Again such findings may have multiple meanings. First, resources and their availability may simply not be an issue. Potentially, these are factored into planning schedules and already given due consideration prior to the implementation of on-site construction operations. Secondly, they may not be considered. There may be a problem with implementation as the remains with the DC and not having resources to construct the building or employ environmental controls.

6.5.2 Summary

Precondition 3 presented no significant concern to industry practitioners: regulatory or non-regulatory. There were no constraints identified in terms of resource timing for either sector. In effect, this means that either resource availability is not an issue or not a prime consideration for implementation operations.

6.6 Precondition 4

That the policy to be implemented is based on a valid theory of cause and effect

In accordance with Precondition 4, the policy must be based upon a valid theory of cause and effect. The policy itself is the subject of attention in this precondition as without a valid theory, it may be inferior. The policy may have been developed without a true understanding

of the issue rendering the policy process as flawed in which the outcome will be failure (Hogwood and Gunn, 1984). Therefore, Precondition 4 looks at whether the outcomes are a result of inappropriate theory or inadequate implementation. The results from analysis of the data reveal the following codes associated with this precondition: conditions of consent, planning, protection of the environment and satisfaction.

6.6.1 Conditions of consent

The topic code: conditions of consent, relates to both practitioners who interpret policy and formulate the DC and those who receive the DC, interpret and implement the conditions and ultimately whether this achieves the original policy outcomes. The data analysis demonstrated that there is a significant amount of human subjectivity involved with the interpretation of the primary policy. Due to inconsistency, misunderstanding, inadequate understanding and potentially prejudiced processes, the entire implementation process may be considered flawed. This confirms the view by Calista (1994) who asserts that in the top-down model implementation agents '*are expected to behave self-interestedly*' (pp. 132-133).

6.6.2 Planning

Again this reflects the former topic code in terms of interpretation of policy. However, it may relate to non-regulatory planning such as environmental management plans and construction environmental management plans. In this respect, attention may be focused upon only those areas identified within the DC, highlighting how the regulator is responsible for the distribution of authority and power (Kendal, 2010) and this dictates a focus upon their requirements. The DC may in fact be a mechanism used to guide and direct the development of management plans where required, post approval phase. Similarly, there was a high degree of interpretation; whether plans were prepared as part of the DA or DC process. Both these issues impacted upon implementation as the policy may be based upon a sound theory of cause and effect; however, the interpretation and planning at the implementation level caused discrepancies and a focus not comprehensive of all environmental impacts.

6.6.3 Protection of the environment

The regulatory policy includes the premises concerning of environmental protection. The history of the policy and how it has been influenced by higher order environmental systems validates to an extent the cause and effect relationship. There was a division amongst practitioners regarding the extent to which the policy considers and assists with environmental management. Although many believed the policy comprehensive, others indicated that environmental conventions and controls had diminished. Local level policies were thought to be reflective of the overarching regulatory policy with a prime focus upon environmental preservation; however, from interview and documentary evidence analysis, there remains a gap in both local level policy and knowledge as what constitutes an environmental issue, mitigation measures and compliance operations.

6.6.4 Satisfaction

Practitioners displayed mixed emotions over their satisfaction in relation to the policy and the system. A minority identified that the policy was good and achieved outcomes. However, the vast majority of practitioners considered the policy to be too generalised and ambiguous. In which interpretation – human subjectivity – played a vital role in implementation activities and subsequent outcomes. Given that construction impacts result in environmental degradation, it is likely that this is an influence having a significant impact upon implementation activities.

It must be noted that satisfaction of the policy may not reflect an invalid theory of cause and effect as described by Hogwood and Gunn (1984), rather it is possible that those associated with the policy – understanding its intent and objectives – do not in reality have the knowledge and understanding needed. This was illustrated by practitioners, including those in a regulatory position, who highlighted that they did not reference the actual policy in their duties. They were in fact carrying out traditional actions, many using checklists and standard conditions, without any confirmation or policy review.

6.6.5 Summary

The policy is considered to be based upon a valid theory of cause and effect. For example, the history of the global environmental movement and its subsequent impact upon National and State policy has been identified. However, it is the interpretative processes employed to make the policy operational that does in fact reflect a scenario in which implementation is ineffective and policy intent becomes obscured. Assessing applications for policy compliance, determination of conditions to be placed upon the DC, focus upon DC conditions, in combination with the subjective nature of the system, all raise concern and indicate a complexity where the result is a disparity between policy intent and outcome.

6.7 Precondition 5

That the relationship between cause and effect is direct and that there are few, if any, intervening links

According to Precondition 5, *'policies which depend upon a long sequence of cause and effect relationships have a particular tendency to break down since the longer the chain of causality, the more numerous the reciprocal relationships among the links and the more complex implementation becomes'* (Hogwood and Gunn, 1984, p. 202). Therefore, the more links, the more complex the relationships which impacts upon the ability for successful outcomes. Analysis of the data highlighted a number of topic codes were seen to influence the outcome in terms of Precondition 5: contractual obligations, determination instruments, organisational hierarchy, reporting protocols, satisfaction and systems performance.

6.7.1 Contractual obligations

Contractual obligations are important to this precondition as the contract itself may have additional requirements beyond those of a regulatory nature. This may impede the direct cause and effect relationship. In relation to the case study projects explored, the contractual obligations did not pose any constraints that negatively impacted upon implementation and environmental outcomes.

6.7.2 Determination instruments

It is identified that from the regulatory policy a range of additional policies and instruments were designed and used to assist implementation activities. Therefore, this presented an issue and impacted upon the relationships between cause and effect as it no longer remained a direct process with minimal links. Notably instruments such as LEPs, DCPs, guidelines, checklists and the like all influence the ability to achieve successful implementation operations. Interestingly, instruments and their content differed across local government organisations and this compounded with the subjective nature of the system contributed to complexity and indicated possibly ineffective implementation: a disparity between policy intent and outcome.

6.7.3 Organisational hierarchy

Within the government and non-government sectors hierarchal orders were in operation. From a government perspective, the cause and effect relationship described by Hogwood and Gunn (1984) was affected by multiple links across different hierarchal levels. For example, the need for internal and external referrals throughout the DA process and possibly the change of consent authority from local to regional bodies. Such processes presented a dilemma as multiple links were introduced at various stages of this phase - within and across organisations – associated with the development process.

Hogwood and Gunn (1984) assert how a longer sequence introduces multiple relationships which hinder the success of implementation activities: more relationships, more agendas, more difference of opinion and subjectivity. For example, one practitioner identified how bushfire and ecologist practitioners conflicted over construction requirements and conditions, directly impacting upon implementation processes. From a private sector perspective, again the hierarchal order was in existence; however, this was a more directed approach towards roles and responsibilities. Although there may be multiple practitioners involved with each project, hierarchal order maintained a direct cause and effect relationship, even when links were introduced.

6.7.4 Reporting protocols

Private sector organisations had multiple reporting and auditing mechanisms in place to monitor implementation activities and confirm compliance. Reporting protocols were highly structured and presented a comprehensive overview of construction activities.

Public sector organisations through their DC conditions, often presented a range of activities where reporting protocols had to be undertaken. In both situations, this introduced what appeared to be a vast amount of practitioners and processes that impacted directly upon the relationship between cause and effect. One project required an ecologist to monitor the construction site along with the local government ecologist, in addition to the certifier, a host of construction practitioners and other professionals. This itself, introduced a range of interpretations and relationships which all impact upon implementation. This confirms the statement by Majone and Wildavsky (1984) when they argued that implementation of a policy means it will be changed. Therefore, the result will be a disparity between policy intent and outcome (Moncaster and Simmons, 2015).

6.7.5 System performance

Systems performance is interesting in relation to the relationship between cause and effect. It was identified that the current policy system from a local government perspective is reactionary in that issues are addressed only as they arise. Regulators only react when something happens or is brought to their attention. Former practices where government regulators were proactive – attending sites on a regular basis – had long since passed. Today, in order to achieve outcomes, there is a reliance upon third parties such as the community to complain or notify of an environmental issue in which they too become a link in the chain as identified by Hogwood and Gunn (1984) and as such so does the regulator called in to action the community concern.

6.7.6 Summary

The relationship between cause and effect is not direct and there are multiple intervening links; therefore, inconsistency and ineffective practice is introduced to implementation operations. Multiple instruments for assessment and compliance, organisational hierarchies

requiring referrals, reporting protocols with numerous practitioner involvement and third party intervention all create intervening links which impacts directly upon the ability of the policy to achieve successful outcomes.

6.8 Precondition 6

That dependency relationships are minimal

According to Precondition 6, policy will have a higher chance of success where there is a single agency responsible for implementation and where there are dependency relationships they must be minimal in terms of their number and importance (Hogwood and Gunn, 1984). Precondition 6 is influenced by multiple issues including: advice, instruction, contractual obligations, development assessment and organisational hierarchy.

6.8.1 Advice

The topic code of advice concerns general, guidance and instructional forms. Advice in relation to the case study projects, overall reflected poor relationship structures – as practitioners are reliant upon each other to interpret the policy and as such the dependency relationships remain strong. This was also seen with the non-case study interview data. Practitioners felt a sense of reliance and dependency upon others in relation to implementation such as how to interpret and comply with policy. It is interesting to note that advice from government officers was often not forthcoming. An impact from the regulatory system in operation: litigation potential or practitioners with insufficient knowledge and experience to provide advice.

6.8.2 Contractual obligations

Given regulatory and contractual obligations this in effect means practitioners are reliant upon others to perform their duties. As previously discussed, contracts may introduce additional requirements or duties in which there is even more reliance upon others to complete implementation activities as part of fulfilling regulatory obligations.

6.8.3 Development assessment

The development process may be considered staged. At the DA preparation stage there is a relationship between the private environmental planning practitioners and government assessment officers. For example, there may be requests for clarification or additional information. Local government is reliant upon multiple State government agencies given the requirements to obtain concurrence and permits which may involve requests for additional information. On-site there is a need to comply with the DC conditions and there remains a reliance upon the certifier to provide final project approval. With multiple stages involving numerous dependency relationships, implementation becomes hindered and even altered given the degree of involvement. The relationship dilemma identified by Hogwood and Gunn (1984) became evident as more and more agents become involved.

6.8.4 Organisational hierarchy

Hierarchical processes automatically invoke dependency relationships both internally and externally. Practitioners are responsible upon others to ensure tasks are actioned and completed. There are multiple dependencies from reporting with those on-site operators, through to internal government referral dependencies. Similar to development assessment these all introduce a complexity which attempts to obstruct implementation.

6.8.5 Summary

For all practitioners, reliance upon others was evident throughout many stages of implementation: contractual arrangements, DA and DC operations combined with industry hierarchies all contributed to the effectiveness of policy implementation. The implementation phase maintains such a high level of dependency relationships that this too impacts adversely upon the cause and effect relationships.

6.9 Precondition 7

That there is understanding of, and agreement on, objectives

The intent of Precondition 7 is to ensure that all those involved with the policy have and understanding of, and agreement on the policy objectives. To ensure implementation success this understanding and agreement needs to remain continuous during the entire implementation phase. Poorly formulated objectives can lead to confusion and misunderstanding of policy intent. Additionally, where mutual agreement is not forthcoming, then commitment to the policy and implementation may also be affected (Hogwood and Gunn, 1984). Primary topic codes related to this precondition include: development assessment, environmental constraints and regulatory reliance.

6.9.1 Development assessment

There is a need to understanding policy objectives and intent to be able to appropriately implement them. Annor and Allen (2009) explain the implementation relates to an ability to interpret and understand which in effect impacts upon implementation success. The data identified that there is a high number of dependencies and a dearth of understanding of the policy in terms of its objectives and intent. The focus is upon checklist assessments, the DC and compliance with this regulatory document. Therefore, any environmental issues not identified and addressed in the DC are either not considered to be of impact or remain disregarded. Hogwood and Gunn (1984) explain how it is necessary to not only have an understanding of objectives at the beginning of the project, but they need to be maintained throughout the lifecycle. From the data collated, this was not evident as there is an incomplete understanding of the policy intent and its objectives. This aligns well with the research by Annor and Allen (2009) who identified that interpretation and understanding influenced the insight into objectives and subsequently implementation actions.

6.9.2 Environmental constraints

Although there were numerous environmental issues identified across the case study projects, there was no clear understanding of all environmental issues demonstrated. Environmental

constraint quite simply reflected ‘standard conditions’ that would be ‘usual’ to include on a DC for that type of development. This is not an uncommon practice as the research by Mackie (2010) also highlighted poor policy implementation was due to ‘*use of ‘standard’ menu-driven approaches...*’ (Mackie, 2010, p. 358).

The use of standard conditions alone restricts the ability of a practitioner to consider other potential environmental impacts: those identified within the academic literature. Similarly, following the DC as a regulatory document sets a standard where any additional environmental impacts are negated. It was also noted that many conditions were considered ambiguous or identified choice in practice documents elected. In this manner there is conflict as practitioners then have the ability to develop their own trajectory or ‘*unofficial goals*’ as described by Hogwood and Gunn (1984, p. 204).

6.9.3 Regulatory reliance

As mentioned, there is a belief across the practitioners that the DC addresses all environmental issues. In some cases the aspiration to go beyond the DC issues was not a consideration as it would not serve any purpose towards achieving the outcome of final approval. There remained a focus upon the DA and DC rather than reviewing the policy objectives and considering all potential environmental issues.

6.9.4 Summary

Although environmental awareness was apparent, the degree of awareness and understanding of what constitutes an environment impacts was lacking. With support from the documentary evidence, standard industry issues such as sedimentation and erosion control, waste management, and dust suppression – tangible issues subject to community concern – reflect the degree of understanding on the topic. One practitioner identified that the ‘environmental’ focus of the policy was lost in transition to implementation.

6.10 Precondition 8

That tasks are fully specified in correct sequence

To progress towards the policy objectives all implementation tasks need to be explicitly detailed, sequenced and allocated to an appropriate agent (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013; Robertson-Wilson and Levesque, 2009). According to Hogwood and Gunn (1984) project planning techniques are often employed to establish a framework by which the implementation phase can be structured and regulated. Additionally, strong leadership is considered important in this precondition to ensure implementation activities are successful (Hogwood and Gunn, 1984). In relation to this research multiple topic codes were identified as relevant to Precondition 8: management planning, organisational hierarchy, Planning and prioritisation.

6.10.1 Management planning

Management planning for organisations considered the overall project variables and included meeting timeframes and budgets and forecasting. Such operations identified set procedures and tasks to be undertaken by different groups. Government planning generally concerned undertaking the activities to ensure the requirements of the policy were addressed. Initial duty counter meetings and pre-DA meetings assisted to identify requirements. However, these as entities presented a dilemma where regulatory officers differed as their individual requirements impact upon sequencing activities. During the assessment process, a need to refer to other agencies and requests for additional information were acknowledged and these altered the path and sequencing of tasks, often requiring plans to be adapted to accommodate change. In terms of on-site operations, plans developed were often flexible in nature to accommodate regulatory change, on-site difficulties that were encountered (e.g. unfavourable climatic conditions). However, significant change or deviation to approved plans and documentation required regulatory approval and hence the assessment cycle continued. In this way, implementation tasks regularly undergo change and sequence is often not followed given intervening variables and the role of agents may become blurred which conflicts with the instructions set by Ditlopo, Blaauw, Rispel, Thomas and Bidwell (2013) and Robertson-Wilson and Levesque (2009).

6.10.2 Organisational hierarchy

Hierarchies worked well within both sectors in terms of allocation of roles and responsibilities. However, the allocation of responsibilities was often questioned and caused conflict. For example, it was identified that town planning practitioners were largely in control of development assessment processes, often at the expense of internal specialist practitioners such as ecologists and environmental officers. Therefore, situations arose where during on-site operations or proposed project amendments, the introduction of environmental regulators may involve requests for additional information or changes to activities and hence the correct sequence of tasks becomes altered.

6.10.3 Planning

Although a number of organisations presented construction environmental management plans, it is noted that there is no mechanism for regulatory monitoring, auditing or associated review by the authority. As identified the plan can be requested; however, the responsibility for its implementation lays with the construction operators. Such plans are not always required. Uniformity was not apparent across local government organisations with regard to conditions. This produced a difficult environment for on-site operators to predict what is required in a particular local government area. Therefore, they have to adapt their practices accordingly each time. This produces a situation where sequences were often affected.

