

ENVIRONMENTAL IMPACT ASSESSMENT
AND ORGANISATIONAL CHANGE IN
TRANSPORT SA & ETSA CORPORATION

Volume I

*The Capability, Culture, and
Performance (CCP) Framework*

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*I dedicate this work to my family
and especially to my Granddad, Albert Edwards,
who was a true and loving gentleman.*

The views in this thesis are not the official views of
either Transport SA or ETSA Corporation (in particular Electranet SA), and the
interpretations of results and any errors in factual information are solely attributable to the author.

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GLOSSARY

ABS	Australian Bureau of Statistics
A-D	Ardrossan-Dalrymple Transmission Line
A-C	Adelaide-Crafers Highway Proposal
AEC	Atomic Energy Commission (United States)
AESCO	Adelaide Electricity Supply Company
AIRE	Adelaide International Runway Extension
ANEC	Australian Noise Exposure Concept
ANEF	Australian Noise Exposure Forecast
ANEI	Australian Noise Exposure Index
BLM	Bureau of Land Management (United States)
CEPA	Commonwealth Environmental Protection Agency (Australia)
DAC	Development Assessment Commission (replaced the SAPC)
DAHE	Department of Arts, Heritage and the Environment (Australian Commonwealth)
DASETT	Department of Arts, Sports, the Environment, Tourism and Territories (replaced DAHE)
dBA	Decibels
DAEF	Departmental Appraisal of Environmental Factors (Highways Department, South Australia)
DEF	Declaration of Environmental Factors (South Australia)
DENR	Department of Environment and Natural Resources (South Australia)
DEP	Department of Environment and Planning (South Australia)
DEST	Department of Environment, Sport and Territories (Australian Commonwealth)
DHUD	Department of Housing and Urban Development (South Australia)
DoD	Department of Defense (United States)
DoI	Department of Interior (United States)
DoT	Department of Transport (South Australia)
DOT	Department of Transport (United States)
EDA	Economic Development Authority (South Australia)
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMIP	Environmental Management Implementation Plan
EMS	Environmental Management System
EPA	Environment Protection Authority (South Australia)

EPIP	Environment Protection (Impact of Proposals) Act 1974 (Australian Commonwealth)
ER	Environmental Report
ES	Environmental Summary
ESD	Ecologically Sustainable Development
ETSA	Electricity Trust of South Australia
FAC	Federal Airports Commission (Australia)
FHWA	Federal Highway Administration (United States)
FPC	Federal Power Commission (United States)
GMF	Government Management Framework (South Australia)
HUD	Department of Housing and Urban Development (United States)
H-W	Hummocks-Waterloo Transmission Line
IEF	Identification of Environmental Factors (Highways Department, South Australia)
kV	kilovolts
MEP	Minister for Environment and Planning (South Australia)
MHUD	Minister for Housing and Urban Development (South Australia)
MPCG	Master Project Control Group
NH&MRC	National Health and Medical Research Council of Australia
PBP	People Before Powerlines
PWC	Public Works Committee
PER	Public Environment Report
RAA	Royal Automobile Association (South Australia)
RVC	Roadside Vegetation Committee (South Australia)
SAPC	South Australian Planning Commission
SCS	Soil Conservation Service (United States)
STCC	Southern Transport Community Coalition
T-C	Tungkillo-Cherry Gardens Transmission Line
T-T	Tungkillo-Tailem Bend Transmission Line
UPA	Urban Projects Authority (South Australia)
UNEP	United Nations Environment Programme
VMS	Value Management Study
WHO	World Health Organisation



ABSTRACT

Evaluations of 'environmental impact assessment' (EIA) effectiveness have increasingly been undertaken in the last decade, but few studies have focused on the organisational 'black-box' as the unit of analysis; that is, the way in which EIA changes (or does not change) proponent decision-making cultures and structures over time. This thesis develops a unique and systematic evaluation framework for evaluating EIA and organisational change, and examines the influence of the EIA system on two government organisations within South Australia (Transport SA and ETSA which is an electricity generating authority).

A two-tiered approach to the evaluation is adopted in the empirical research, with an evaluation of (i) the EIA system in South Australia (the *system-evaluation*); and (ii) the organisational ability to implement EIA (the *Capability, Culture, Performance framework*). The *system-evaluation* focuses on the 'intentions' of EIA on paper and is structured around the concept of organisational 'controls' in EIA, which were originally borrowed from organisational theory and applied to the EIA context in 1987 (for example, procedural control, judicial control, evaluative control). The underlying assumption is that the nature and strengths of these controls will influence organisational change and performance in EIA.

The *Capability, Culture, Performance (CCP) framework* focuses on the organisational response to the EIA requirement, and the environment established for EIA's implementation. It is suggested that for 'effective' change in the EIA context, there must be:

- an organisational *capability* for EIA (for example, procedures, goals, staff, structures, and resources to support the EIA process);
- an organisational *culture* for EIA (for example, evidence of employee attitudes which support environmental values and their incorporation into decision-making, and the power and ability to do so); and
- the translation of this EIA capability and culture into EIA *performance* (ie the 'CCP' match). The evaluation of EIA performance is structured around four dimensions: EIA compliance, EIS quality, proponent openness, and proponent responsiveness.

It was found, however, that the degree of 'CCP' match and effectiveness of EIA performance was both facilitated and confounded by (i) changes in other areas of the organisation which were unrelated to EIA (for example, the transformation of both organisations from operational providers of services to managers and 'regulators'); and (ii) multiple political, economic and social factors in the decision-making process. Of significance is that the nature of the organisational response to EIA was not static, and, within the same organisation, the response to EIA varied between projects (depending in part on their public and political visibility), and over time depending on the changing social-political-economic climate. In this respect, EIA was more of a project refinement and management tool, rather than a tool for decision-making (ie whether or not to proceed with a proposal).

These factors are drawn together in the final part of this thesis which analyses patterns of organisational change process in South Australia in comparison with experience in the United States. Explanations for the organisational responses to EIA and the slight CCP mismatch are provided in terms of a model of four 'contextual filters', comprising the broader social, political, economic context (filter 1), the nature of the EIA system in South Australia (filter 2), the nature of the organisations studied in this research (filter 3), and the nature of the project. Within this discussion, recommendations are made to improve EIA at both the legislative level and at the organisational level, and conclusions are made about the models of reform in EIA, and the value of the evaluation framework developed in this research.

DECLARATION

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to my dissertation being available for photocopying and loan.

SIGNED: _____

DATE: 2/07/01

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PART I:

THE THEORETICAL &
EVALUATION FRAMEWORK

Chapter One

INTRODUCTION**1.0 INTRODUCTION**

It is over thirty years since the process of 'Environmental Impact Assessment' (EIA) was formally introduced under the United States' *National Environmental Policy Act 1969* (NEPA). In essence, EIA was designed to change the behaviour of government organisations by requiring them to consider environmental factors in their decision-making processes where previously they had been ignored. Since the enactment of NEPA, the EIA process has spread worldwide and has been adopted in over half the world's nations (CEQ 1995; Ortolano and Shepherd 1995). In the last decade, there have been increasing numbers of studies which seek to understand and to evaluate the effectiveness of EIA, including the more recent international study on EA (Environmental Assessment) effectiveness (Sadler 1996). Such effectiveness studies have taken a variety of approaches, ranging from the more scientific which focus on techniques and methods of assessing environmental impacts, to the more theoretical and policy-oriented studies which examine legislative EIA requirements, procedural compliance to EIA, and the actual impacts of EIA on decision-making. According to Sadler:

'In recent years, the world-wide adoption and adaptation of EA has significantly expanded the theatre of practice, added new roles and professional responsibilities, and brought changing perspectives on what constitutes sound performance. These developments are the subject of an increasing literature to which there are hundreds of new entries each year in the English language alone' (Sadler 1996: p11).

1.1 RESEARCH RATIONALE & SIGNIFICANCE

Despite the proliferation of research in the field of EIA, there are still relatively few systematic studies which evaluate how EIA has influenced proponent organisations and changed their behaviour (Ortolano and Shepherd 1995). Does EIA improve the decision-making of organisations as was originally intended by the EIA process? There are as yet no clear-cut

answers, and it is still not widely understood how EIA has influenced and changed the organisational consciousness, structures and decision-making processes of proponent organisations (Culhane 1974; Culhane 1987; Ortolano and Shepherd 1995). This is a significant omission in the research arena given that EIA was originally intended to modify behaviour at the organisational level. According to Bartlett and Baber:

'Whereas a great deal of effort has been invested over the last decade and a half in developing techniques and procedures for environmental impact analysis, little conceptual, theoretical, or empirical effort has been expended on the larger questions of the organisation and management of EIA...What is known, or believed, by the practitioners of EIA has been learned principally through *ad hoc* tinkering hardly motivated by considerations of larger purposes or of global effectiveness... A considerable body of theoretical literature has emerged to explain, inform, and even encourage this development [on organisational theory], but this literature appears to have had as yet any influence at all on the extensive literature of environmental impact analysis. We suggest that this lack of cross-fertilization is unfortunate' (Bartlett and Baber 1987: p606).

Although there are a number of factors which will influence EIA outcomes in decision-making, the analysis of policy implementation within the organisational '*black box*' is essential to understanding the actual effects of the policy (Beyer *et al* 1983; Garipey and Henault). In a broader policy context (not just EIA), van Meter and van Horn (1975) and Stewart (1980) argue that the nature of the implementing agency, in addition to economic, social and political conditions, will influence the success of, and are central to understanding, a policy's implementation and outcomes. Lyon and Maxwell (1999) similarly note that the way in which an organisation responds to a government's environmental policy will have a major influence on the effectiveness of policy outcomes.

Organisations will change as a result of major environmental policy reforms such as EIA, particularly if these reforms threaten their survival (Heffron 1989; Ortolano and Shepherd 1995), but this reaction could take several forms depending on the nature of the organisation including:

- complete avoidance of the EIA requirement;
- attempts to dampen its impact and carry on with 'business as usual';
- efforts to comply in a *pro forma* manner only or treat it as a narrow technical exercise where EIA is not fully integrated with decision-making; or
- the development of procedures which herald a complete change in business operations (Liroff 1976; Ortolano and Shepherd 1995; Sadler 1998).

Given the political nature of decision-making in government, and the often competing goals of economics and environment, the transformation to better environmental planning and decision-making within proponent organisations is not automatic. This is a common problem in policy implementation, and Coombs (1980) suggests in a broader context that mere compliance to a policy does not guarantee that the desired outcome is attained. EIA was originally designed in

the United States to reflect the 'rational' model of decision-making so that organisations aim for an optimum decision when planning their projects and other activities (see Chapter Two), but this optimum is complicated by numerous factors such as the existing state of technical knowledge, economic and political pressures, intra-agency politics and power balances between environment and other portfolios, levels of public awareness, and characteristics of the proponent organisation (*ie* its purpose and degree of power, goals and internal politics, knowledge bases, levels of technical expertise, staff and resources available, interest groups, attitudes, and existing organisational structure among other things) (Wichelman 1976; Cortner 1976; Caldwell 1982; Taylor 1984; Garret and Martins 1996; Marsden 1998).

The need to focus on organisations and their behaviour in EIA research has been further highlighted by a number of authors (Fishman 1973; Fairfax and Andrews 1979; Mazmanian and Nienaber 1979; Taylor 1984; Bartlett and Baber 1987; Gariepy and Henault 1994; Ortolano and Shepherd 1995; Caldwell 1998). Horberry notes, for instance:

'The institutional framework, in particular the appointment of responsible persons, greatly influence how much effect EIA can have on decision-making and project planning in reality... Many of the desirable relationships between EIA and development planning can only come about through changing the way organisations behave and by defusing personal responsibilities combined with incentives and penalties in support of more environmentally sound decisions' (cited in Anderson 1986: p21).

Fishman (1973) and Taylor (1984) have suggested that an understanding of agency context is necessary for determining the impact of EIA on decision-making reform; whilst Gariepy and Henault (1994) have stated that organisational culture (together with the nature of the project) is a determining factor in EIA outcomes. That is, '*the structure, ways and means of an organization can act as impediments to moving EIA upstream the planning process*' (Gariepy and Henault 1994: p1). Likewise, Bartlett and Baber (1987) state that an agency's choice of organisational format¹ for EIA may influence the degree to which EIA becomes integrated into agency decision-making processes. Fairfax and Andrews (1979), who are highly critical of the externally forced EIA process, also called for a greater understanding of the organisational arena in EIA by arguing that agencies:

'contain interest groups and interactions of their own, and the range of views present on the inside can be fully reflective of that without. This aspect of bureaucratic reality has been insufficiently treated in academic literature on the subject... Students and would-be reformers of the administrative process have much to gain from closer attention to and fuller appreciation of the creative potential of public agencies' (Fairfax and Andrews 1979: p535).