6.10.4 Prioritisation

Prioritisation was a significant issue in terms of health and safety, quality assurance and environmental management. Although environmental awareness and a desire to promote the environment was identified, the current state of the industry promotes life safety for obvious reasons, closely followed by quality assurance. Environmental management is a function behind these other areas and in some cases, the health and safety officer was responsible for confirming environmental compliance as it was 'lumped' into their portfolio. The order of these three variables affects tasks and the way in which they are sequenced, particularly where the focus is only upon the environmental issues associated with the DC.

6.10.5 Summary

Planning, hierarchal orders and prioritisation of activities all impact upon successful implementation. In the case of the case study projects examined as part of this research, these variables all played a role in affecting implementation, unfortunately to the detriment of environmental outcomes. A finding aligned with the research by Robertson-Wilson and Levesque (2009) as they found task specification and sequencing heavily impacts upon the outcome of implementation operations (2009).

6.11 Precondition 9

That there is perfect communication and co-ordination

A more obvious requirement for policy success is communication and co-ordination which is addressed with Precondition 9. Regulatory administration systems generally offer compartmentalisation, departmentalism, multiple interests and agendas and subsequently conflict. Regardless, communication and co-ordination must be considered for the success of implementation operations (Hogwood and Gunn, 1984). Precondition 9 relates to the topic codes of advice, community, environmental awareness, information, integration and organisational hierarchy.

6.11.1 Advice

Advice concerns general, guidance and instructional forms. As previously discussed, poor communication was evident amongst practitioners. Construction operators sought advice from local government and advised that it was either not forthcoming or changed due to different regulatory officers. Local government advised that State government rarely played an advisory role in the current climate, potentially due to legal implications of providing advice, not having specialist practitioners able to provide advice or the ambiguity of requirements. This left local government to interpret and implement action as they subjectively thought appropriate. Therefore, a situation arose where dependency relationships

were evident but not effective by any means. Such conflict and lack of communication significantly impacts upon successful policy outcomes (Hogwood and Gunn, 1984).

6.11.2 Community engagement

Engagement, consultation and complaints are all encapsulated under the theme of community. On-site construction operators mentioned the importance of community consultations with many identifying consultation plans as part of routine practice. The importance of communication with the community was evident as it was seen to demonstrate openness, transparency and a commitment to sustainable development. It was also acknowledged that by following such practice minimal community concern was raised about the project therefore, maximising the ability to stay on schedule. Government regulators had community consultation entwined within the DA process where notification was a required practice. However, upon the release of the DC, their involvement with the community ceased unless advised of an issue of complaint associated with the construction site.

6.11.3 Information dissemination

Information in the context of this research refers to dissemination, disclosure and suppression. It was identified that there was a division between those associated with the DA process and those responsible for DC implementation. This provided for a disconnect between various practitioners as those responsible for preparation did not communicate with those responsible for on-site implementation. Although the DC was available for on-site operators, without all the DA documentation (and associated preliminary discussions) the true understanding behind policy intent and the subsequent conditions contributes to incomplete knowledge. According to Hogwood and Gunn (1984) such division is a breakdown in the communication chain and impacts negatively upon implementation. Policy amendments were also identified as an issue affecting communication and coordination. Primarily, people sought assistance from internal colleagues, specialist practitioners, followed by networks, institutes and where necessary local government and sometimes State government. Policy amendments were often advised through government bulletins or with significant changes, seminars but not often. Basically, changes were not making their way through the system. Interestingly, it was only identified by one practitioner, the environmental consultant, that

you only had to review the policy to confirm the objectives and what is required. All other practitioners sought advice from others in the first instance. Potentially this reflects an industry issue where there is not a familiarity with the policy and its intent as there should be: a breakdown in perfect communication to hinder implementation (Hogwood and Gunn, 1984).

6.11.4 Integration

Due to the comments regarding State government, it was identified that requirements and amendments are not making their way through the DA process or to on-site operations. Communication was not considered effective and there was minimal evidence to suggest that consideration was made of development phases. The policy itself defines the objectives; however, does not advise when they are to be met – at what stage of the process so this is at the discretion of the implementers.

6.11.5 Organisational hierarchy

The hierarchies in existence within government and non-government organisations presented quite a disparity associated with implementation. Industry portrayed a system where communication and coordination were essential for an effective outcome, albeit, environmental management may not be the primary focus. Within the government sector, a different situation was identified. The town planning practitioner generally held responsibility and it was at their discretion as to whether an application would be disseminated through the hierarchy for comment and advice. On the one project, the duty officer, pre-DA officer and DA assessment officer could be different further contributing to the complexity of the system with changing goal posts. Within the hierarchy it was also evident that there was an ‘us versus them’ situation at play. There was poor communication as local government as most governing authorities viewed construction operators as not interested in environmental management and only focused upon economic concerns. The construction operators often viewed local government as an agency that obstructs development given the changing requirements over the development of the project.

6.11.6 Summary

The research undertaken by Ditlopo, Blaauw, Rispel, Thomas and Bidwell (2013) identified that communication and coordination had an impact upon implementation to the detriment of the project. A similar situation was identified from this research. Communication and coordination internally and externally was ineffective in achieving good implementation practices. There were many divisions and uncertainties with the ‘us versus them’ mentality often identified which contributes to the break-down of communication.

6.12 Precondition 10

That those in authority can demand and obtain perfect compliance

Precondition 10 asserts that those in authority can demand and obtain perfect compliance which means there is no resistance to their requests and actions. They have the ability to obtain consent and co-operation which is vital to achieving successful policy outcomes (Hogwood and Gunn, 1984). Related to this precondition are the topic codes auditing, determination instruments, environmental constraints, policy knowledge and risk management.

6.12.1 Auditing

This code relates to both inspections and reviews. Auditing in respect to this precondition concerned the certifier and non-regulatory operations. First the certifier as the on-site regulatory officer was in a position to demand and obtain perfect compliance. However, there are a range of factors that influence decision making. The DC is generally a prime focus of development operators and the certifier may focus also upon these areas neglecting additional environmental impacts. However, given environmental responsibilities are often thrust upon these practitioners they may not be adequately informed to demand or achieve compliance which is contradictory to the Hogwood and Gunn (1984) framework. Non-regulatory auditing was again needed to ensure DC compliance was met and included both internal and external auditors. As explained by one external project manager, at completion of a project they were

required to rate the construction firm which has the potential to impact upon future tender opportunities. Therefore, such implementation activities were considered seriously.

6.12.2 Determination instruments

By using determination instruments from a DCP to a checklist, as an authority can demand what has to be complied with. However, as discussed by the environmental scientist there is limited, generally no ability to be involved post DA process. This means that there is no check in regards to compliance. Essentially as an authority they can demand perfect compliance but in reality they are not able to confirm they have attained this. Therefore, the ability of the regulatory authority to achieve compliance is ineffective and conflicts with Precondition 10 where it is necessary for successful implementation outcomes (Hogwood and Gunn, 1984).

6.12.3 Environmental constraints

In the context of this precondition, it involves making sure that all environmental issues are identified and addressed. From documentary evidence it has been shown that this is not occurring and this has detrimental impacts as true environmental protection is not occurring.

6.12.4 Risk management

The use of a risk matrix was considered vital amongst a number of practitioners. This was to effectively assess the DC and determine conditions to be complied with on-site and prior to completion of the project. Following which responsibilities were assigned to relevant practitioners. This process demonstrated that compliance had been attained with the authorities demands in the DC.

6.12.5 Summary

Multiple mechanisms were in place to demand compliance, primarily the DC; however, the ability of the regulatory authority to confirm compliance was not possibly. Responsibility for

ensuring compliance primarily resided with the certifier who only had the ability to read conditions and interpret what they considered would be compliance.

6.13 Additional conditions for consideration

From the data analysis process, an additional four (4) conditions were developed outside the scope of the Hogwood and Gunn (1984) framework. These conditions were formulated from specific codes that represented influences upon the implementation process concerning policy operationalisation, organisational position, professionals belief and specialist knowledge and understanding. The following sections will discuss each of these conditions with reference to the relevant code.

6.13.1 Condition 11: Policy operationalisation

Condition 11:

That those involved with policy understand not only the objectives, but the policy intent and how it functions.

This condition has been developed as the existing ten preconditions do not adequately consider the ability of the individual to understand the policy, its intent and functionality. It goes beyond the objectives and considers policy intent and operation. Condition 11 is based upon the code identified as policy operationalisation that refers to:

The development and formulation of a set of procedures by a government or private organisation. The process includes a range of activities from issue identification, consultation, research through to formalisation of the policy document.

Policy operationalisation relates to those implementing policy understanding the policy but the intent and drivers that created the policy need. This criterion is critical to provide a link between policy, the regulatory environment and policy intent. Furthermore, it assists with

achieving the objectives of the policy through having an understanding of the main drivers of policy development and key outcomes of implementation.

Through the coding process this condition was identified as a separate entity. Although it may appear to share similarities to topic codes associated with planning there are distinct differences. Management planning is about processes and procedures of implementing the policy. While planning refers to the plans themselves that are implemented to comply with regulatory environmental planning policy. There is a need to know and understand not only the policy objectives and intent but the policy in terms of how it works and can be operationalised. The research disclosed a reliance on the DC to achieve compliance. Those involved in implementation did not necessarily inform themselves of policy or have training in policy, they chose to rely on existing standardised methods to achieve compliance with policy rather than understand the policy itself.

Policy implementation is subdued through attempting to achieve an all encompassing policy that is appropriate to all situations on a construction site. Essentially there is one policy covering all types of development; big, small, large, complex, straightforward. So there is a need to make the objectives broad that they may not mean anything. The reality of implementation is that most practitioners did not source the regulatory policy to confirm the objectives or intent. Although practitioners were cognisant that implementation of the policy involved environmental protection, comprehension of the intricacies of the policy were lacking. Limited understanding of the policy affects the ability to achieve compliance and also restricts innovation in achieving compliance. Furthermore, the operationalisation of the policy was a process not clearly understood: quite simply lodge a development application, do what is required to achieve consent, then follow the consent to the degree which will enable final regulatory approval.

Therefore, throughout the system the town planning practitioner was considered the authority on the processes associated with implementation of the regulatory policy. This included identification of all necessary environmental issues and conditioning of a development accordingly, regardless of their expertise, or lack thereof, in this specialist area. It was acknowledged by multiple practitioners that they did not frequently source the policy or seek input from specialists in areas related to the policy. In addition, they adopted traditional local policy and checklists to undertake assessments without reference to the regulatory policy.

This reliance on existing systems to achieve compliance with a dynamic policy environment encourages poor outcomes.

Next, there was a complete reliance on the development consent from on-site operators and the regulatory certifier. The consent addressed important environmental impacts and the conditions must be a prime focus as they need to be complied with to obtain the final approval for the project from the regulator. It was identified from documentary evidence that each consent was not comprehensive in its coverage of on-site environmental issues. Rather, they concerned what may be considered tangible issues related to community complaints. This obvious reliance on one document in the policy implementation process creates opportunity for implementation to perpetuate poor outcomes or limit compliance with policy through focussing on the same areas.

6.13.2 Condition 12: Organisational Position

Condition 12:

That there is professionalism between and amongst departments and organisations involved with implementation.

This condition was established to cover the collaborative partnerships that should occur between departments and organisations that are not captured within the initial framework employed by this research. Essentially, those interactions between internal sections and external organisations whether government or non-government in nature. Condition 12 is based upon the code identified as organisational position that refers to:

The range of professionals involved with the system: organisations and units in the government and non-government sectors and the degree of collaborative relationships. The extent to which they are included in operations relevant to their area of specialisation. Includes professional inclusion and professional isolation.

In essence, the consideration relates to the degree of professionalism and collaboration between internal organisational departments and amongst external organisations. The positions between and amongst departments associated with the development process was

considered ineffective and illustrated a highly fragmented system. Internal referrals within local government organisations were not clear and were of an ad hoc nature. There was no identified requirement to seek advice from other internal departments in local government and for that reason the development application process could change from one proposed project to the next. There was an evident lack of clarity around impact of internal referrals on the development application process and how that translates to the consent documentation.

Situations arose where, in accordance with the regulatory policy, local government was required to send the development application to State government agencies for consideration, comment and possibly licensing. However, this process was not straightforward. Often there were conflicting requirements or conditions across organisations to the extent that development assessment and determination was complex and the process tardy. As an example, development proposed in bushland areas was often considered a complicated scenario. Practitioners responsible for life safety required bushland to be removed from around the development: a fire break. Conversely, those responsible for ecological protection desired minimal vegetation removal. Outcomes were also complicated by the organisational position as some developments required conditions or permits from a State authority, yet local government as the consent authority was not authorised to see these requirements so in their final consent were only able to make a general condition that the applicant must comply with State requirements – this may result in conflict where local and State conditions are not compatible.

The reliance on the development consent to achieve policy intent was raised by many. It may be a result of ineffective organisational relationships: government to government and government to industry. The often ineffective communication strategies were evident and in many cases it was apparent that the development consent was the main communication tool for environmental management activities: a heavy reliance placed upon those areas identified only within the consent.

Another issue worthy to note is that each government organisation, retained their own individual practices and policies with no evidence of ‘consortia arrangements’ to assist in reducing cost and improving resource allocation. This was also a finding by Mackie (2010) when they investigated local government over a thirty five (35) year period. Potentially, old regulatory practices continue to preside.

Essentially, the theme evident throughout the research concerned the conflict between government and non-government organisations, potentially due to a lack of understanding of the role played by each other that subsequently had a negative impact upon policy implementation. An acknowledgement of professional positions and the need for collaborative relationships across government and non-government sectors is required to reduce conflict and improve the focus upon environmental management. Ultimately, working together, understanding department and organisational agendas, will help achieve policy intent.

6.13.3 Condition 13: Professional belief

Condition 13:

That the practitioners responsible for implementation phases and tasks demonstrate professionalism

The condition relates directly to the individual and their deeply held belief. The individual values of practitioners and the way in which they consider and view their professional colleagues. Condition 13 was established based upon the code professional value that relates:

to a code representing the degree of attitudinal respect, consideration, recognition, collaboration, conflict amongst professionals: internally and externally. The condition considers respect, collaboration, recognition and conflict.

With each case study project, it was evident that there were internal and external issues amongst professionals. The greatest disparity concerned the regulatory town planner and private certifying practitioners. Annor and Allen (2009) explain how partnerships are a vital part of implementation – mutual respect is essential for collaboration and successful operations.

However, the current system supports a structure where the town planner is the authority responsible for development assessment procedures. The power is held with this practitioner in that they have the discretion on whether they require internal specialist advice and are solely responsible for the consent conditions. It is their belief system that influences how they

approach assessment and their respect and recognition for specialist internal colleagues as to whether they seek referral. As highlighted by local government environmental officer, this rarely occurred as they were only invited to become involved post the consent stage. The planning practitioner holds significant power over the implementation process, yet, internally it was apparent that environmental specialists were not considered worthy to warrant their inclusion in the assessment process. These specialist practitioners generally became involved at later stages, commonly when on-site issues arose, causing disparity through the need for additional documentation or conditions.

Similarly, the loss of power from local government authorities to the private sector due to private certification has caused considerable disruption which has had a major impact upon the ability to achieve effective implementation. There was a high level of personal conflict and a lack of respect shown amongst professionals with regard to this topic. The majority of the dissention coming from the government practitioners as they discharged some of their responsibility to the private sector regulators. Local government, including their certifiers, displayed discontent and often hostility towards private practitioners. This was a major issue that focused attention away from environmental issues and onto compliance with the consent to see whether they can 'catch out' the private certifier which would provide them with the right to report that practitioner to accreditation body.

Across professions there was quite obvious fragmentation. In general, local government practitioners held little respect for private certifiers as they saw their involvement in implementation as a loss of power and control. They also saw construction operators as solely in industry for economic purposes with little respect for environmental considerations demonstrating a lack of respect, recognition and collaboration. These are unfortunate results, but not ones isolated to the local government authorities within NSW or Australia. Mackie (2010) in their longitudinal study of local government also found that collaborative partnerships were scarce and this was to the detriment of the system. Construction practitioners' experiences with local government were mixed. Depending upon the authority, they could be approached. However, the general opinion was to avoid local government where possible as any contact could result in new conditions that could hinder implementation progress. In this way the system was considered subjective with multiple officers requiring different things throughout the process.