Several useful lessons about EIA in the organisational arena (with a focus on government organisations) have already been learned from research undertaken in the United States during

¹ In other words, the choice among various alternatives for assembling an agency's EIA compliance personnel and placing them within the agency's structure'.

the 1970s and 1980s (*eg* Andrews 1976; Hill and Ortolano 1976; Liroff 1976; Wichelman 1976; Jenkins 1977; Jenkins and Ortolano 1978; Ortolano *et al* 1978; Mazmanian and Nienaber 1979; Brendecke and Ortolano 1981; Ortolano 1983; Taylor 1984). As a result, a number of models have been proposed which attempt to explain how and why EIA induces organisational change, and these models are addressed in Chapter Two along with more specific details about the EIA requirement contained within NEPA. There are also isolated and more recent examples of EIA research at the organisational level in different contexts (*eg* Tu 1993 on Thailand and Taiwan; Shepherd and Ortolano 1997 on Thailand; Garipey and Henault 1994 on Canada).

Many of the lessons learned from the United States' research are still applicable, but the research is over twenty years old and is not necessarily generalisable to other countries and EIA contexts given differences in decision-making cultures, and given that EIA, as it has developed around the world, '*is no longer totally synonymous with NEPA*' (Ridgway 1995: p63). South Australia, which is the subject of this research, developed an EIA system which was different in many ways to the United States' system (although the principles are generally the same). Unlike in the United States, for instance, EIA was first established by a Cabinet agreement in the early 1970s and not by law, but it was, like NEPA, intended to reform government agency behaviour. However, when EIA was enshrined within legislation in South Australia in the early 1980s, it was not intentionally aimed at reforming government agency behaviour or amending their missions. Instead, EIA was focused on reforming and changing isolated *projects* which may trigger the EIA process, and this process is usually administered by a central authority (*ie* not by the proponent as is the case in the United States). Thus, reform of agency behaviour as a result of EIA is more indirect and implicit in South Australia when compared to NEPA in the United States.

The decision-making cultures between the United States and Australia are also different in some ways, which further inhibits the generalisation of the early United States research on EIA and organisational change. The United States' decision-making culture has been characterised as an adversarial one which has relied heavily on the courts (Howlett and Ramesh 1995; Mostert 1995). As is discussed further in Chapters Two and Three, the courts have been one of the most significant factors in influencing EIA practice and organisational change in the United States, by enforcing compliance and providing detailed interpretations of NEPA's requirements (Lynch and Galligan 1996). The significant reliance on courts in the United States is well illustrated by Holland:

'Opponents of large construction projects such as dams or highways have increased the demand for activist courts and benefit from a judiciary eager on the whole to assume a political role. The cultural, ethnic, racial, religious, and economic diversity of the United States, coupled with the fragmentation of political power between levels and among branches of government, have generated numerous points within the political system where an interest group can apply pressure to achieve its ends. Nearly every group supplements its political lobbying with a judicial strategy, especially if it considers itself somehow disadvantaged in the competition for legislative or administrative largesse. Interest groups striving for both material and immaterial

gains no longer view the courts as simple legal institutions but perceive them as policymaking bodies with the power to redistribute wealth and power from the "haves" and "have nots" (Holland 1996: p163).

In contrast, the environmental decision-making culture in Australia has been described as less adversarial (*ie* consensus based), being premised on a parliamentary system that concentrates decision-making power into the hands of the elected executive and the bureaucracy, with only a limited role for the courts (Howlett and Ramesh 1995). The Australian High Court has had a key role in high profile environmental decisions which involve Commonwealth/State jurisdictional conflicts, but the Commonwealth government has carefully controlled and curtailed the role of the courts in environmental decision-making and in EIA (Lynch and Galligan 1996). This was also true for EIA at the Australian State and Territory levels (except for New South Wales), with governments adopting non-mandatory EIA processes which have opportunities for significant discretion, and which restrict third party rights to trigger court proceedings² (Lynch and Galligan 1996). In fact in South Australia, all provisions for appeal and judicial review in the EIA process have been removed, and this is further explored in Chapter Five.

Does this lack of court enforcement in EIA within Australia and in other jurisdictions mean that government organisations (as proponents of major projects) will not, or have not, changed to the same degree as was evident in the United States where the court influence was so significant? Already it has been found in the Philippines that the EIA system is ineffective because it relies primarily on EIA procedures and lacks provisions for judicial enforcement (Ortolano 1993). Although not in the EIA context, Fuchs and Mazmanian (1998: p198) similarly argue that for organisational change to occur, '*legislation needs to be backed up by enforcement, the threat of liability and therefore increasing costs of polluting activities*'. Alternatively, are other factors more important in the EIA and organisational change process? The answers to these questions in the South Australia context are not yet clear. While there have been a number of government reviews and academic evaluations of EIA,³ there has been no research of this nature in South Australia. This type of research is also limited in the broader Australian context, and while isolated studies exist, such as those by Formby (1987) who reviewed the implementation of EIA at the national level and documented some bureaucratic resistance to EIA, the focus of research

²'standing' to appeal is usually restricted to parties who can establish that they have direct rights or interests which will be impacted upon by a certain action.

³ For example, Harvey (1993) and Harvey (1995) examined the overall practice of EIA under South Australia's Planning Act; Harvey and Ferguson (1994) examined the influences on practice under the Planning Act, whilst noting the future directions of EIA under the subsequent Development Act; Fookes (1987a) provided a comparative analysis of three EIA case studies in the context of integration between planning and environment; and Fookes (1987b) reviewed the EIA system based on thirteen principles of EIA developed by the United Nations Environment Programme. Fowler's (1982) historical account of the initial and more informal requirements for EIA in South Australia is also a useful and informative reference.

has not been on the organisational level *per se*.⁴ Formby (1990) has however, highlighted the need for this type of research on EIA and organisational behaviour in an Australian context.