It was evident that practitioners needed to remain focused upon policy objectives, intent and outcome with commitment towards these areas rather than focusing upon the private certifier. The apparent lack of respect amongst practitioners was evident as was the inability to form collaborative relationships, to the degree that in many interviews, local government discussions veered straight to the certifier.

6.13.4 Condition 14. Specialist knowledge and understanding

Condition 14:

That the practitioners responsible for regulatory activities have specialist knowledge and understanding of the policy issue.

This final condition was developed as practitioners responsible for certain activities, in this research environmental management activities, require appropriate knowledge and experience of the topic they are responsible for. Condition 14 has evolved from the code associated with specialist knowledge and understanding and this reflects:

The degree to which a professional is qualified and experienced in a particular field of specialisation. Inclusive of the various external consultants, their roles and responsibilities, in relation to an individual project. The application of policy to on-site management operations.

In terms of educational status it is being involved with policy from how to understand it and implement your activities accordingly. There is a nexus between policy and on-site operations as being aware, training and experience impact upon an ability to perform ones duties.

A number of issues are raised under this particular condition, many of which have been touched on in previous conditions. The town planner may not have the educational qualifications or professional expertise to make judgements on environmental issues yet they retain power in the development application assessment and consent process. They retain the authority to make decisions on whether to seek internal or external advice; however, without

appropriate understanding of environmental issues it is questionable whether they can make such a judgement.

The private certifier has had responsibility for compliance with the development consent thrust upon them by the system and again like their town planning colleagues may not have the expertise to make appropriate judgements. They in effect, provide the final approval for the completed development confirming compliance with all consent conditions, yet they may not be experienced in such areas: consider for example a landscape plan that requires certain flora species to be planted after construction.

There remains a perception that those who are responsible for policy implementation activities are in fact 'perfectly competent' as termed by Hood (1976). Further training and professional development – in terms of educational experiences - was generally not raised as an important issue nor seen to be of any benefit. Rather, on the job experience was seen to direct learning and all that was needed in terms of understanding policy intent and implementation operations. Although, it is noted that many interviewees identified that although, for example, in a regulatory position they did not often refer to the policy.

The potential lack of environmental awareness and policy intent by many practitioners was evident through the consent conditions. Most were generic style conditions aimed towards tangible environmental impacts of concern to the community: primarily due to community complaints. Hence, these reflected dust emissions, sedimentation and erosion control, along with waste management. A true understanding of policy intent and ability to identify all environmental areas in need of mitigation was not forthcoming.

6.14 Summary

Using the Hogwood and Gunn (1984) ten preconditions to perfect policy implementation as a lens by which to explore implementation, it can be seen that there are indicators showing that practitioners are attempting to achieve good environmental outcomes. Hierarchical orders, planning and auditing are some of the primary areas being undertaken by practitioners to provide a framework to achieve desired outcomes. However, it has also been shown that there

are many issues occurring with local level implementers that impact upon the overall outcome of policy. It appears that the system itself may be flawed in many respects due to the subjective nature of operations and attitudes strongly direct many implementation activities. Additionally, a clear understanding of the policy, its intent and what constitutes an environmental impact was not evident. Thus, these contribute to the disparity that occurs between policy intent and outcome.

The synthesis of Stage 1 and Stage 2 results identified that the topic codes are generally consistent. Therefore, these results indicate that practitioners involved with implementation activities present similar understandings and experiences of industry as related to the phenomenon of implementation. Interestingly, Precondition 2 presented a division between regulatory and non-regulatory practitioners. While, Precondition 3 was not viewed as an issue at all. Data analysis revealed that in terms of implementation there was no focus on the way to achieve outcomes and how to be efficient in doing so. There was particularly limited content in relation to resources and timing of such. Many interviewees discussed the development process in terms of the development consent and either they don't see on-site resources as a constraint or are just not prioritising on-site resources. Table 44 shows the overall outcome of compliance with each precondition.

The following four (4) codes were identified through this research:

1. Policy operationalisation
2. Organisational position
3. Professional belief
4. Specialist knowledge and understanding

Subsequently they resulted in the formulation of four (4) conditions in addition to the existing proposed by Hogwood and Gunn (1984). The next chapter, Chapter 8, will review the research providing a conclusion and recommendations.

Table 40. Overall outcome of compliance with preconditions

Number	Precondition for Perfect Policy Implementation	Theme	Degree of Implementation (Overall: Gov/Non-Gov)		
			High	Medium	Low
1	The circumstances external to the implementing agency do not impose crippling constraints.	External Constraints	✓		
2	That adequate time and sufficient resources are made available to the programme	Time and Resources		✓	
3	That the required combination of resources is actually available	Resource Availability		✓	
4	That the policy to be implemented is based upon a valid theory of cause and effect.	Theory of Cause and Effect	✓		
5	That the relationship between cause and effect is direct and that there are few, if any, intervening links	Relationship Links			✓
6	That dependency relationships are minimal	Dependency Relationships			✓
7	That there is understanding of, and agreement on, objectives	Objective Agreement			✓
8	That tasks are fully specified in correct sequence	Task Sequencing			✓
9	That there is perfect communication and co-ordination	Communication and Co-ordination			✓
10	That those in authority can demand and obtain perfect compliance	Compliance		✓	

Table 41. Codes and their relationship with the ten preconditions

Precondition	Code
Precondition 1 The circumstances external to the implementing agency do not impose crippling constraints.	Accreditation, Auditing Community engagement Regulatory operations
Precondition 2 That adequate time and sufficient resources are made available to the programme	Auditing Development assessment
Precondition 3 That the required combination of resources is actually available	Integration
Precondition 4 That the policy to be implemented is based upon a valid theory of cause and effect.	Conditions of consent Planning, Satisfaction Protection of the environment
Precondition 5 That the relationship between cause and effect is direct and that there are few, if any, intervening links	Contractual obligations Determination instruments Organisational hierarchy Reporting protocols System performance
Precondition 6 That dependency relationships are minimal	Advice Development assessment Organisational hierarchy
Precondition 7 That there is understanding of, and agreement on, objectives	Development assessment Environmental constraints Regulatory reliance
Precondition 8 That tasks are fully specified in correct sequence	Management planning Planning, Prioritisation Organisational hierarchy
Precondition 9 That there is perfect communication and co-ordination	Advice, Community engagement Information dissemination Integration Organisational hierarchy
Precondition 10 That those in authority can demand and obtain perfect compliance	Auditing Determination instruments Environmental constraints Risk management

Chapter 7: Conclusion

Chapter 7 summarises the research. First it considers the research question, aim and objectives. The discussion then relates to the literature and the methodology employed to explore the research question. Chapter 7 also provides a précis of data analysis, results and subsequent discussion. The final part of the chapter considers directions for future research.

7.1 Research summary

The outcomes of this research contribute to an enhanced understanding of how policy implementation influences the disparity between policy intent and outcome. The research explored implementation using regulatory environmental planning policy against on-site construction environmental management operations. Whereby, the conceptual framework developed by Hogwood and Gunn (1984): ten preconditions for perfect policy implementation, was employed as a lens by which to investigate the phenomenon at the implementation level. As a note of difference with this research, the framework was employed beyond the standard 'senior government' administration as it was applied on a local level: government and non-government actors.

The research identified numerous influences that affect successful implementation that were aligned to the Hogwood and Gunn (1984) precondition framework. For example, poor communication and coordination, insufficient understanding of objectives, multiple dependency relationships affecting causal relationships and an inability to demand compliance.

However, this research further contributed to the body of knowledge by understanding influences that affect implementation. Important influences include policy operationalisation, organisational professionalism, professional value, and specialist knowledge and understanding. These resulted in the formulation of four (4) new conditions in addition to those specified in the Hogwood and Gunn (1984) framework that need to be addressed to improve the chance of successful policy implementation.

Chapter 7 now overviews the research and is presented in three sections:

1. Research summary: research aim, question and objectives
2. Research conclusion
3. Recommendations for future research

7.2 Research Aim

On-site construction operations cause environmental degradation. Regulatory policy is a mechanism employed by government to promote sustainable practices and regulate construction operations. However, even with such controls, construction operations continue to cause negative environmental impacts. The disparity between policy intent and outcome may be explained through in terms of implementation.

Therefore, the aim of this research was to address the knowledge gap by understanding policy implementation: environmental planning policy against on-site construction environmental management operations in the context of ‘implementation’ activities in order to understand the underlying causes of the disparity between policy intent and actual environmental outcomes.

The research aimed to answer the following research question:

How does policy implementation influence the disparity between policy intent and outcome?

The research question was developed from a perceived gap in the literature that does not fully consider regulatory environmental planning policy and on-site construction environmental management activities, in the context of the policy implementation phase. There was also found to be a concentrated focus upon the pre and post construction operations: policy formulation and post environmental impacts. However, in terms of this research theme the literature did not fully consider the implementation phase associated with these activities.

With an examination of approaches employed to explore implementation, the Hogwood and Gunn (1984) framework: ten preconditions for perfect policy implementation was identified as the conceptual model by which to explore implementation from a deficit perspective.

There was also scope to apply the framework beyond the State implementation agencies to those at the ground level: local level regulatory authorities and construction operations, which has not been fully considered before in the context of this research. The research gap identified in the literature review was addressed by this study through an exploration of implementation activities.

7.3 Research Objectives

Five (5) objectives were relevant to this research. They included a literature review to conceptualise relevant concepts, the need to establish a theoretical framework by which the phenomenon could be explored, formulation of a methodology to enable data collection to be undertaken, to undertake data analysis and subsequently identify the factors that influence implementation. Each research objective is now discussed in relation to this research.

7.3.1 Objective 1

Review the literature to conceptualise the concepts of regulatory policy, the policy cycle and implementation.

In Chapter 1 the theme around construction operations and how they cause environmental degradation was identified. Policy was acknowledged as a mechanism used to control construction operations and protect the environment; however, there remains a disparity between policy intent and outcome as on-site operations continue to have detrimental impacts upon the environment.

Chapter 2 considered the academic literature as the discussion turned towards policy implementation as a research domain. The history of policy was introduced from which policy implementation evolved: a field with a focus upon deficits as to implementation activities. Following which the term policy and implementation were defined in the context of this research. As part of this process the policy cycle was introduced to specifically identify the implementation phase. It was noted that although such cycles are not necessarily reflective of reality, they do propose a systematic mechanism by which the processes associated with the policy process can be examined. Identification of the implementation phase was an important part of the policy process as it established parameters for the study. The requirements of Objective 1 have been achieved.

7.3.2 Objective 2

Establish the theoretical framework by which the implementation phase associated with policy operation can be explored.

Chapter 2 also considered the three primary generations of policy implementation: top-down, bottom-up and hybrid, along with additional perspectives and models that led to the framework employed for this research. Through the review of the literature, the Hogwood and Gunn (1984) framework: ten preconditions for perfect policy implementation was identified as the lens by which to undertake an examination of the phenomenon implementation in the context of this research. The framework set the perfect conditions needed to achieve successful implementation. Although the framework is unlikely to be achieved in reality it does allow for an examination of implementation deficits by which they can be considered and accommodated in future policy decisions to improve outcomes: reducing the disparity between regulatory environmental planning policy intent and environmental outcomes. In this manner, Objective 2 has been achieved.

7.3.3 Objective 3

Formulate an appropriate methodology to enable meaningful data collection and analysis to be undertaken.

Following the literature review and identification of the conceptual framework to be used as a lens to explore the research phenomenon of implementation, an appropriate research methodology was developed to enable meaningful data collection and analysis to be undertaken. The world view of constructivism was appropriate to this research and enabled for the methodology to follow a phenomenological qualitative exploratory approach which was conducted across two (2) stages. Stage 1 concerned interviews with practitioners: an etic approach to provide an overview of the general influences affecting implementation. Stage 2 employed multiple case study projects with interviews and documentary evidence: an emic approach that was context specific to understand influences from an inside perspective. The requirements of Objective 3 have been achieved.

7.3.4 Objective 4

To undertake an analysis of data collected.

Following development of the methodology and ethics approval, data was collated and analysed in a series of stages. Stage 1 data obtained from interviews with practitioners was explored by means of a thematic analysis. A three (3) stage coding approach was employed: primary, secondary and tertiary coding with a series of codes established. Stage 2 interview data was subjected to the same approach used in Stage 1. Thematic exploration was undertaken and codes established. The documentary evidence was analysed for environmental content to establish environmental areas considered at the implementation stage. As part of the data analysis process a cross-case synthesis of the four case study projects was undertaken. Following which a synthesis of Stage 1 and Stage 2 codes was undertaken. The requirement of Objective 4 has been achieved.

7.3.5 Objective 5

Identify the factors that influence policy implementation.

The multiple stage approach and the subsequent codes were aligned with the preconditions and this enabled an analysis to identify influences and see whether differences exist within the classes of participants. There were a range of influences that had an impact upon implementation which assist to explain the disparity between policy intent and outcome. From the codes, four (4) additional conditions were developed in addition to those specified by the Hogwood and Gunn (1984) framework. Ultimately, consideration of all fourteen (14) conditions is required if the success of policy implementation is to be improved.

7.4 A review of the literature

Exploring policy implementation processes may provide an understanding of why policy is ineffective. It has the ability to identify barriers and enablers to implementation which can be used to inform and ultimately change practice to achieve successful policy outcomes.

The literature review revealed an extensive range of approaches, models and frameworks used to understand implementation. These include the top-down, bottom-up or hybrid theories. The top-down framework is considered to be a prescriptive structure, as it places emphasis upon the government hierarchy and the associated regulatory environment (Wang and Ap, 2013). In contrast, the bottom-up theories consider certain actors associated with ground level implementation (Nilsen, Stahl, Roback and Cairney, 2013; Pülzl, Helga, Treib and Oliver, 2007). Third generation theories - hybrid theories - emerged in an attempt to overcome the limitations of its former counterparts. There are multiple other theories that attempt to understand implementation, *inter alia*, behavioural, structural, managerial, macro and micro implementation perspectives.

However, Hogwood and Gunn (1984) approached the exploration of policy implementation from an implementation defect perspective: they highlighted areas that if defective will negatively impact upon the success of implementation processes (Annor and Allen, 2009; Hordern, 2013). Subsequently they developed the precondition framework: the ten preconditions to perfect policy implementation. Theoretically, achieving the requirements of each precondition must occur in order to attain perfect implementation and subsequently, policy success (Annor and Allen, 2009; Wanna, Butcher and Freyens, 2010). Although the ability to achieve all ten preconditions is unlikely, Hogwood and Gunn (1984) assert that without due consideration, the policy implementation phase will be challenged (Robertson-Wilson and Levesque, 2009).

The model is considered important by policy analysts given its focus upon implementation deficits when determining why the objectives of a particular policy have not been achieved (Hordern, 2013). Implementation is hindered where the preconditions are not appropriately considered. Additionally, analysing potential policy deficits has the ability to incite learning, which may provide a deeper contextual understanding behind why policy is not achieving its desired objectives. Ditlopo, Blaauw, Rispel, Thomas and Bidwell (2013) explain how implementation weaknesses can be overcome by paying attention to the conditions needed for successful implementation.

7.5 The research methodology

The fundamental philosophy of Constructivism was used to guide and direct this research and it is a paradigm typically associated with understanding a phenomenon from the subjective views of the participants (Creswell and Plano Clark 2011). Therefore, following this philosophical perspective, a phenomenological approach was adopted. The aim of such a design is to examine and understand reality: experiences, values and beliefs as experienced by the person (Liamputtong and Ezzy, 2005). Employing a phenomenological approach enabled an exploration into the phenomenon to assist in understanding of what is transpiring at the policy implementation phase: the reality of implementation.

The qualitative exploratory design employed by this research given it aligns with the phenomenological approach as it is designed for interaction with the participants to obtain a rich source of data involving a depth around views and experiences. The intent of this research supports the qualitative approach as it involves an exploration into the subjective experiences of individuals to understand the phenomena at the implementation phase as related to policy implementation and on-site operations.

The research involved a two (2) stage approach. As discussed in Chapter 3, Stage 1 followed an etic approach which provides an overview of the general influences of policy implementation: an outside view from the observer of the phenomenon. Stage 2 followed an emic approach involving very case specific multi perspectives: an inside view from the perspective of the specialist practitioner. Practitioners associated with construction projects were interviewed and documentary evidence analysed for environmental content. The next section will explain the data analysis process.

7.5.1 Data analysis

Analysis of interview data for stage 1 was undertaken as a three (3) stage process: primary coding; secondary coding; and tertiary coding. The first coding stage involved initial coding of the data looking for patterns and themes. In relation to this research this first level of coding considered classification of responses from participants into general codes. It involved the identification of variables to assist in understanding the particular case and phenomenon

(Quinlan, 2011). The process of secondary coding moved towards development of the initial primary codes by examining them in further detail to ensure they are representative. The second stage elicited a higher level of abstraction and is a process that explored relationships in the data that occur amongst the concepts and categorises codes (Quinlan, 2011). The final stage – tertiary coding - was employed to enable code comparison. The final codes were identified so that an analysis may be undertaken to discover interactions amongst the categories (Liamputtong and Ezzy, 2005). Highly developed themes are extracted and as core categories and their properties are described.

Stage 2 interview data was analysed in the same manner as Stage 1. Stage 2 documentary evidence was subjected to a thematic analysis, using a similar approach to that employed for interview data. The authenticity of the text was established to verify their authenticity and credibility. The documents were then subject to an interrogation that involved reviewing background and purpose: witting and unwitting evidence (O’Leary, 2005). As a final stage, the documents underwent thematic analysis. The documentary evidence was reviewed multiple times and the content explored to allow for abstracting of elements or issues of importance. A cross-case synthesis was undertaken in relation to the four (4) case study projects.

Stage 1 and Stage 2 data was synthesised and a list of comprehensive codes established. The codes are detailed in Appendix 4. These were then examined with the Hogwood and Gunn (1984) framework in terms of the ten preconditions to perfect policy implementation.

7.6 Results

Results identified that influences that impact upon implementation remain similar across the two (2) cohorts from Stage 1 and Stage 2. Therefore, whether a generalised viewpoint or a more context specific approach, similar issues face industry when involved with implementation of policy.

Through the data analysis it was identified that most practitioners were, to a degree, aware of environmental issues; however, there remained much room for improvement. The areas

generally given consideration were tangible in nature such as waste management and related direct to local government controls: conditions with a history steeped in community grievances. Additional environmental issues such as resource consumption and air pollution were not given due consideration, if any at all.

In terms of the regulations themselves, practitioners presented a subtle contentment with the policy. No predominant issues were raised in relation to the regulatory policy itself and its effectiveness or ineffectiveness; rather, the item identified as an issue concerned conflict amongst associated policy. It was implementation that processes on the ground level that presented a system in opposition to policy intent. The analysis showed evidence that there remains insufficient communication, collaboration and a lack of uniformity. It was human subjectivity, intervention and behaviour that presented a rather fragmented, incomplete and often dysfunctional system.

Analysis of documentary evidence demonstrated an awareness of environmental issues and incorporated a wide range of controls. However, it was noted that local authorities have no provision to follow up their controls. They specify requirements yet their ability to mandate their involvement past the development consent stage appears limited particularly when the request for building approval goes to the private certifier. Furthermore, those responsible for ensuring compliance with the conditions may not be adequately qualified to do so. In addition, the interpretation and application of the policy to the formulation of the development consent has the potential to result in significant inconsistencies.

The final synthesis identified that against the framework, topic codes are generally consistent across all case study projects. Therefore, these results indicate that practitioners involved with implementation activities present similar understandings and experiences of issues that occur within industry. However, it was identified that there were a number of areas that had not been given due consideration and these had a heavy impact upon implementation and successful policy outcomes: policy operationalisation; organisational professionalism; professional value and specialist knowledge and understanding.

7.7 Directions for future research and application

As discussed, this research identified additional conditions, beyond those specified by the Hogwood and Gunn (1984) framework. These need to be considered as part of the implementation process to improve the chance of policy success. Each condition is entwined in complexity and part of a complicated system that needs to be understood to ensure appropriate action be undertaken at implementation. Therefore, they conditions offer multiple opportunities and directions for future research. The next section will now consider each condition in relation to future research opportunities.

Condition 11:

That those involved with policy understand not only the objectives, but the policy intent and how it functions.

Condition 11 was developed as the exiting framework employed in this research did not adequately consider the ability of the individual to understand the entire policy, its intent and functionality. In effect it goes beyond the objectives to consider policy intent and operation. Condition 11 was based upon the code identified as policy operationalisation that refers to the development and formulation of a set of procedures by a government or private organisation. The process includes a range of activities from issue identification, consultation, research through to formalisation of the policy document.

Future research is needed to understand the degree to which policy is understood by current practitioners. Consideration needs to be given to State government as the policy formulators and implementers at the higher tier of government, through to the local level agents or implementers including both government regulators and industry practitioners. Policy implementation includes interpretation by practitioners and their subsequent action. They are all part of the implementation system and in hierarchal governance, actions of one affect others. Considering multiple practitioner perspectives is important to recognise what areas of the policy and implementation operations are not clearly understood, where there is any misalignment or ambiguity and whether any actions are contradictory to intent.

There are multiple implications from undertaking further research in the area of policy intent and function. Primarily, it has the potential to provide more clarity to policy formulators to help guide implementers to a deeper understanding of intent and how to approach activities. This would be in contrast to the existing policy that has a focus upon motherhood statements where initial implementation activities associated with interpretation are generally left to the local level implementing agents. From a practical perspective, an in-depth understanding of the operationalisation of policy will assist clarity in terms of reducing ambiguity and misalignment. Importantly, with a concentrated and uniform focus upon intent and function would provide a more holistic approach to environmental management.

Condition 12:

That there is professionalism between and amongst departments and organisations involved with implementation.

Condition 12 considers the collaborative partnerships that should occur between departments and organisations that are not captured within the other ten preconditions. Essentially, those interactions between internal sections and external organisations whether government or non-government in nature. The condition is based on the code organisational position that concerns the range of professionals involved with the system: organisations and units in the government and non-government sectors and the degree of collaborative relationships including.

Internal department and external organisational relationships are a necessary component of the development and construction industry. Environmental management will therefore, concern multiple stakeholders and differing agendas. The research has shown that there is a degree of fragmentation within the sector and it has the potential to impact negatively upon policy and subsequently environmental outcomes. The ability to research and develop an understanding of organisational and departmental relationships may assist in the identification of barriers and enablers to success relationships. In doing this, an understanding of the interactions that inhibit implementation of policy, to what degree and how can result in careful planning to improve the chance of successful policy outcomes.

Research into the area of relationships at this level can assist policy implementation as it may help to provide a more definitive structure on how to interpret, assess and condition projects.

Agendas will be more aligned and the outcomes to be achieved will be more harmonious with policy intent. From a practical perspective, understanding relationships may assist to strengthen partnerships and a common interest to achieve policy intent rather than the current focus of attaining individual agenda goals at the expense of policy intent.

Condition 13: professional belief

That the practitioners responsible for implementation phases and tasks demonstrate professionalism

Individuals possess belief systems that impact upon the way in which they interpret policy and the subsequent actions they take. Condition 13 relates to the individual values of practitioners and the way in which they consider and view their professional colleagues. It therefore relates to the degree of attitudinal respect, consideration, recognition, collaboration, conflict amongst professionals: internally and externally.

It was apparent from the research that there is a high degree of conflict amongst practitioners and a considerable lack of respect. The policy intent versus outcome debate is heavily influenced by professional beliefs. Where practitioners do not work towards collaborative partnerships then this will significantly impact upon implementation and ultimately environmental outcomes as their personal belief system interferes with the decisions they may. Research into this area may provide an understanding of the way in which practitioners view their professional colleagues, why and the existing state of interactions. By this means it will be possible to identify those areas of considerable impact and work towards a programme that will improve harmony amongst practitioners. At present, the existing system and belief systems create a culture that will never align with the ability to achieve policy intent and successful outcomes.

Research into personal beliefs and relationships, from a policy perspective, may require the involvement of appropriate specialist practitioners - environmental officers - into the development process. The result being improved understanding of issues and management needs and ultimately a shift in the current industry culture. In practice, outcomes from research could bring back harmony between professionals to bridge the existing gap. It may assist to reduce conflict, bring about respect and the need for collaborative partnerships rather than a focus upon outlying issues or agendas,

Condition 14:

That the practitioners responsible for regulatory activities have specialist knowledge and understanding of the policy issue.

The final condition identified with this research relates to those practitioners responsible for certain activities, such as environmental management operations, possessing appropriate knowledge and experience relevant to their areas of specialisation. Condition 14 evolved from the code associated with specialist knowledge and understanding that considers the degree to which a professional is qualified and experienced in a particular field of specialisation. Inclusive of the various external consultants, their roles and responsibilities, in relation to an individual project. The application of policy to on-site management operations.

Future research into condition 14 would explore the qualifications and experience of practitioners responsible for implementation activities associated with the policy: State and local level implementing agents. Such research would identify the skill set of practitioners responsible for policy implementation activities and importantly identify any areas where there was a dearth of knowledge. It may also be beneficial to consider those higher level authorities that formulate policy. To discern their knowledge and skills related to environmental policy development and if or how they capture specialist environmental advice into the process.

Armed with such information it would be possible to implement appropriate actions. From a policy perspective, it may be the introduction of minimum qualifications and experience and the nomination of approved courses. Alternatively, it may relate to the need to have an internal environmental officer review all development applications lodged with the regulatory authority. Within practice the outcome would be related to minimum standards to ensure policy intent and outcomes are understood and best practice employed to achieve successful environmental outcomes.

7.8 Conclusion

The thesis has answered the research question by exploring how policy implementation influences the disparity between policy intent and policy outcome. Stage 1 reveals an etic perspective through twelve (12) semi-structured interviews with specialist practitioners. It interrogates expertise over multiple projects to determine the suitability and completeness of the conceptual framework to describe the phenomenon of environmental protection through policy implementation.

Stage 2 uses the framework to explain specific environmental protection outcomes for four (4) case study projects. A combination of semi-structured interviews, together with statutory and project-specific documentation are analysed thematically in order to understand the interplay between project participants and policy that leads to a specific level of environmental protection. Cross case analysis is then conducted to determine generalisations within cases. A synthesis of Stage 1 and Stage 2 data is then undertaken.

Using the Hogwood and Gunn (1984) framework, the results suggest few preconditions were met showing weaknesses with policy implementation processes, *inter alia*, poor communication and coordination, multiple links affecting the causal framework, complex dependency relationships and an incomplete understanding of policy objectives.

The research extends the framework for policy implementation through the identification of four (4) additional influences: policy operationalisation, organisational position, professional belief, specialist knowledge and understanding. Subsequently four (4) additional conditions have been proposed. These are important conditions as they have the potential to have significantly impact upon policy implementation outcomes: insufficient environmental protection.

The significance of this research is two-fold. First, it establishes a rigorous framework for analysis allied to methodology with which to study the complexity of disparity between policy intent and outcome at the implementation phase. Second, it extends the current knowledge regarding the link between policy intent and outcomes through the addition of four (4) influences. Taken together they provide the opportunity to conduct further research

to validate the framework, and have the potential to trigger reflective learning within the relevant professions that will lead to improved environmental protection.

There are several limitations to this study. The Hogwood and Gunn (1984) framework assumes that policy implementation is a linear progression. However, in reality this is not the case and it is unlikely that all preconditions would be perfectly addressed and aligned prior to implementation (Ditlopo, Blaauw, Rispel, Thomas and Bidwell, 2013). However, it is a framework designed to evaluate and explore implementation in terms of deficit identification. In this manner, the framework has allowed an exploration of implementation to identify how such a process influences the disparity between policy intent and outcome. With such knowledge, policy planning can be directed towards improvement and ultimately successful implementation.

7.9 Concluding remark

This thesis has described how the disparity between policy intent and outcomes can be explained in terms of implementation. It employed a phenomenological exploratory research design across two (2) stages to understand implementation from the experiences of practitioners: both etic and emic perspectives. After synthesis of the results, it was shown that policy implementation is ineffective and subsequently environmental protection is substandard. Multiple influences, as identified by this research, need to be considered with future planning to ensure the disparity between policy intent and outcome is reduced. The study has therefore, fulfilled the research aim and objectives and answered the research question. It also identified a number of areas for future research. In conclusion, the weaknesses associated with policy implementation, influences the disparity between policy intent and outcomes that result in poor environmental protection.

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Appendix 1

A Commentary: Charting the Major Policy Framework

Introduction

Regulatory policy is often a mechanism employed by governments to control development activities and promote sustainable construction practices; yet, construction operations continue to have negative environmental consequences. Therefore, the aim of this research is to explore how policy implementation influences the disparity between regulatory policy intent and actual outcomes.

The intent of this commentary is to provide background information relevant to the EP&A Act to contextualise the policy environment. Furthermore, it provides a source of information to assist with interpretation of policy terms employed throughout the research. Firstly, the discussion charts the major international and national environmental policies that have influenced the regulatory policy under examination, providing both background and context to its development and importantly the intent. Following which State and local level implementation practices and activities are described. Through this commentary the regulatory context applicable to the research is defined.

The commentary commences with an introduction to regulatory change which commenced at an international level. Of significance, the United Nations Conference on Environment and Development, 'Earth Summit', that paved the way for Agenda 21. Agenda 21 became the international framework, an agreement for pursuing global sustainable development: the principles of ESD. The chapter then presents the National landscape where Agenda 21 was adopted by government, prompting a myriad of environmental initiatives and policies to achieve ESD. In turn, this led to the distribution of responsibilities and actions to State and Territory tiers of government. With the adoption of ESD at a State government level, amendments to policy occurred to reflect principles to be achieved. This policy environment is examined in relation to the State government of NSW, as it is governing body that formulated, enacted and implemented the regulatory policy involved in this research. Although the Act was implemented in a hierarchal manner, by the reigning State government, there is another aspect of implementation: that which pertains to local level or 'coal face' implementation operations.

Therefore, this section provides a discussion on the workings of the local government and private sector agents associated with day to day implementation of the EP&A Act and achieving the principles of ESD. To conclude, the section provides a summary of the environmental planning processes governing on-site construction environmental management operations.

International strategy and policy

In an attempt to improve environmental protection and achieve the goals of participating governments a new approach to development was cultivated, known as ESD. The concept has been defined as “development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987, p. 43). Principles of ESD were first presented at the United Nations (UN) Conference on the Human Environment in Stockholm in 1972 (refer to Figure 11 for a review of earlier major international policy influences). However, it was during 1983 that the UN General Assembly passed Resolution 38/161 ‘Process of Preparation of the Environmental Perspective to the Year 2000 and Beyond’ that convened the Brundtland Commission, formally the World Commission on Environment and Development (Drexhage and Murphy, 2010; United Nations, 1983a).

The Commission foci, as established by the UN General Assembly Resolution, was fundamental to the evolution of ecologically sustainable development due to recommendations such as the following:

- *“To propose long-term environmental strategies for achieving sustainable development to the year 2000 and beyond;*
- *To recommend ways in which concern for the environment may be translated into greater co-operation among developing countries and between countries at different stages of economic and social development and lead to the achievement of common and mutually supportive objectives which take account of the interrelationships between people, resources, environment and development; and*

- *To help to define shared perceptions of long-term environmental issues and of the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long-term agenda for action during the coming decades, and aspirational goals for the world community, taking into account the relevant resolutions of the session of a special character of the Governing Council in 1982” (United Nations, 1983b, p. 5).*

The term sustainable development opened a new era and during 1987, the Brundtland Commission published the landmark report ‘Our Common Future’ stating that the global population had to change many of the ways in which they carried out business and private lifestyle activities. The warnings in the report by the Brundtland Commission had been sourced from senior world politicians, scientists, jurists and international civil servants (Drexhage and Murphy, 2010; United Nations, 1983b); whereby, the need to encourage sustainable practices was acknowledged.

Importantly, it served as a catalyst for major environmental initiatives that culminated at the United Nations Conference on Environment and Development in 1992 (Australian Government, Department of Environment, 1992a). The concept of ESD was formally accepted and adopted by heads of government from nations around the world, in the form of Agenda 21, at the United Nations Conference, the ‘Earth Summit’, held in 1992 in Rio de Janeiro. A total of 179 nations, including Australia, were signatories to Agenda 21 (Mercer, 1995; United Nations, 2014a), a demonstration of the import of ecologically sustainable development.