The United States' research on EIA and organisational change is also not entirely generalisable because of its age. That is, the research was undertaken at a time when the public sector was viewed in a traditional bureaucratic and administrative sense in serving the 'public good' (refer Chapter Six). In the last two decades, fundamental changes have occurred, and are ongoing, within government agencies in many countries, including the United States and Australia. 'Bureaucracies' are gradually being transformed into 'entrepreneurial' organisations, and fundamental services which have traditionally been within the realm of the public sector, such as the construction of roads or provision of electricity and water, are increasingly being outsourced to the private sector. This transformation is briefly described in Chapter Six, and it is becoming increasingly difficult to delineate between the roles of the public sector and the private sector. The 1990s have also been characterised by the widespread introduction into organisations of broader Environmental Management Systems (EMSs) as a self-regulatory mechanism. How will these changes affect the way in which EIA changes organisations or decisions are made (if at all)?

The rationale for research at the organisational level in EIA within different jurisdictions is clear, particularly given the potential for proponent organisations to influence the outcomes of EIA. Understanding how EIA changes organisations, how people operate within these organisations, and what factors influence organisational behaviour, will facilitate a better understanding of how, why and whether EIA works or not. That is the intention of this thesis; to understand how and why EIA changes organisations, and how effectively these organisations implement the EIA process. The evaluation of EIA at the organisational level of analysis is, however, hindered by a lack of systematic evaluation frameworks. What characterises 'effective' organisational change as a result of EIA, and what criteria does one use to actually measure this? How does one isolate changes occurring within the organisation as a direct result of EIA compared to other influencing factors (Ortolano 1993)? As noted by Mazmanian and Nienaber:

'The task of evaluating change in large, complex organizations is difficult because it requires, first, a decision on the proper criteria to be used, and second, a systematic measurement of the extent to which these criteria are met. A number of scholars have addressed these issues from time to time,...but despite much recent interest in the topic of organizational change, as yet there is no general set of indices by which to measure change' (Mazmanian and Nienaber 1979: p3).

⁴There are, however, isolated examples of research in Australian government organisations in terms of general environmental management or implementing sustainable development (as opposed to EIA in particular). This includes research by Stewart (1997) who examined environmental management initiatives and change in departments involved with rural water management (Victoria, New South Wales and Queensland); and research by the Commonwealth government which evaluated the implementation of ecologically sustainable development (ESD) by Commonwealth government organisations (Commonwealth of Australia 2000).

This statement still essentially holds true today, although Mazmanian and Nienaber did develop a set of four indicators of change (see Chapter Four). More recent progress has also been made for instance by Tu (1993), Gariepy and Henault (1994), Shepherd and Ortolano (1997) and others.

1.2 RESEARCH AIMS AND OBJECTIVES

Within the above-noted context, this research aims to:

develop a systematic framework for evaluating 'effective' organisational change, and to apply this framework to two government organisations in South Australia to determine the level of change achieved as a result of the EIA requirement.

In order to achieve the broad research aim, the accomplishment of eight more specific objectives is necessary:

- (1) a review of the theoretical literature on models of organisational change, models of reform in EIA, and policy implementation theories which explain how and why new policies are implemented within organisations (Chapter Two);
- (2) a review of existing research on EIA and organisational change in the United States to draw lessons for comparison with experience in South Australia, and to identify strengths and limitations in the models of reform in EIA (Chapter Three);
- (3) the development of an evaluation framework which defines indicators and criteria for evaluating (i) the degree and effectiveness of organisational change, and for (ii) evaluating the EIA system in South Australia (Chapter Four);
- (4) an evaluation of the EIA system in South Australia to assess and compare its requirements with international principles of 'best practice', and to identify different controls which may lead to more effective EIA performance and change within the case study organisations (Chapter Five);
- (5) an historical review of the case study organisations to understand their missions and their responses to previous and current change requirements, and to identify the organisational, cultural and political setting for EIA practice (Chapter Six);
- (6) an examination of how the case study organisations responded to the EIA requirement at the official level with the development of an organisational *capability* for EIA (Chapter Seven);
- (7) an exploration of attitudes and values towards EIA of individuals employed within the case study organisations (*ie* the presence of an organisational *culture* for EIA) (Chapter Eight); and
- (8) an evaluation of EIA performance in the case study organisations in terms of procedural compliance to EIA, quality of EISs, proponent openness and proponent responsiveness in the EIA process (Chapter Nine).

The underlying assumptions of this research are that (i) EIA will change an organisation's behaviour; and in turn, (ii) the nature of the organisation's history and response to EIA will influence how effectively EIA is performed in practice; but that (iii) the degree of change achieved and effectiveness of EIA's implementation will invariably be influenced by external social and political contextual factors. It is also assumed that other environmental initiatives other than the EIA requirement, such as greenhouse strategies, 'ecologically sustainable development' (ESD) strategies, and/or Environmental Management Systems will also trigger change within organisational decision-making processes, which as noted earlier, makes it difficult to attribute change solely to the EIA requirement.

It is suggested that for effective change to occur in the EIA context, there must be (ideally) an organisational *capability* to implement EIA (eg the creation of environmental goals, EIA procedures, environment staff and structures); there must be an organisational *culture* which is conducive to EIA (ie willingness and authority to act), and that both *capability* and *culture* should translate into effective EIA *performance* (ie the CCP match). However, as noted previously, the latter will be confounded by political factors in the decision-making process. In exploring these factors later in this thesis, the focus is on government organisations rather than private proponents of projects. This is because government organisations tend to propose several projects which undergo the EIA process, and hence have the most need for behavioural change and an internal infrastructure which supports the EIA process (as opposed to organisations which might only undergo the EIA process once or twice). The focus is on two government organisations within South Australia, comprising a road transport authority (Transport SA) which is a government department, and an electricity generating authority (ETSA)⁵ which is a public corporation (refer to Chapter Six for a description of these organisations). These organisations were essentially chosen because they had the most experience in EIA within South Australia. Further rationale for the choice of jurisdiction and the case study organisations is provided in Chapter Four.

1.3 THESIS STRUCTURE

The structure of this thesis is illustrated in Figure (1.1) and is framed around the eight research objectives. Part I of the thesis provides the theoretical and evaluation framework for the research; Part II presents the EIA and organisational context to the study in South Australia, and Part III presents the empirical research conducted in the case study organisations, including discussion, conclusions and recommendations.

⁵The focus is on Electranet SA which is a subsidiary of ETSA corporation (Electricity Trust of South Australia), and the history of its evolution is presented in Chapter Six. While the focus is on Electranet which is responsible for transmission lines, the attitudes of employees within the original ETSA organisation are also incorporated into the research given that the research commenced before Electranet was formed.

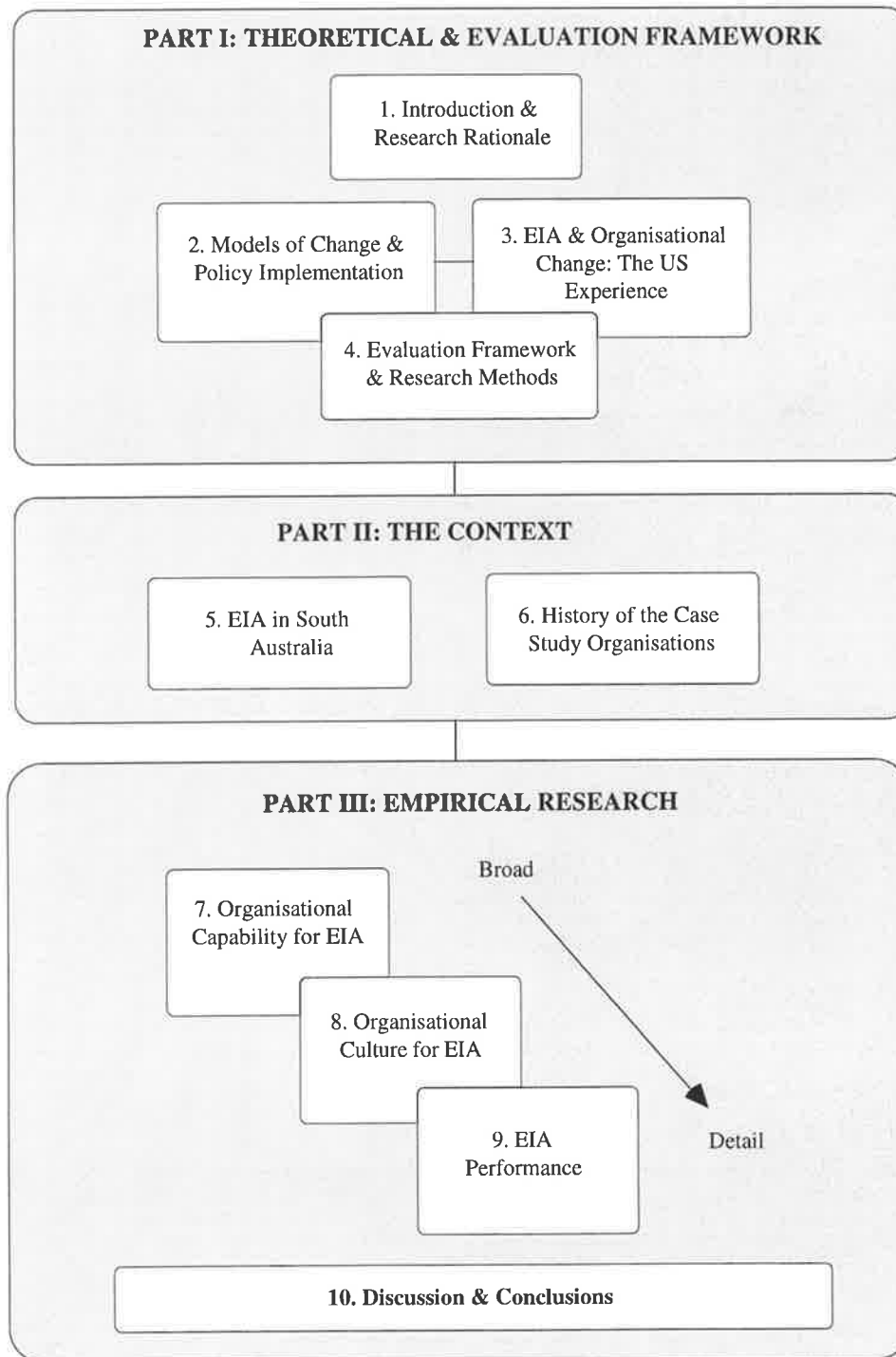


Figure 1.1: Thesis Structure

1.3.1 Theoretical Framework

One of the challenges in this research was to cross link a number of different disciplines in the literature such as EIA, organisational theory (which in itself has several subdisciplines), policy implementation theory, environmental management, planning, law, history, public policy, and public administration theory, among others. This was no easy task given the vast bodies of literature within each particular arena. Chapter Two reviews general theories on organisational change; models of reform which were designed specifically to account for EIA outcomes; and policy implementation theories, including the nature of the policy itself (EIA in this case), organisational characteristics (*eg* resources, structures, attitudes), and the nature of the organisation's environment (*eg* state of the economy, public attitudes). Very little reference is made to the case study organisations, and the purpose of this Chapter is to provide a broad understanding of the concepts necessary for exploring EIA and organisational change later in the thesis. Chapter Three links EIA and organisational change together and examines the existing research in the United States to draw lessons from experience which may be useful for understanding the South Australian context, and for developing an evaluation framework.

Chapter Four draws the information from Chapters Two and Three together, and reviews existing evaluation studies in EIA to define an evaluation framework for assessing change within the case study organisations. A two-tiered approach is adopted with the development of two evaluation frameworks comprising:

- a *CCP framework* (Capability, Culture, Performance) which assesses change at the organisational level as a result of EIA; and
- a *system-evaluation framework* which evaluates the EIA system in South Australia at the legislative/procedural level.

Also discussed in this Chapter are the research methods used, the process of gaining access to the case study organisations, and an outline of research limitations.

1.3.2 The Context

Part II of the thesis presents the EIA and organisational context for the empirical research presented in Part III. Chapter Five begins with an evaluation of the EIA system and the nature of the policy requirement in South Australia. It is difficult to understand organisational change without first gaining an understanding of the EIA requirement which induces this change. How does the system compare to concepts of ideal EIA systems? What are the key features of the EIA policy which may influence organisational behaviour? These latter two factors are evaluated using the *system-evaluation framework* defined in Chapter Four.