The Commonwealth of Australia interprets Agenda 21 in the following manner:

‘Agenda 21 is an international blueprint that outlines actions that governments, international organisations, industries and the community can take to achieve sustainability. These actions recognise the impacts of human behaviour on the environment and on the sustainability of systems of production. The objective of Agenda 21 is the alleviation of poverty, hunger, sickness and illiteracy worldwide while halting the deterioration of ecosystems which sustain life” (Australian Government, Department of Environment, 2004, p. 1).

Agenda 21 is comprised of four sections: social and economic dimensions; conservation and management of resources for development; strengthening the role of major groups; and means of implementation. Primarily, the dimensions within the first section relate to the impacts that development has upon local communities, nations and international relationships from a social and economic perspective. The largest component of agenda 21 specifically relates to conservation management. The section on conservation management concentrates on areas to be examined to meet objectives of sustainable development globally. Foremost, resources and ecosystems are examined and their relationship with development (Australian Government, Department of Environment, 2004).

The third section of Agenda 21 builds upon the examination associated with conservation management as it specifically analyses the roles of government and non-government organisations to achieve ESD principles. Importantly, Agenda 21 identifies that sustainable development is not able to be achieved solely by heads of government. Education and implementation by communities on a local, national and international level is required to initiate change (Australian Government, Department of Environment, 2004). The final section of Agenda 21 considers resources in terms of what is required to enable sustainability to occur. Importantly, Section 4 provides a holistic approach to ESD, acknowledging the important role of many domains including technology, economics, education and legal systems (Australian Government, Department of Environment, 2004).

Summary

Agenda 21 may be considered a somewhat lengthy, blueprint for sustainable development: an international framework agreement for pursuing global sustainability. The advantage of this document is that the framework for Agenda 21 is particularly suited for regional and local agencies to adapt and implement within their communities (Australian Government, Department of Environment, 2004; United Nations, 2014a). Australia's commitment to Agenda 21 was exhibited in the strong national response to meet our obligations under this international agreement. The proceeding discussion will overview such salient National strategies and policies that followed on from the International agenda, as they provided new directions for planning and assessment policy to guide sustainable development practices: an area that encompasses construction management operations.

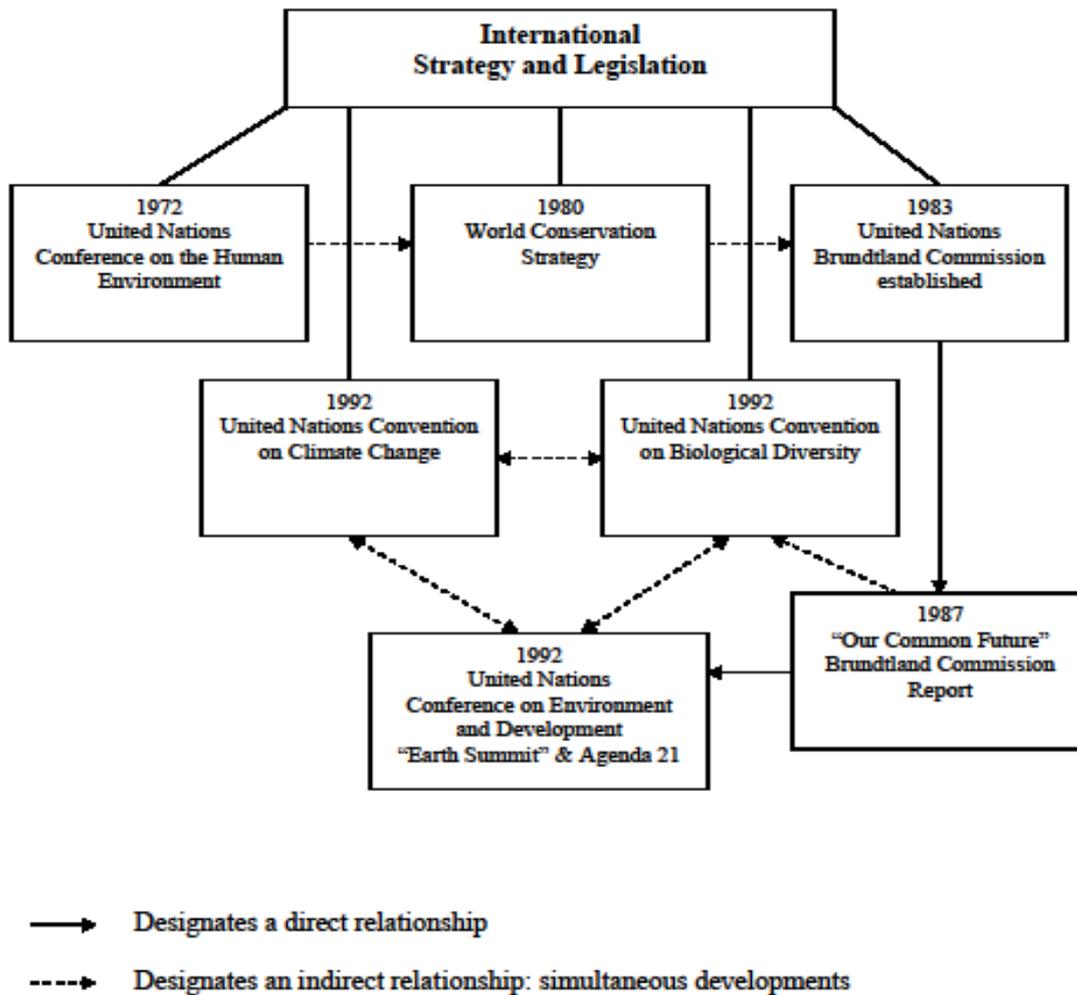


Figure 11. Charting the major environmental policy influences: International

National environmental direction

Prior to the Earth Summit, environmental preservation had been integrated into the National agenda; however, Agenda 21 highlighted the seriousness of environmental degradation, particularly from a global perspective and proposed mechanisms for mitigation: it became the catalyst for directed change. Figure 12 highlights some of the major influences surrounding environmental preservation. This leads to the National regulatory policy, to be discussed within this section: the precursor to policy change amongst subordinate government tiers.

ESD was widely accepted within the governmental hierarchy of Australia. At the Commonwealth level, the following definition of ecologically sustainable development was adopted “...using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increase” (Australian Government, Department of Environment, 1992a). A plethora of initiatives and policies were subsequently introduced to promote sustainable activities.

NSESD and IGAE

On a National level, two principle strategies were developed to promote and implement practices associated with sustainable development: The Intergovernmental Agreement on the Environment (IGAE) and The National Strategy for Ecologically Sustainable Development (NSESD) (Australian Government, Department of Environment, 1992a; 1992b).

The first environmental strategy commenced on 31 October 1990, when heads of government and various representatives agreed to develop the IGAE. Subsequently, intergovernmental Ecologically Sustainable Development Steering Committees were established in 1991 and IGAE, a national document that formally embraced principles of sustainable development, was officially adopted on 1 May 1992 (Australian Government, Department of Environment, 1992b). IGAE establishes a basis for a collaborative government approach to environmental management activities: decision-making, policy development and implementation (Commonwealth of Australia, 1994; United Nations, 2014b).

In particular, the agreement focused upon the national government hierarchy as a mechanism for providing:

- a national collaborative approach to protection of the environment;
- improved clarity with regard to the functions and roles of each government tier;
- a significant decrease related to intergovernmental disputes;
- improved decision-making processes; and
- effective environmental management and preservation (Australian Government, Department of Environment, 1992b).

Essentially, IGAE mandates that all tiers of the government hierarchy need to work collectively, agree and understand objectives and maintain collaborative partnerships to achieve sound environmental outcomes. More specifically, the IGAE established guiding principles to be employed in the development of environmental policies and established arrangements which had a direct impact upon development activities including:

- “...*joint collaborative efforts to facilitate national and environmentally sound land use decisions and approvals processes;*
- *a common set of principles for environmental impact assessment*”
(Commonwealth of Australia, 1994, p. 16).

In this respect, Schedule 2 (resource assessment, land use decisions and approval processes) and Schedule 3 (environmental impact assessment), for example, clearly identify the mandatory adoption of ecologically sustainable principles by all government tiers and a concept of vital importance in assessment procedures (Australian Government, Department of Environment, 1992b). Therefore they set the context for Commonwealth strategies to influence strategies on a State level.

The second major environmental strategy, NSESD, was an approach to address areas and sectors as highlighted in Agenda 21 but from an Australian view point (United Nations, 2014b). In a similar approach to IGAE, the NSESD discusses a range of environmental areas related to development activity. For example, Chapter 15 Environmental Impact Assessment, provides detailed objectives that must be achieved with the intent to reduce environmental degradation that are a direct result of development activities which incorporate on-site construction operations (Australian Government, Department of Environment, 1992a).

Of vital importance, is that within NSESD, it is acknowledged that by adhering to the principles of ESD ‘*The number of divisive and damaging confrontations which have characterised some of our development projects should also decrease*’ (Australian Government, Department of Environment, 1992a). This is a significant statement as it firstly recognises that development activities - including construction operations - impact negatively upon the environment, but importantly identifies that through compliance with the principles of ESD environmental protection can be achieved.

The 1990 Commonwealth Discussion Paper identified five key ecologically sustainable development principles that were integrated into the thirty three chapters comprising NSESD:

- *“Integrating economic and environmental goals in policies and activities;*
- *Ensuring that environmental assets are properly valued;*
- *Providing for equity within and between generations;*
- *Dealing cautiously with risk and irreversibility; and*
- *Recognising the global dimension”* (Commonwealth of Australia, 1994, p. 6).

The report entitled Ecologically Sustainable Development: A Commonwealth Discussion Paper acknowledged “...a sectoral approach to the development of ESD strategies...” (Commonwealth of Australia, 1994, p. 7). Regardless of the different agencies or actors involved with individual environmental assignments, within the report it was acknowledged that co-ordination and collaboration were vital amongst all agents to ensure uniformity, consistency and the ability to achieve the goal of environmental protection (Commonwealth of Australia, 1994). Proceeding the report, nine working groups were established to investigate specific areas associated with ESD: agriculture, forestry, fisheries, manufacturing, mining, energy use and production and transport (Commonwealth of Australia, 1994).

The reports by the working groups presented more than 500 recommendations relevant to all spheres of government. Co-ordination of the review of recommendations and development of an ecologically development strategy was the responsibility of the Ecologically Sustainable Development Steering Committee and the National Greenhouse Steering Committee, supported by seventeen Commonwealth State Ministerial Council Groups and twenty officials’ Working Groups (Commonwealth of Australia, 1994).

The outcome enabled endorsement of the NSESD on 7 December 1992, across all spheres of government. NSESD was the Australian framework to direct environmental policy and decision making. Mandatory Commonwealth State of the Environment reporting was introduced with the first Report published in 1996 that provided an investigation into eight environmental themes: atmosphere, land, inland waters, coasts and oceans, biodiversity, human settlements, natural and cultural heritage and Australian Antarctic Territory (Australian Government, Department of Environment, 1996).

Of salience, the IGAE and NSESD strategies enabled the introduction of a multitude of Australian initiatives in the challenge to achieve ESD. Since their conception, existing environmental initiatives and policies have been modified, with new ones developed, implemented and adapted on a continual basis.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

Of prime importance was the introduction of the Commonwealth's principle environmental legislation: the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), and subsequent Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The EPBC Act, an in-depth regulatory policy of more than 1000 pages, affords the Commonwealth regulatory powers to protect matters of national environmental significance (MNES) (Australian Government, Department of Environment, 2014a) through application of the principles of ESD (Australian Government, Department of Environment, 2014a). The objects of the EPBC Act, as set out in Chapter 1, Part 1, 3 Objects, Clause 1, are:

*“(a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and
(b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and
(c) to promote the conservation of biodiversity; and
(ca) to provide for the protection and conservation of heritage; and
(d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples; and
(e) to assist in the co-operative implementation of Australia's international environmental responsibilities; and
(f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
(g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge”*

In turn these highlight nine matters of national environmental significance (MNES) applicable to the EPBC Act:

- *“world heritage properties*
- *national heritage places*
- *wetlands of international importance ('Ramsar' wetlands)*
- *nationally threatened species and ecological communities*
- *migratory species*
- *Commonwealth marine areas*
- *the Great Barrier Reef Marine Park*
- *the environment where nuclear actions are involved (including uranium mines)*
- *a water resource, in relation to coal seam gas development and large coal mining development”*

(Australian Government, Department of Environment, 2014b).

Therefore, in terms of development activities, the EPBC Act makes provision for a national environmental assessment and approvals process. Whereby, certain proposed actions must go through a rigorous process to determine whether they will have any environmental impact. Importantly, the EPBC Act provides the Commonwealth with the jurisdiction in relation to activities:

“...that have a significant impact on the environment where the actions affect, or are taken on, Commonwealth land, or are carried out by a Commonwealth agency (even if that significant impact is not on one of the nine matters of 'national environmental significance)”

(Australian Government, Department of Environment, 2014b, p. 1).

The role of the Commonwealth is wider than the MNES encompassing many forms of development and subsequently development activities. From the formulation of Australian ESD objectives, the States and Territories engaged the Commonwealth initiatives, subsequent policy and various guidelines through amendment of existing State policy and formulation of new policy to reflect the current ESD climate from which both tiers of government became integrated in the policy revolution and the Country moved into a programme of achieving ESD.

Summary

The former discussion serves to illustrate the Commonwealth framework surrounding ESD that followed on from International initiatives. National influences such as the IGAE and the NSESD, in conjunction with regulatory policy such as the EPBC Act illustrate the commitment of the Commonwealth towards ESD following Agenda 21. Additionally, these initiatives and regulatory policies have influenced State and Territory policy, in particular the regulatory policy governing development activities in NSW: the policy employed for this research.

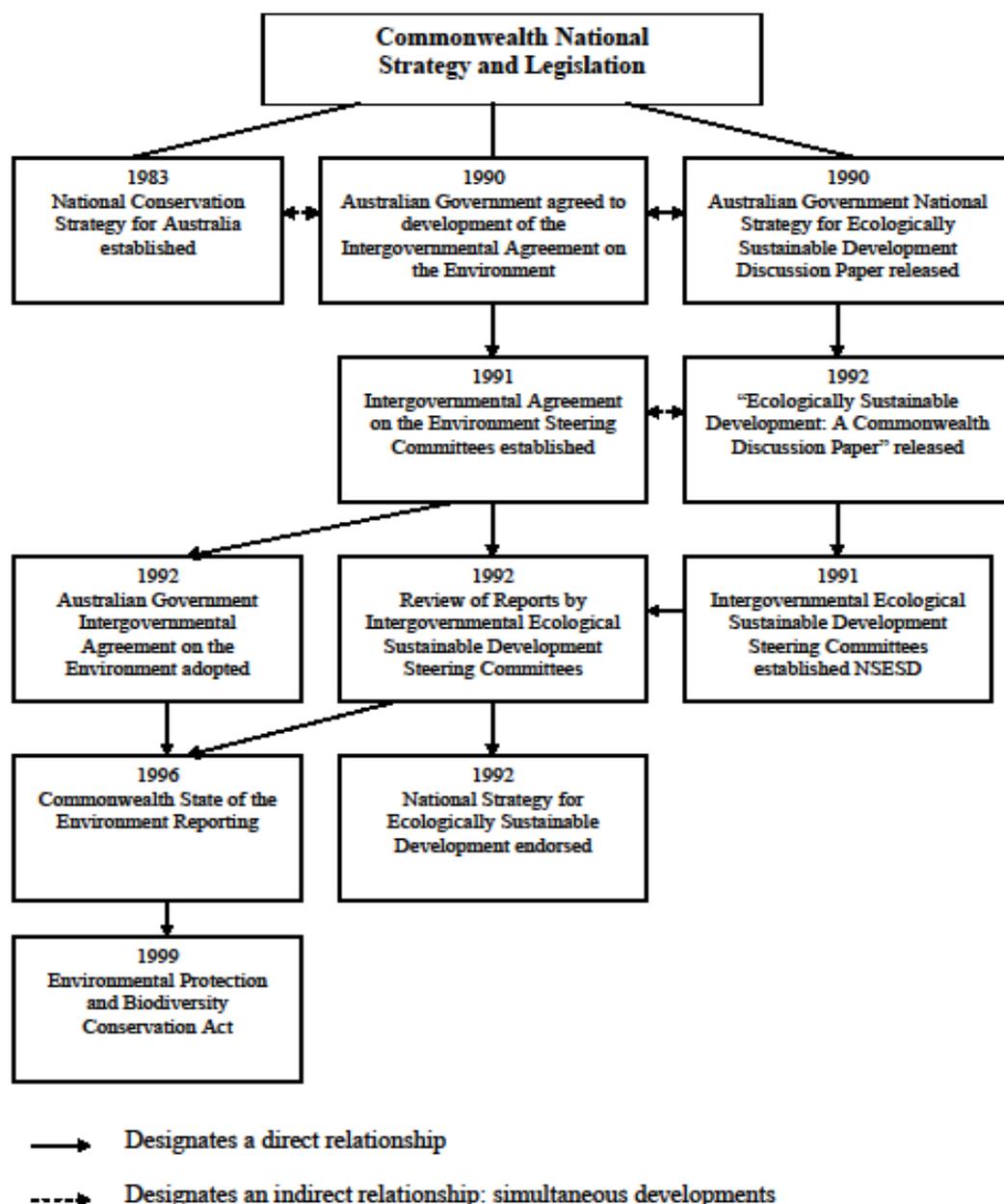


Figure 12. Charting the major environmental policy influences: Commonwealth

The State of New South Wales

Australia consists of six States and two mainland Territories (Australian Government, 2014). The State of New South Wales (NSW) and its land use planning and development system was been elected for investigation in this research given it maintains the largest population of all Australian States and Territories, being 7,544,000 million. The closest population being the State of Victoria with 5,866,000 million and the lowest the Northern Territory with 387,000 (ABS, 2015b). Additionally, the land use planning and development system within NSW, through the development assessment system, turns over more than \$20 billion of economic activity annually (Centre for International Economics, 2013). Importantly, it has been noted as a complex system that “...is not achieving good outcomes for New South Wales” (Centre for International Economics, 2013, p. 2): implementation activities reflective of a regulatory policy not able to achieve its objectives.

Following the Commonwealth initiatives, State legislation was introduced and existing policy modified to achieve the principles of ESD. The environment had formerly been a consideration in State policy; however, the requirements of the IGAE, NSESD and EPBC Act, brought forth alignment between the tiers of government and subsequent change, particularly with State of the Environment reporting and the land use planning and development system. Two primary State regulatory policies of relevance to ESD are the *Protection of the Environment Operations Act 1997* (NSW) (POEO Act) and the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). Both have affiliated Acts (e.g. *Protection of the Environment Administrations Act*, 1991), Regulations (e.g. *Environmental Planning and Assessment Regulation 2000* (NSW) (EP&A Regs) and are directly associated with environmental planning and development, including conditions or controls over construction operations. However, it is the EP&A Act that is of prime importance to this research as it is the primary regulatory policy that governs environmental planning and conditions development activities: including construction operations. In planning terms, the initial development assessment processes are administered by the EP&A Act.

This commentary will now define environmental planning implementation activities in the context of this research. It will introduce the POEO Act as it maintains a close relationship

with the EP&A Act: development proposals may be subject to scrutiny under the former Act (if referred under the later governing Act) and a shared definition of ESD. It is important to note the context in which these two policies operate as this impacts upon local level implementation activities. The discussion then moves to the EP&A Act. This in turn leads to the local government environmental planning and assessment processes: the policy implementation phases which are under investigation.

The environmental planning and development system

In reference to NSW, the environmental planning and assessment system refers to the structure involving the policies, land use controls and procedures that are associated with the development, protection and conservation of land within the State. The intent of such a system is to manage development activities with regard to health, economy, infrastructure and environmental protection (Department of Planning, Infrastructure and Natural Resources, 2004).

Protection of the Environment Operations Act

The gazettal of the POEO Act, brought significant change to industry on an environmental scale. The POEO Act made provision for the establishment of the State Environment Protection Authority (EPA): an agency granted enforcement and prosecution powers for offences against the environment. In addition, the EPA became responsible for the regulation and licensing of large scale environmentally sensitive development activities: including construction operations, referred under EP&A Act requirements (POEO, 1997). Development regulated is that which is most likely to cause operational impacts or pollution emissions such as timber milling and pulp processing plants, petroleum works, chemical industries, coal mines, aquaculture industries, aircraft facilities and electrical generating stations where operational activity exceeds specified legislative limitations. However, in most situations, the POEO regulation is generally directed against activities or operations involved with the design and approval of a development and/or the operations associated with the buildings post the construction phase, rather than during construction. It also includes offences for environmental harm and licensing of certain industries (EP&A Act, 1979; POEO, 1997).

As an example, the assessment of a proposed chemical works plant by the relevant government authority under the EP&A Act, may require the proposal be referred to the EPA to obtain their concurrence; whereby, the EPA may provide additional environmental conditions back to the authority for inclusion on the consent. Conditions may involve the mandatory licence requirement and restrictions upon operating conditions (e.g. production quantity). In addition, the licence obtained from the EPA to operate would involve management plans to monitor post construction operational activities (EP&A Act, 1979; POEO, 1997). There is the potential for a request for some form of construction environmental management plan; however, this is not mandatory unless requested by the consent authority.

Environmental Planning and Assessment Act

As formerly stated, the NSW environmental planning and development system is largely governed by the regulatory policy *Environmental Planning and Assessment Act 1979* (NSW) and the associated Regulation. Since its inception this regulatory policy has been amended more than 150 times, with many changes a result of environmental considerations (Department of Planning, Infrastructure and Natural Resources, 2004). This illustrates the evolving nature of the policy and potentially changing community expectations. The Act and some of its primary areas such as activity phases, development types and consent authorities will now be discussed as these set the scene from a regulatory perspective as they define predominant implementation activities.

Within the EP&A Act, Part 1, s. 4 requires that the definition of ESD at a State level be the same as that specified within the *Protection of Environment Administration Act 1991* (NSW), s. 6 (2). However, the definition within this administrative policy is not a simple holistic interpretation as set by the international or national arenas; rather, it looks at sustainable development in terms of how it may be achieved at the State level:

“Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

(a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

(b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problem”

(EP&A Act, 1979, Part 2, s. 6).

The abovementioned points highlight how the regulatory policy has been designed to incorporate ESD. In order to achieve the policy objectives it is necessary to both define and understand this concept. In this manner the policy can evolve to achieve the aims of ESD which incorporates sustainable construction practices.

Three prime objectives set the agenda for the EP&A Act:

“(a) to encourage:

- (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) the promotion and co-ordination of the orderly and economic use and development of land,*
 - (iii) the protection, provision and co-ordination of communication and utility services,*
 - (iv) the provision of land for public purposes,*
 - (v) the provision and co-ordination of community services and facilities, and*
 - (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
 - (vii) ecologically sustainable development, and*
 - (viii) the provision and maintenance of affordable housing, and*
- (b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*
- (c) to provide increased opportunity for public involvement and participation in environmental planning and assessment”*
- (EP&A Act, 1979, Part 1, Section 5).

As seen from these objectives, ESD is integrated into many areas of the policy. However, if we consider the International and National definitions, the prime objectives of the EP&A Act covers a range of areas also seen as important to ESD and protection of the environment. This further demonstrates the commitment to sustainable environmental activities and the attempt to reflect international policies and agreements into national policy.

Powers to develop additional policy

Under the EP&A Act there is the ability for State and local authorities to formulate and implement regulatory and non-regulatory policy related to land use planning and in particular protection of the environment (EP&A Act, 1979). A number of these will now be discussed as they form an integral part of the implementation phase and subsequently on-site construction operations.

State Environmental Planning Policies

The EP&A Act enables the implementation of State Environmental Planning Policies (SEPPs) that dictate further commitment to ESD principles and the development assessment process. SEPPs are developed by the State Government and responsibility for compliance rests with the consent authority (e.g. local government) (EP&A Act, 1979). In general, the SEPPs regulate development from a State perspective and cover issues that concern all tiers of the NSW regulatory system such as the State Environmental Planning Policy No. 33 - Hazardous and Offensive Development (SEPP No. 33) (NSW) and the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (NSW) (refer www.legislation.nsw.gov.au, Environmental Planning Instruments). To complement SEPPs, Regional Environmental Plans (now also deemed SEPPs) were introduced to regulate development across a region as decided by State and local regulatory organisations when there was need for intervention on an issue that spans across multiple local government areas. These regulatory policies provided more specific environmental controls for particular areas or regions of concern within the State (EP&A Act, 1979).

Local Environmental Plans

In accordance with the EP&A Act, each local government organisation is required to maintain a Local Environmental Plan (LEP) that dictates certain land use planning requirements (subject to Ministerial approval). The LEP is a document that primarily identifies development that is prohibited, development that is permissible with consent and development that is permissible without consent for various 'zones'. The use of zones enables control over the location of types of development to ensure that minimal environmental harm occurs to land containing certain natural resources. The LEP identifies environmentally sensitive areas within the locality and as such prohibits development within these zones.

In addition, the LEP identifies listed heritage items, floor space ratios and building heights (Department of Planning, Infrastructure and Natural Resources, 2004; EP&A Act, 1979). Around 2006, the State Government in an attempt to streamline the system, brought in new legislation that required all Local Government consent authorities to develop one new LEP for their region in line with their new Standard Template (introduced as a SEPP), rather than maintaining multiple per local government area. The Standard Template is effectively a document that sets the design parameters and content for all LEPs across the State. For example, it provides uniform definitions for many of the land use planning terms in use. Prior to its implementation, there were 152 councils State wide and around 5,500 LEPs in operation. There were more than 3,100 different land use zones and 1,700 definitions (Department of Planning, Infrastructure and Natural Resources, 2004). Although the new regulatory requirements were enacted in 2006, there was a period allocated in which local government organisations were able to develop their new LEP and undertake consultation. Interestingly, many councils have only recently, during 2014 and 2015, gazetted their new LEPs (refer www.legislation.nsw.gov.au, Environmental Planning Instruments, Local Environmental Plan and Standard Instrument – Principle Local Environmental Plan).

Development Control Plans and additional policies

In support of the LEP is the technical guideline document, known as a Development Control Plan (DCP). DCPs provide specific detail that the local government organisation and general community have viewed as a significant issue that needs to be closely monitored by the regulatory authority. In general, a DCP provides detail on areas such as waste management, sedimentation and erosion control, access and parking, traffic and landscaping. In prior times, local government organisations were not restricted in the number of DCPs developed; hence, a plethora of guidelines were developed by each of the 152 local organisations with requirements that differed for each one: literally hundreds in existence and some up to 3,500 pages in length (New South Wales Government, Planning and Infrastructure, 2012a). In 2005, the State government introduced a legislative amendment that required each local government organisation to maintain a single DCP: albeit, comprehensive in nature: to bring about uniformity and reduced complexity in the land use planning system (Department of Planning, Infrastructure and Natural Environment, 2004; EP&A Act, 1979). Importantly, in 2012 statutory changes confirmed the role of the DCP as a guideline document only; removing much of the ‘mandatory compliance’ that had been bestowed upon these

documents by local government (New South Wales Government, Planning and Infrastructure, 2012b) which is notably an important facet to implementation functions. In addition to the DCP, local government authorities are able to develop policies and technical manuals to assist with implementation activities.

Application of the EP&A Act

The EP&A Act and its planning system that governs development is a multifaceted and fluid system. Application of the Act is not a linear process; rather it involves an intricate network of interactions across multiple dimensions. Figure 13 provides an illustration of some of the major components of the process: the implementation activities. To examine the application of the EP&A Act, the processes have been broken into the following components:

1. activity phase;
2. consent authority;
3. environmental statement;
4. types of development; and
5. additional provisions.

Through an understanding of each component, those processes associated with the development projects which are the subject of this research can be identified. In this manner, the implementation phase can be understood.

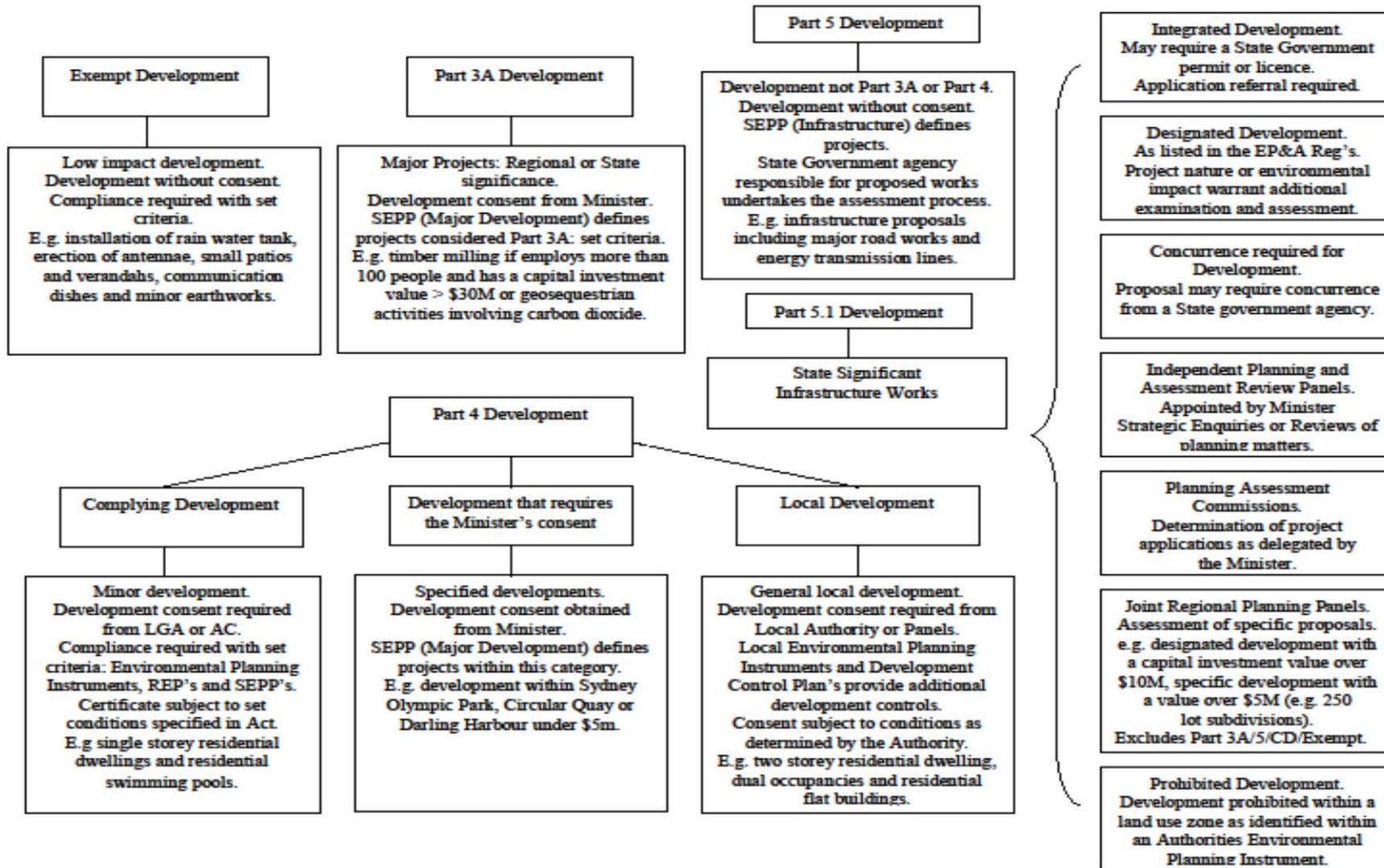
Activity phase

For the purpose of this research, development processes may be considered three distinct but interrelated stages which may be categorised according to construction operations: pre-construction, post-construction and on-site construction operations (as shown in Figure 6).

Pre-construction processes are those that primarily concern the design and approval stage of any development. Post-construction relates to those activities that occur upon use of the development or structure. While, on-site construction processes are those that occur during construction both management and operation in nature. Of prime importance to this research are the pre-construction and on-site construction operations: policy implementation phase.

Defining these phases sets the framework for the case studies, construction projects, which allow for the exploration of the research question.

Figure 13. Charting major types of development and assessment authorities



Pre-construction phase

Within the realm of regulatory policy and development the pre-construction process may be considered to operate across three areas:

- development design;
- submission of application to consent authority/assessment; and
- approval by consent authority (or refusal/appeal).