From this point, the thesis focuses on the case study organisations, beginning in Chapter Six with an analysis of the organisations within their historical, social and political context. This Chapter provides a baseline context similar to that undertaken in Mazmanian and Nienaber's (1979) and Taylor's (1984) research on EIA and organisational change in the United States. In this respect, the historical context provides some understanding of how and why the organisations changed (or not) as a result of EIA. As noted by McHugh and Bennett:

'...changing public sector organizations is a mammoth task, which is made even more difficult by the long term stability and the deeply embedded culture which exists as a relic of the past' (McHugh and Bennett 1999: p199).

Given that this research was undertaken after the EIA requirement was introduced in South Australia, the 'before' scenario, by necessity, relies on employee memories and historical narrations.

1.3.3 The Empirical Research

Part III of the thesis presents the research conducted on the two case study organisations in South Australia, from the broadest level to the more detailed level. Chapter Seven addresses the organisational *capability* which was developed to implement EIA in both Transport SA and Electranet SA. The organisational capability is also discussed within the broader environmental management context within each organisation because, as noted earlier, it is difficult to isolate EIA's impacts on organisational changes (*ie* other factors may trigger the change) (Renwick 1988). This approach is also significant given that much of the research conducted into EIA and organisational change has tended to examine the EIA process in isolation from other environmental initiatives. This fails to recognise that other environmental initiatives may actually influence and strengthen the legitimacy and practice of EIA.

Chapter Eight focuses on the less visible nature of change at the organisational *culture* level and examines individual and group attitudes within the organisations towards the EIA process. In addition to factors which force behavioural change, such as EIA procedures, changing mindsets and attitudes in EIA has often been cited as important in improving the effectiveness of EIA. Caldwell (1989: p14) notes that the '*larger challenge to EIA is not technical; it is political ... if EIA is to be more than ritual, further change in the attitudes and behaviors of political leaders and public officials will be necessary.*' Therefore, the aim of this Chapter is to identify these attitudes within the organisations and how they have changed (if at all) and, in the terms of Taylor and Bogdan (1998: 135), to '*...give readers a feeling of walking in the [participant's] shoes... and seeing things from their point of view.*' From a phenomenological research perspective, '*the important reality is what people perceive it to be*' (Taylor and Bogdan 1998: p3).

Chapter Nine examines the outcomes of the change process with an evaluation of EIA performance in eight project case studies, with supporting detail in Volume II of this thesis. The underlying assumption of this Chapter is similar to Harvey's statement that it is '*impossible to understand the role of EIA by examining the EIA legislation in isolation from EIA procedures in practice*' (Harvey 1996: p39). The same is also true when examining organisational change at a procedural and cultural level. The organisation's *capability* and *culture* to implement EIA may be strong, but this may not necessarily translate into practice (*ie* the degree of CCP match). Are the organisations actually complying with the EIA requirement for instance? Are they devoting sufficient efforts to produce good quality EISs to inform decision-making? Are they open to dialogue with external parties in reaching the best solutions in decision-making? Are they responsive to the information emerging from the EIA process and actually adopting the 'best' solution in environmental terms? What internal and external factors are influencing EIA performance overall? Each of these factors provide indicators of the degree of organisational change achieved as a result of EIA.

Finally, Chapter Ten draws the information together from preceding chapters with an analysis of EIA and how it has instigated change (or not). How do the organisational responses fit with experience and patterns of change in the United States? To what degree is there a 'CCP' match in the case study organisations? What factors are useful in explaining the change process? This latter question is structured around a proposed 'contextual filters' model which identifies multiple factors at four levels which help to explain change outcomes. Recommendations are also made in this section to improve EIA at both the formal legislative level and at the organisational level. Finally, conclusions are made about the value of the evaluation frameworks developed for this research, and the change outcomes in both organisations.

Before beginning the evaluation, it should be noted that it is difficult to identify a direct cause and effect relationship between organisational capability and culture with the actual outcomes of EIA practice. The aim to directly link cause and effect is a common problem in evaluation research, and in the recent international study of EIA effectiveness, Sadler suggested that:

'EA [environmental assessment] processes involve a complex sequence of activities, which is influenced by the play of real world events. So many variables intervene between specified objectives and the actual results and impact outcomes (themselves difficult to determine and monitor), that only a proximate or contingent determination can be made of effects and relationships' (Sadler 1995: p6).

Nonetheless, the analysis of organisational capability, culture, and performance, each on their own provide some indication about the degree of organisational change achieved and how effectively EIA is implemented in practice in both organisations.

Chapter Two

MODELS OF CHANGE & POLICY IMPLEMENTATION

2.0 INTRODUCTION

Implicit within any evaluation of organisational change is the need to first understand the manner in which organisations change, and the factors which influence the implementation of new policy requirements such as EIA. The organisational theory literature comprises a vast body of work encompassing, for instance, organisational change, design, structure, goals, culture, climate, motivation, communication, power, conflict, leadership and decision-making, all of which will impact on the change process to some degree. Rose suggests that this ‘*explosive*’ growth of organisational theory is believed to be one ‘*of the most extraordinary features of contemporary intellectual life*’, but it has resulted in a ‘*shambles*’ rather than a synthesis of theory (cited in Pitt and Smith 1981: p1). This is perhaps one reason why there is limited research on organisations in EIA given the difficulties of grappling with such a wide array of organisational theory topics. In addressing research objective (1), this Chapter endeavours to synthesise key aspects of organisational and policy implementation theories which may be useful to understanding how and why organisations change as a result of the EIA requirement.

2.1 DEFINING ORGANISATIONAL CHANGE

Survival and legitimacy are key concerns of all organisations, whether they be public or private, and they are protected only so long as their actions are considered legitimate by entities in the organisation’s environment (Perro in Pitt and Smith 1981). Compliance to external requirements to maintain legitimacy is often about adhering to new legislative requirements due

to the threat of prosecution⁰ (Petts *et al* 1999), but it can also be defined more broadly in terms of 'social compliance' and being a 'good neighbour' (although this was found to be a less commonly held view in research by Petts *et al* 1999). In the private sector, market pressures are also influential in that negative publicity (and the impacts on competitiveness) can exert at least an equal pressure for compliance and change when compared to threats of prosecution (Petts *et al* 1999). These findings in the private sector are becoming increasingly relevant to public organisations given that they are now competing with the private sector to provide the same services (refer Chapter Six).