The design and submission stages of any development differ as to the complexity and scale of the project, site variables and policy controls. Documentation for submission follows requirements of the EP&A Act, in which it typically includes:

- an approved development application form;
- an environmental statement;
- architectural plans;
- sedimentation and control plans;
- town planning reports;
- landscape plans;
- survey reports; and
- energy efficiency reports (EP&A Act, 1979).

Depending upon the project type and scale there may also be additional requirements such as: traffic management reports, ecologist reports, heritage reports, acid sulfate reports, access reports, fire engineering reports and concurrence reports and certifications. Documentation required for submission, assessment periods, notification and community consultation processes are all addressed within the EP&A Act. The Act, s. 79c has provided 'heads of consideration' or evaluation considerations. This section mandates that assessment consider certain factors: environmental policy, social factors, economic factors and the public interest (EP&A Act, 1979). It is this important phase of the project: an initial implementation phase, where development application documentation should identify all potential impacts and measures to be implemented to mitigate construction environmental impacts.

The consent authority assesses the development application and makes a determination to accept and approve or reject the application. Where approved a development consent is issued with a list of conditions that need to be complied with (EP&A Act, 1979). The conditions of consent should be designed in a manner to ensure awareness of construction impacts and environmental standards and to ensure compliance with submission documentation.

The applicant then nominates a certifier for the project: either the local government authority accredited building surveyor or a privately accredited building surveyor. Additional documentation is then submitted to this practitioner (e.g. structural drawings and specifications) whereby they undertake an assessment and make a determination upon compliance. Where favourable they issue a construction certificate to allow construction to commence. Their role also encompasses on-site construction inspections and assessment of the building and documentation (including the development consent) upon completion and the final issue of an occupation certificate to allow for building occupation (EP&A Act, 1979).

On-site construction phase

The pre-construction process has identified that potential environmental impacts from a proposed development should be highlighted and addressed: a theoretical exercise on paper. However, the next phase of on-site operations: managerial and operational levels play a vital role ensuring that potential environmental impacts are mitigated. Following the lead of policy, its intent and objectives, in an ideal world upon issue of the development consent (and subsequent building approval), documentation would be disseminated to all relevant parties who have an interest in the next phase of operations: on-site. A management plan would be developed identifying all consent conditions, including environmental, that need to be addressed. Following which standard practice would be employed: task division, responsibilities allocated, reporting mechanisms established and so forth.

Post-construction phase

Post construction processes generally concern one main area: operational activities once construction has been completed that have the potential to cause environmental harm. Within NSW, the EPA generally maintains presiding control over those operational activities that are

considered to have the potential to cause significant environmental harm. In general these types of activities are controlled through EPA licencing, monitoring, reporting programmes and inspection regimes. Although environmental impacts from operational activities may be designated as a post-construction process, it is those impacts that are the subject of assessment at the pre-construction phase (POEO, 1997). The development types discussed are generally of a large nature such as mines, chemical plants and waste facilities where pollution incidents from operational activities result in various forms of penalty including fines, court hearings and limitations to operational activity production (EPA, 2007).

Consent authorities

The EP&A Act allows for the appointment of consent authorities. Generally, the consent authority would be a local government organisations (local council), the Joint Regional Planning Panel or the State Government Minister for Planning, depending upon the type and scale of development proposed. Their role is to request information, assess and condition development and regulate procedures associated with on-site operations (i.e. related to the objectives of the Act) (EP&A Act, 1979). Therefore, any proposal for development needs to be lodged with the relevant authority for assessment and determination.

Where development is proposed upon Crown land (Commonwealth owned land) the consent authority must approve the development application, unless there is a Ministerial decision otherwise. Interestingly the approval is unable to have any conditions of consent applied unless these are agreed by the applicant or Minister (New South Wales, Joint Regional Planning Panels, 2012). In addition to the consent authorities discussed, the State Government may employ a number of other regulatory bodies. These bodies may become integrated in the assessment process or become the consent authority and include:

- Planning Assessment Commissions , who act as a consent authority;
- Independent Planning Assessment and Review Panels; and
- Joint Regional Planning Panels.

Planning Assessment Commissions

The New South Wales, Planning Assessment Commission is a statutory body; however, it is considered independent to the government, Minister for Planning and their agency. The

Commission has an instrument of delegation; whereby, they undertake assessment and make determination on a range of specific project applications. The Commission may also be called upon by the Minister to provide advice in relation to a range of planning and development matters (New South Wales Planning Assessment Commission, 2014)

Independent Planning Assessment and Review Panels

Panels, or an individual advisor, may be appointed by the Minister for Planning or the Director General of Planning for the purpose of undertaking a strategic inquiry or review of planning and development proposals and providing appropriate recommendations. The Panel may also be delegated the role of exercising the approval functions of a Local Government organisation (New South Wales Government, Planning and Environment, 2014).

Joint Regional Planning Panels

Joint Regional Planning Panels provide advice and determination of specific project proposals that impact upon the environment or are considered significant on a regional scale. Members are appointed by State and Local Government. These Panels consider the following types of proposals:

- development with a capital investment over \$20 million;
 - the following development with a CIV over \$5 million: certain public and private infrastructure, Crown development, development where council is the proponent or has a conflict of interest and ecotourism;
 - certain subdivisions; and
 - certain designated developments: extractive industries, waste facilities and marinas
- (New South Wales Government, Joint Regional Planning Panels, 2014).

With this process the application is lodged with the Local Government organisation and proceeds through the standard public exhibition and Council assessment processes. However, Council then submits the application with their report to the Panel for their assessment and final determination. The Panel's notice of determination is provided to the Local Government organisation and they become responsible for the issue of the consent for the application and the notification of the wider community (New South Wales Government, Joint Regional Planning Panels, 2014).

Environmental statements

In accordance with the EP&A Act, each development application must be accompanied by a 'statement' that has clearly identified potential environmental harm from the proposed development and mitigation measures to be employed (EP&A Act, 1979). In accordance with the EP&A Act, development type will dictate the requisite statement: Statement of Environmental Effects, Environmental Impact Statement and Environmental Impact Assessment. Logically, the EP&A Act mandates a more in-depth statement for larger scale complex development projects (EP&A Act, 1979). The Regulation, Schedule 1, identifies documentation that must accompany any development application. In accordance with Schedule 1, a Statement of Environmental Effects must be submitted for most development. However, for those development projects that are considered to have significant environmental impact, the EP&A Act, s. 112 and the EP&A Regs cl. 228 require submission of an Environmental Impact Statement. Development that constitutes State Significant projects does not require submission of an Environmental Impact Statement; however, the Minister and the Director General of Planning have the authority to mandate submission of information as applicable in an Environmental Assessment. For Part 5 development it is a Review of Environmental Factors that is the mandated environmental report. These reports are generally undertaken internally by the State authority (EP&A Act, 1979).

Types of development

Determination of the category of development to which the proposal is allocated is the first stage to be undertaken as the type and complexity of the environmental reporting is dictated by the pathway chosen for assessment. The category to which a proposal is allocated will set the pathway for the process of assessment, submission documentation and so forth.

Within NSW there are 6 primary types of development with multiple assessment pathways:

1. Exempt Development
2. Part 3A Development
3. Part 4 Complying Development
4. Part 4 Local Development
5. Part 4 Development that requires the Minister's consent;
6. Part 5 Development
7. Part 5.1

Exempt Development

Exempt development normally constitutes low impact development or development of such a minor scale that there are no envisaged environmental impacts. Basically, if the proposal is able to meet pre-specified standards there is no requirement to obtain development consent, provide any form of environmental assessment or implement environmental mitigation measures during construction. It must be noted that other legislative approvals such as licences may still be applicable (EP&A Act, 1979; NSW Government, 2008).

Formerly, all exempt categories and criteria were listed individually within each local government organisations local planning instruments. However, to unify the system the State introduced legislation whereby a single set of exempt development criteria were formulated and placed into the one document: *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* (NSW). There is no consent requirement for this form of development, determination of compliance with the set of pre-specified standards remains with the individual developer. The Policy requires that development within this category be of minimal environmental impact (NSW Government, 2014). In addition, there are specific land exclusions identified such as land within a foreshore area, bushfire prone land and the like. Development within this category normally includes small scale awnings, carports, patios, cubby houses, clothes hoists and letter boxes (NSW Government, 2008).

Part 3A Development

Projects that fall within the Part 3A category relate to major projects considered to be of regional or State significance. The *State Environmental Planning Policy (Major Developments 2005* (NSW) provides a detailed list of projects that constitute Part 3A. Predominantly, major projects are significant in terms of capital investment value, their contribution to employment and in many cases their potential for detrimental environmental impact. All Part 3A projects are assessed and approved by the State Government. Therefore, the Minister is the consent authority. The Minister may; however, establish a specialist panel or body to undertake the assessment process or provide expert advice in relation to a proposal (EP&A Act, 1979).

During 2011 the Coalition were elected to govern the State. They made an immediate amendment to the EP&A Act: removal of Part 3A Development. Therefore, larger scale more

complex development returned to local government organisations as the consent authorities for assessment and determination: including environmental assessment. Although Part 3A has been rescinded, it is discussed as the SEPP remains active given the many projects that were formerly approved under this regulatory policy (EP&A Act, 1979; New South Wales Government, 2005).

Part 4 Complying Development

Closely aligned with exempt development, complying development is deemed minor development where environmental impacts are predictable and considered negligible. Unlike exempt development, complying development requires approval from a consent authority in the form of a complying development certificate (CDC). The consent authority for a CDC may be either the local government authority (generally the building surveyor) or a private certifier known as a Principal Certifying Authority (PCA): generally private building surveyors, accredited by the State Government to undertake this regulatory role (New South Wales Building Professionals Board, 2014; EP&A Act, 1979; NSW Government, 2008). In a similar process to exempt development, if the development project is able to meet pre-specified standards a CDC may be issued. Examples include, single storey residential houses and garages. All CDCs are issued with a set of pre-specified conditions as detailed within the EP&A Regulations and SEPP Codes. For example, conditions require compliance with relevant legislative standards such as the National Construction Code, Building Code of Australia (EP&A Act, 1979; New South Wales Government, 2008).

Part 4 Local Development

Proposals considered within the category of local development are varied but may be considered of a nature large enough to exclude their consideration under exempt and complying development, yet, small of a nature that excludes their consideration as Part 3A development or Part 5 development types (discussed below). Development within this category requires consent from the local government authority; however, recent legislative provisions enable regional panels, appointed by the Minister of Planning, to assess and issue consents under set circumstances. Predominantly, development that has a capital investment value above twenty million dollars is assessed and determined by the panel, along with a range of other larger scale proposals including large lot coastal subdivisions (New South Wales Government, 2014) as formerly detailed.

Under local requirements, the applicant is required to submit a development application to the consent authority for determination. Development that falls under Part 4 local development also requires submission of a Statement of Environmental Effects. This is a statement provided by the applicant that looks at potential environmental impacts from their development proposal. The EP&A Act, s. 79c sets out the heads of consideration that must be addressed by the consent authority during their assessment processes: social, economic and environmental. If the consent authority approves the application, the development consent is issued containing a list of all the conditions applicable to the development, including those related to on-site operations (EP&A Act, 1979; New South Wales Government, 2014).

Part 4 Development that requires the Minister's consent

In certain circumstances the Minister is the consent authority for development applications lodged under Part 4. For example, under the EP&A Act, Division 4.1 the Minister is responsible for State Significant Development. Development proposals that constitute this form of development are identified within the State Environmental Planning Policy (State and Regional Development) 2011. Examples include: aquaculture industries, extractive industries, hospitals and health research facilities, educational establishments and transport facilities. However, it is noted that development nominated within this Division must achieve a certain capital investment or other criteria specified in the SEPP to be referred to the Minister (New South Wales Government, 2011). Essentially, it relates to large scale projects that have a major impact on the State both economically and environmentally.

Part 5 Development

Quite simply, Part 5 development proposals are those that do not apply to any of the abovementioned categories. In many circumstances, Part 5 proposals are infrastructure related such as sewage treatment plants and road works. This form of development does not require consent. Rather, the local or State authority responsible for the works conducts an assessment of their proposal. Part 5 does require the environmental impacts of the proposal to be assessed in the same manner as Part 4 development. The environmental reports under Part 5 are known as 'Review of Environmental Factors'. The proposal is approved by a State Government agency or local government organisation, the determining authority, and they determine whether a proposal is likely to have significant environmental impact and whether an 'Environmental Impact Statement' is required (EP&A Act, 1979).

Prohibited Development

Local planning instruments for each local government organisation list development types prohibited within certain land use zones. Proposed development may actually be prohibited and therefore generally unable to proceed. For example, a chemical manufacturing plant is unlikely to be approved in the centre of a residential zone. Rezoning of land use types is possible; however, sound planning justification must be provided for the submission, the local elected Council must provide acquiescence and the Minister must determine the submission which may take many years for final determination (EP&A Act, 1979).

Additional Provisions

Within the development lifecycle there are a number of additional provisions that potentially impact upon proposed development including:

- integrated development;
- concurrence required for development; and
- designated development.

Integrated Development

Integrated development refers to development that not only requires consent but also a permit or licence, generally from a State Government agency. Development that constitutes integrated development is identified within the EP&A Act, Part 4, Division 5, s. 91. A typical example may be a proposal to erect a building within a mines subsidence area, where the application must be referred to the Mines Subsidence Board for approval under the Mines Act, 1992. Similarly, certain 'scheduled' operations require an Environmental Protection Licence. In these circumstances, the application is referred to the Department of Environment, Climate Change and Water for licencing, under the Protection of the Environment Operations Act 1997 (NSW) (EP&A Act, 1979; POEO, 1997).

Concurrence required for Development

Concurrence involves referral of certain applications to a State Government agency for their approval. The approval sought must be obtained prior to the consent authority making a determination on the proposal. Examples of such agencies include the NSW Roads and

Maritime Services, NSW Fire Brigades and the NSW Department of Environment and Climate Change (EP&A Act, 1979). The State organisations publish Advisory Papers, Standards, Guidelines, Schemes, Manuals and Practice Notes on a range of land use planning and development activities, for example, Guidelines for the Assessment and Management of Ground Water Contamination (New South Wales, Department of Environment and Conservation, 2007), Waste Classification Guidelines (New South Wales, Environmental Protection Authority, 2014); and Managing Urban Stormwater: Soils and Construction (2004).

Designated Development

The EP&A Regulations, Schedule 3 and some SEPPs identify all development that constitutes designated development. This form of development is usually considered to be of a large scale, or have the potential for adverse environmental impacts, or be located near sensitive environmental areas. An environmental impact statement is required to be lodged with an application for any development that is considered designated. For example, developing within certain coastal wetlands mapped under SEPP 14 Coastal Wetlands (EP&A Act, 1979).

Integrated and Designated Development

It is important to note that a project may be classified as integrated or both integrated and designated. The example of the work to a Public Road constitutes integrated development; yet, it would not be considered designated as there would not be a licence requirement. However, all designated development is also integrated development as the need for a licence would require concurrence from the licencing authority at the project assessment stage (EP&A Act, 1979).

Building Certification

Within NSW development must be certified by a PCA: an accredited building surveyor. Within the State, all PCAs are accredited with the State Government Building Professionals Board where they are required to meet established criteria to obtain a level of certification: speciality criteria, knowledge, skills experience and educational qualifications. The actual process by which a building is certified depends upon the type of development. For example, as previously mentioned, with complying development the developer may simply go straight

to the local government certifier or a private certifier to have the project approved and constructed. Conversely, with Part 4 local development, only the local authority is able to approve a development application and subsequently issue a development consent. At this stage, the developer may then seek either the local government certifier or a private certifier to certify the development, involving: assessment and approval of construction documentation, conducting construction inspections, ensuring compliance with development consent conditions, and the issue of an occupation certificate (Building Professionals Board, 2014). It must be noted that private certification formerly commenced in NSW during 1998, prior to this date all certification was undertaken by local government building surveyors with no accreditation system.

Summary

Within this chapter, ESD has been introduced at an international level with Agenda 21. From a Commonwealth perspective, ESD was adopted and implemented across a range of initiatives and policies such as the EPBC Act. Subsequently, changes concerning ESD on a State level involved the POEO Act and the EP&A Act, the subject of this research. Some of the major implementation activities associated with the EP&A Act have been outlined. Now the discussion moves to what may be considered the final phase is that of local government processes. This level is of vital importance to this research. The State has provided the regulatory framework to enable ESD principles to be implemented and environmental protection observed. Now it becomes the role of local authorities and other actors to implement the regulatory policy and achieve the desired outcomes of the ecologically sustainable development agenda.