There is also an expectation that government organisations, which are under significant public scrutiny, are responsive and operate in the public interest. Public employees may be constrained by complex rules and conventions, but their department exists within changing social and political boundaries within which they must operate (Harris 1983; Doyle and McEachern 1998). Wilenski (1986) notes that government organisations will not ignore new legislative requirements: '*Public servants are, in general, law-abiding and laws do change behaviour in a lasting way, particularly where avenues are open for judicial review of administrative actions*' (Wilenski 1986: p180). Because ministerial roles and their associated policies are also constantly changing (Pitt and Smith 1981), government organisations must demonstrate a level of adaptability. As noted by Meyer:

'A characteristic of bureaucracies...is that most decisions result from administrative or political judgements rather than technological imperatives. For this reason, contrary to stereotypes, bureaus tend to be very open and vulnerable to their immediate environments... increasing bureaucratization of public agencies through additional rules and layers of hierarchy results in part from their openness to their environments' (Meyer in Rainey and Milward 1983: p137).

Organisational change can take many forms and there are several definitions in the literature, but there is yet no single theory on how change or reform occurs within organisations which can be applied to the EIA context. Glick *et al* suggest that change can be *designed* or *not designed*, *proactive* or *reactive*, and *discrete* or *continuous* in nature (in Strickland 1998). There can be *adaptive* change, *discontinuities*, *natural* or *evolutionary* change, and *anticipatory*, *planned*, *strategic* or *revolutionary* change (Caiden 1969; Tansick and Radnor 1971; Goodman and Kurke 1982; Lundberg 1990; Nadler and Tushman 1990; Strebel 1990). Organisational change can also be equated with organisational *learning* which involves knowledge acquisition, information distribution, interpretation, and organisational or corporate memory (*eg* refer Argyris 1992; Mills and Friesen 1992; Dodgson 1993; Antal *et al* 1994; Gladwin 1994; Field and Ford 1995; Dawson 1996; Petts *et al* 1998).

⁰For instance, Epstein (1996) notes an increasing concern of employees in United States' corporations about personal liability associated with violations of environmental legislation, and this was also increasingly the case in South Australia during the 1990s (refer Chapter Seven).

Government organisations in particular must respond to the process of 'administrative reform', which implies a moral goal or an improvement in the *status quo* (Backoff 1974). Although lacking universal definition, Caiden (1969: p8) defines administrative reform as planned change with the '*artificial inducement of administrative transformation against resistance*'. The notion of administrative reform is particularly relevant to the EIA requirement because it is a planned requirement for reform (or an 'artificial inducement'), and is often, although not always, based on an externally-imposed requirement which may evoke resistance (refer Chapter Three). Reform is also associated with greater risk (Caiden 1969), but can in fact, be the culmination of incremental steps: '*[i]n time, ...incremental changes must lead to episodic changes or to more comprehensive reorganizations (reforms) resulting from internal maladjustments*' (Caiden 1969: p66).

2.1.1 Targets of Change

Like the different perspectives on change, targets of change can vary significantly within organisations, and may involve fundamental modifications to formal and/or informal elements of an organisation (Heffron 1989). They are briefly noted here because they are important elements in the models of reform in EIA (see next section) and are used as a basis for developing an evaluation framework for analysing change in Chapter Four. Hellriegel and Slocum (1976) and Wilenski (1986) identify four targets of change including the task or process, an organisation's structure, its people, and its technology. The most useful classification of change targets is that proposed by Friedlander and Brown who distinguish two types of change: *techno-structural* (eg modifications to technology or organisational structure and procedures), and *human-process* or *human-relations* (eg interpersonal relations, skills, attitudes) (in Conlon 1983). Conlon states that:

'in techno-structural change, behavioral change is presumed to follow from changes in the structure and/or task employed by the firm, and the permanent change in structure causes the new behavior to persist. In human-relations approaches, some change in the individual (knowledge, attitude, skill, *etc*) causes change and persistence in a new behavior' (Conlon 1983: p366).

As suggested in Chapter One, attitudes are frequently cited as a major target of change (eg Russo and Fouts 1997), but some authors criticise this assumption. Beer *et al* argue that:

'most change programs don't work because they are guided by a theory of change that is fundamentally flawed. The common belief is that the place to begin is with the knowledge and attitudes of individuals. Changes in attitudes, the theory goes, lead to changes in individual behavior. And changes in individual behavior, repeated by many people, will result in organizational change. According to this model, change is like a conversion experience. Once people "get religion", changes in their behavior will surely follow.

This theory gets the change process exactly backward. In fact, individual behavior is powerfully shaped by the organizational roles that people play. The most effective way to change behavior, therefore, is to put people into a new organizational context, which imposes

new roles, responsibilities, and relationships on them. This creates a situation that, in a sense, "forces" new attitudes and behaviors on people' (Beer *et al* 1990: p159).

Crane (1997) also disputes the links between culture (attitudes) and performance; whilst Petts *et al* (1998) and Harrison (1987) suggest that attitudes are not good predictors or predeterminants of behaviour; that is, behaviour is also influenced by perceptions about social norms and behavioural controls (Harrison 1987; Azjen in Petts *et al* 1998). Thus, the techno-structural approach may be the best starting point, although a combination of approaches which are mutually reinforcing is likely to be the most effective in planned change.

2.2 HOW EIA INDUCES CHANGE: MODELS OF REFORM

Several different theories have been proposed to explain how EIA induces change in decision-making, but they all tend to fall within three broad models which are reflective of the techno-structural and human-process approaches. The models are defined in this Chapter and comprise (i) the *rational model*; (ii) the *internal model*; and (iii) the *external model*. Preconditions of the models are explored in more detail in Chapter Three, and are later related to the two case study organisations. Although developed in the United States' context, Bailey (1994) believes that the models can apply to other jurisdictions so long as the differences in EIA systems are noted. These models are not mutually exclusive and some authors integrate all of these perspectives into a broader view of EIA and change. The models also do not guarantee change, and some of their potential limitations are also discussed later in Chapter Three. It should be acknowledged in this respect that '*NEPA is a complex and subtle piece of legislation, not susceptible to simple explanation or interpretation*' (Bartlett 1997: p51). Before defining these models, the requirements of NEPA are briefly summarised.