Conclusion

Regulatory policy, including the EP&A Act, have been modified to achieve the principles of ESD and mitigate any negative impacts from development and construction operations. However, as construction operations continue to deliver irreversible damage, the performance of the policy system may be considered ineffective: policy intent does not eventuate into the desired outcomes. Therefore, the policy implementation phase may provide insight into this divide from which the research question has been founded: how policy implementation influences the disparity between policy intent and outcome.

Appendix 2

Stage 1 Human Ethics Research Council Approval

HUMAN RESEARCH ETHICS COMMITTEE



Notification of Expedited Approval

To Chief Investigator or Project Supervisor:	Associate Professor Graham Brewer
Cc Co-investigators / Research Students:	Doctor Thayaparan Gajendran Mrs Kim Maund
Re Protocol:	Influences of government regulatory on policy environmental outcomes on on-site construction operations
Date:	14-Aug-2012
Reference No:	H-2012-0262
Date of Initial Approval:	14-Aug-2012

Thank you for your **Initial Application** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under **L1 Low Risk Research Expedited** review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is **Approved** effective **14-Aug-2012**.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research, 2007, and the requirements within this University relating to human research.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. *If the approval of an External HREC has been "noted" the approval period is as determined by that HREC.*

The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request. Your approval number is H-2012-0262.

If the research requires the use of an **Information Statement**, ensure this number is inserted at the relevant point in the **Complaints** paragraph prior to distribution to potential participants. You may then proceed with the research.

*****Please note/action the following:**

1. Amendment to the Information Statements.

a. In the letterhead details for A/Prof Brewer, please delete the closing bracket ']' after the Callaghan postcode.

b. Under 'What are the risks and benefits?' amend line 1 to "...this research you will be contributing...".

c. For organisations.

i. Under 'What would you be asked to do?' amend line 1 of the 3rd paragraph to "...at the participants' convenfence...".

ii. Please ensure the complaints statement is updated for its final distribution to organisations to reflect the updated status as a HREC-approved project.

d. For individuals.

Under 'How much time will it take?' amend the final line to "...the recording or transcript of the interview." (As there is only 1 interview per participant and participants can only review their own interview recording/transcript, it is potentially confusing to refer to these in the plural). This amendment is also required under 'How will your privacy be protected?' (or consider removing this information from one of these sections to avoid repetition).

Appendix 3

Stage 2 Human Ethics Research Council Approval

HUMAN RESEARCH ETHICS COMMITTEE



Notification of Expedited Approval

To Chief Investigator or Project Supervisor:	Associate Professor Graham Brewer
Cc Co-investigators / Research Students:	Doctor Thayaparan Gajendran Mrs Kim Maund
Re Protocol:	Influences of government regulatory policy on environmental outcomes of onsite construction operations: Case Studies
Date:	12-Nov-2013
Reference No:	H-2013-0348
Date of Initial Approval:	12-Nov-2013

Thank you for your **Response to Conditional Approval** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under Expedited review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is **Approved effective 12-Nov-2013**.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research, 2007, and the requirements within this University relating to human research.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. *If the approval of an External HREC has been "noted" the approval period is as determined by that HREC.*

The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request. Your approval number is H-2013-0348.

If the research requires the use of an Information Statement, ensure this number is inserted at the relevant point in the Complaints paragraph prior to distribution to potential participants. You may then proceed with the research.

Conditions of Approval

This approval has been granted subject to you complying with the requirements for *Monitoring of Progress, Reporting of Adverse Events, and Variations to the Approved Protocol* as detailed below.

PLEASE NOTE:

In the case where the HREC has "noted" the approval of an External HREC, progress reports and reports of adverse events are to be submitted to the External HREC only. In the case of Variations to the approved protocol, or a Renewal of approval, you will apply to the External HREC for approval in the first instance and then Register that approval with the University's HREC.

- *Monitoring of Progress*

Appendix 4

Stage 1 and Stage 2 Topic Codes

Table 42. Stage 1 and Stage 2 topic codes

Topic code	Explanation
Accreditation	The validation or recognition of individual/organisational actions and programmes in line with the requirements of a governing international, national or state level entity. Whether an institute, government agency or other recognised professional body.
Advice	A code group reflecting a range of information provided by regulatory and non-regulatory bodies to assist with pre-construction and on-site construction activities. Advice may be general, guidance or instructive.
Auditing	Codes that represent inspection and evaluation activities, primarily associated with on-site operations. Therefore, verifying status of activities that may include internal organisational non-regulatory actions. Internal and external auditing agents and processes are considered within this theme.
Community engagement	General terms of reference related to the regulatory and non-regulatory agents involved with the development project, subsequent activities and their relationship with community stakeholders. Includes consultation and community complaints.
Contractual obligations	The formal agreement between relevant parties with respect to duties to be undertaken such as design and construct operations.
Conditions of consent	A set of codes that relate to series of standard conditions which form part of the development consent. These conditions are used to control the way in which a development project is constructed and/or used when operational.
Determination instruments	The application of tools and instruments to determine compliance and subsequently influence decision making processes. Includes a range of checklists and internal procedures associated with a judgement and resolution.

Topic code	Explanation
Development assessment	A grouping of codes that represents a range of actions including examination, assessment and determination activities of a regulatory and non-regulatory nature. Involves both regulatory government and non-government activities associated with assessment and determination.
Environmental constraints	A broad category of codes that relate to development areas in need of consideration to ensure protection of the environment.
Information dissemination	Codes representative of the flow of information throughout the system. In addition, this encompasses, codes as related to information availability in the public arena and its commercial sensitivity. Information dissemination also includes disclosure and suppression.
Integration	The degree to which the regulatory policy can be incorporated into development phases.
Management planning	The essential process of organisational planning. The need to plan activities in a logical and orderly sequence to enable implementation success. Encompasses issues associated with budgeting and forecasting for example.
Organisational hierarchy	Processes by which order, control and command are handled within an individual organisation and in respect to external collaborative partnerships.
Organisational position	The range of professionals involved with the system: organisations and units in the government and non-government sectors and the degree of collaborative relationships. The extent to which they are included in operations relevant to their area of specialisation. Includes professional inclusion and professional isolation.
Planning	Plans specific to protection of the environment. These plans are related to a particular development project (site) that identifies operations and measures to be implemented to ensure protection of the environment. In turn, this ensures compliance with the regulatory environmental planning policy and consequently, the development consent conditions. Planning refers to both environmental management planning and construction management planning.

Topic code	Explanation
Policy operationalisation	The development and formulation of a set of procedures by a government or private organisation. The process includes a range of activities from issue identification, consultation, research through to formalisation of the policy document.
Prioritisation	Level of importance assigned to areas and assignments related to pre-construction and on-site operations and ultimately protection of the environment.
Professional belief	A range of codes representing the degree of attitudinal respect, consideration, recognition, collaboration, conflict amongst professionals: internally and externally. The condition considers respect, collaboration, recognition and conflict.
Protection of the environment	Methods associated with the protection of natural resources, by agents and agencies. Methods employed to minimise environmental harm that could result from on-site operations.
Regulatory operations	All operations, both regulatory and non-regulatory, to affect compliance with the regulatory policy. Consideration of voluntary and compulsory activities.
Regulatory reliance	Codes reflecting the degree upon which development consent conditions are relied up as the mechanism to achieve protection of the environment.
Reporting protocols	Characterising the range of mechanisms in place that require regular reporting on development activities.
Risk management	Codes associated with risks of accepting and implementing regulatory environmental policy.
Satisfaction	Codes that represent the degree of professional content. May be in relation to the policy, policy processes or policy success.

Topic code	Explanation
Specialist knowledge and understanding	<p>The degree to which a professional is qualified and experienced in a particular field of specialisation. Inclusive of the various external consultants, their roles and responsibilities, in relation to an individual project. The application of policy to on-site management operations.</p> <p>A term reflecting a range of activities associated with the development and enhancement of professional skills and experience.</p> <p>The degree to which professionals are qualified and experienced in relation to their position and the activities they undertake.</p>
System performance	Degree to which the system is proactive or reactionary at an implementation level.

Appendix 5

Cross-Case Synthesis

Table 43. Cross-case synthesis

Topic code	Case Study 1	Case Study 2	Case Study 3	Case Study 4
Accreditation	✓	X	✓	✓
Advice: general Advice: guidance Advice: instruction	✓	✓	✓	✓
Auditing: inspections Auditing: reviews	✓	✓	✓	✓
Community engagement Community consultation Community complaints	X	✓	✓	X
Contractual obligations	✓	✓	X	✓
Conditions of consent	✓	✓	✓	✓
Determination instruments	X	X	✓	✓
Development assessment	✓	✓	✓	✓
Environmental constraints	✓	✓	✓	✓
Information dissemination Information disclosure Information suppression	✓	✓	✓	
Integration	X	✓	X	✓
Management planning	✓	✓	✓	✓
Organisational hierarchy	✓	✓	✓	✓
Organisational professionalism	✓	✓	✓	✓
Planning: environmental management Planning: construction management	✓	✓	✓	✓
Policy operationalisation	X	✓	✓	✓
Prioritisation	✓	✓	X	✓
Professional value	✓	✓	✓	✓
Protection of the environment	✓	✓	✓	✓
Regulatory operations	✓	✓	✓	✓
Regulatory reliance	✓	✓	✓	✓
Reporting protocols	✓	✓	✓	✓
Risk management	X	✓	✓	X
Satisfaction	✓	✓	✓	✓
Specialist knowledge and understanding	✓	✓	✓	✓
System performance	✓	X	✓	X

Appendix 6

Codes and their relationship with the preconditions

Table 44. Stage 1 & 2 codes and their relationship with the ten preconditions

Topic code	Explanation	Precondition
Accreditation	The validation or recognition of individual/organisational actions and programmes in line with the requirements of a governing international, national or state level entity. Whether an institute, government agency or other recognised professional body.	Precondition 1 Circumstances external to the implementing agency do not impose crippling constraints
Advice	A code group reflecting a range of information provided by regulatory and non-regulatory bodies to assist with pre-construction and on-site construction activities. Advice may be general, guidance or instructive.	Precondition 6 That dependency relationships are minimal Precondition 9 That there is perfect communication and co-ordination
Auditing	Codes that represent inspection and evaluation activities, primarily associated with on-site operations. Therefore, verifying status of activities that may include internal organisational non-regulatory actions. Internal and external auditing agents and processes are considered within this theme.	Precondition 2 That adequate time and sufficient resources are made available to the programme Precondition 1 Circumstances external to the implementing agency do not impose crippling constraints Precondition 10 That those in authority can demand and obtain perfect compliance
Community engagement	General terms of reference related to the regulatory and non-regulatory agents involved with the development project, subsequent activities and their relationship with community stakeholders. Includes community consultation and community complaints.	Precondition 1 Circumstances external to the implementing agency do not impose crippling constraints Precondition 9 That there is perfect communication and co-ordination
Contractual obligations	The formal agreement between relevant parties with respect to duties to be undertaken such as design and construct operations.	Precondition 5 That the relationship between cause and effect is direct and that there are few, if any, intervening links

Topic code	Explanation	Precondition
Conditions of consent	A set of codes that relate to series of standard conditions which form part of the development consent. These conditions are used to control the way in which a development project is constructed and/or used when operational.	Precondition 4 That the policy to be implemented is based on a valid theory of cause and effect
Determination instruments	The application of tools and instruments to determine compliance and subsequently influence decision making processes. Includes a range of checklists and internal procedures associated with a judgement and resolution.	Precondition 5 That the relationship between cause and effect is direct and that there are few, if any, intervening links Precondition 10 That those in authority can demand and obtain perfect compliance
Development assessment	A grouping of codes that represents a range of actions including examination, assessment and determination activities of a regulatory and non-regulatory nature. Involves both regulatory government and non-government activities associated with assessment and determination.	Precondition 2 That adequate time and sufficient resources are made available to the programme Precondition 6 That dependency relationships are minimal Precondition 7 That there is understanding of, and agreement on, objectives
Environmental constraints	A broad category of codes that relate to development areas in need of consideration to ensure protection of the environment.	Precondition 7 That there is understanding of, and agreement on, objectives Precondition 10 That those in authority can demand and obtain perfect compliance
Information dissemination	Codes representative of the flow of information throughout the system. In addition, this encompasses, codes as related to information availability in the public arena and its commercial sensitivity. Information dissemination also includes disclosure and suppression.	Precondition 9 That there is perfect communication and co-ordination
Integration	The degree to which the regulatory policy can be incorporated into development phases.	Precondition 3 That the required combination of resources is actually available Precondition 9 That there is perfect communication and co-ordination

Topic code	Explanation	Precondition
Management planning	The essential process of organisational planning. The need to plan activities in a logical and orderly sequence to enable implementation success. Encompasses issues associated with budgeting and forecasting for example.	Precondition 8 That tasks are fully specified in correct sequence
Organisational hierarchy	Processes by which order, control and command are handled within an individual organisation and in respect to external collaborative partnerships.	Precondition 5 That the relationship between cause and effect is direct and that there are few, if any, intervening links Precondition 6 That dependency relationships are minimal Precondition 8 That tasks are fully specified in correct sequence Precondition 9 That there is perfect communication and co-ordination
Organisational position	The range of professionals involved with the system: organisations and units in the government and non-government sectors and the degree of collaborative relationships. The extent to which they are included in operations relevant to their area of specialisation. Includes professional inclusion and professional isolation.	
Planning	Plans specific to protection of the environment. These plans are related to a particular development project (site) that identifies operations and measures to be implemented to ensure protection of the environment. In turn, this ensures compliance with the regulatory environmental planning policy and consequently, the development consent conditions. Planning refers to both environmental management planning and construction management planning.	Precondition 4 That the policy to be implemented is based on a valid theory of cause and effect Precondition 8 That tasks are fully specified in correct sequence
Policy operationalisation	The development and formulation of a set of procedures by a government or private organisation. The process includes a range of activities from issue identification, consultation, research through to formalisation of the policy document.	

Topic code	Explanation	Precondition
Prioritisation	Level of importance assigned to areas and assignments related to pre-construction and on-site operations and ultimately protection of the environment.	Precondition 8 That tasks are fully specified in correct sequence
Professional belief	A range of codes representing the degree of attitudinal respect, consideration, recognition, collaboration, conflict amongst professionals: internally and externally. The condition considers respect, collaboration, recognition and conflict.	
Protection of the environment	Methods associated with the protection of natural resources, by agents and agencies. Methods employed to minimise environmental harm that could result from on-site operations.	Precondition 4 That the policy to be implemented is based on a valid theory of cause and effect
Regulatory operations	All operations, both regulatory and non-regulatory, to affect compliance with the regulatory policy. Consideration of voluntary and compulsory activities.	Precondition 1 Circumstances external to the implementing agency do not impose crippling constraints
Regulatory reliance	Codes reflecting the degree upon which development consent conditions are relied up as the mechanism to achieve protection of the environment.	Precondition 7 That there is understanding of, and agreement on, objectives
Reporting protocols	Characterising the range of mechanisms in place that require regular reporting on development activities.	Precondition 5 That the relationship between cause and effect is direct and that there are few, if any, intervening links
Risk management	Codes associated with risks of accepting and implementing regulatory environmental policy.	Precondition 10 That those in authority can demand and obtain perfect compliance
Satisfaction	Codes that represent the degree of professional content. May be in relation to the policy, policy processes or policy success.	Precondition 4 That the policy to be implemented is based on a valid theory of cause and effect

Topic code	Explanation	Precondition
Specialist knowledge and understanding	<p>The degree to which a professional is qualified and experienced in a particular field of specialisation. Inclusive of the various external consultants, their roles and responsibilities, in relation to an individual project. The application of policy to on-site management operations. A term reflecting a range of activities associated with the development and enhancement of professional skills and experience.</p> <p>The degree to which professionals are qualified and experienced in relation to their position and the activities they undertake.</p>	
System performance	Degree to which the system is proactive or reactionary at an implementation level.	<p>Precondition 5 That the relationship between cause and effect is direct and that there are few, if any, intervening links</p>