2.2.1 NEPA in the United States

In addition to establishing an influential Council on Environmental Quality (CEQ) (Whitaker 1976),¹ NEPA facilitated organisational change and reform in two fundamental ways. First, under Section 101 of the Act, NEPA outlined a declaration of national environmental policy and six more specific environmental goals, the latter of which are presented in Table (2.1). This Section essentially represented the *substantive* component of the Act. Second, given that such a broad policy was unlikely to have a major impact on agency behaviour in practice (Culhane *et al* 1987: p25), the EIA process was introduced under Section 102 as an 'action-forcing' mechanism (Caldwell 1982). This requirement, which is also outlined in Table (2.1), formed

¹ The CEQ was, among other things, given an oversight role for monitoring agency compliance with NEPA, and was the 'guardian of environmental concerns' at the Executive level of Government (Liroff 1976).

the *procedural* component of the Act, and the 'detailed statement' required of government agencies is now commonly known as the 'Environmental Impact Statement' (EIS).

Table 2.1: NEPA's goals and EIA requirements

SECTION	REQUIREMENTS
NEPA's goals (Section 101)	<p>Government agencies are required to:</p> <ol style="list-style-type: none"> 1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; 2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; 3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; 4. preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; 5. achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and 6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.
EIA requirement (Section 102)	<p>Government agencies are required to:</p> <ol style="list-style-type: none"> a) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's [sic] environment; b) identify and develop methods and procedures,...which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations; c) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on - <ol style="list-style-type: none"> (i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

In short, the EIS process in the United States is characterised by a number of key stages including:

- a public scoping process used to identify the key issues to be addressed in the EIA process;

- preparation of a Draft EIS, including alternatives to the proposed action which is available for public comment for a minimum of 45 days (public hearings are also sometimes conducted);
- preparation of a Final EIS which responds to public comments on the Draft EIS which is also available to the public for 30 days; and
- a decision by the responsible authority which is informed by the information attained throughout the EIA process (Ingram and Ullery 1980; Ortolano 1997).

The final decision is usually documented within a 'decision report' which explains how the final decision was made, and how environmental and other factors were balanced (Ingram and Ullery 1980; Ortolano 1997). Agencies were now expected to incorporate environmental factors into their decision-making processes, and according to Fairfax and Andrews, there was an assumption (which they believed was mistaken) that:

'reform must be forced on reluctant if not incompetent administrators', ... [and that] if action is not forced, agencies [will] adhere to established patterns of policies, procedures, and programs whereby they endeavor to maintain predictable relationships with clientele groups which they do not want disrupted' (Fairfax and Andrews 1979: p505).

This leads us to the models of reform which explain how and why EIA was intended to 'force' change.

2.2.2 Rational Models of Reform

Rational models of reform in EIA are premised on the idea that rational and more scientific procedures/information such as the EIA process will ultimately lead to more rational planning and better decision-making (Pfeffer 1981; Taylor 1984; Bartlett 1986; Munro *et al* 1986; Culhane *et al* 1987; Gormley 1989; Caldwell 1991; Dawson 1996). The model essentially reflects a change to the 'task', and is a component of the techno-structural approach to change noted previously. The requirement to consider alternatives in the EIA process and to evaluate the consequences of each alternative is partly reminiscent of rational approaches to decision-making. According to Culhane *et al* (1987: p7), '*NEPA's key provision (at least in retrospect) prescribes the rational-comprehensive decision model as a cure for the incrementalist maladies afflicting federal resources policy*'.

'Incremental' decision-making, which rational models such as EIA aim to overcome, is a process of 'muddling through' and is closely allied with the concept of 'satisficing' by adopting the first adequate solution that arises (Corbett 1992; Ham and Hill 1984; Liroff 1976). Lindblom suggests that participants in decision-making attempt to achieve consensus through a process of bargaining and negotiation via 'partisan mutual adjustment', which is a process based on pluralist values (Palumbo and Wright 1980; Thompson 1983; Ham and Hill 1984;

Culhane *et al* 1987). Decisions evolve incrementally via a sequence of limited comparisons between alternatives which have already been identified from previous experiences (Corbett 1992). Evaluation is restricted to minor variations in expected consequences, and the aim is to mitigate rather than accomplish an ideal or optimum state (Ham and Hill 1984). In contrast, the comprehensive/classical rational model aims for an optimum decision (*ie* the *best* decision as opposed to the *first* solution that is agreed upon). The classical rational approach to decision-making was characterised by its originator, Herbert Simon, as a four stage process whereby decision-makers:

- (i) agree on the goals which guide the final decision (*ie* what needs to be achieved);
- (ii) identify *all* alternative courses of action that are relevant to these goals;
- (iii) identify *all* relevant consequences of each alternative; and
- (iv) compare the alternatives and their consequences, and choose the *best* alternative (Simon 1947 in Culhane *et al* 1987: p2).

There are, however, some problem with this approach which are explored in Chapter Three. In addition to the classical model of rationality, there are a number of variations on the theme within the EIA context. These include *science-based* rationality, *objective* rationality (*eg* Caldwell 1982; Culhane *et al* 1987), and less rigid views such as *ecological* rationality (Bartlett 1986; 1990) and *adaptive* rationality (Garipey and Henault 1994). These are defined in Table 2.2.

A useful review of the rational approach in EIA has been also provided by Weston (2000). The idea that EIA was reflective of a science-based rational approach, for instance, stems from concepts in NEPA's procedural requirements such as 'alternatives', 'interdisciplinary' 'ecological information', 'science', 'methods', 'quantified', and 'systematic' (*eg* refer Culhane *et al* 1987; Bartlett 1986). Ecological rationality, although not always discussed in the context of EIA, has been advocated by authors such as Doyle and McEachern (1998), Bartlett (1986; 1990; 1997), and Paehlke and Torgerson (in Doyle and McEachern 1998). Bartlett (1990: p89) suggests that change is induced as agencies are required to utilise a new 'procedural ecological reasoning'. The optimistic view is that:

'...the environmental project comes to colonise the administrative mind, displacing economic rationality by ecological rationality, which is then driven deeper into social and political processes by the routines of the administrative mind' (cited in Doyle and McEachern 1998: p152).

It is believed in the ecological rationality model that even if compliance with environmental initiatives such as EIA is undertaken by organisations simply for pragmatic purposes, and even if they demonstrate some degree of cynicism, the mere virtue of practice may result in changes to the organisation and behaviour (Doyle and McEachern 1998).

Table 2.2: Models of Rationality in EIA

MODEL	EXPLANATION
<i>Rational-scientific</i>	Most demanding model. Caldwell (1982; 1989a) states that although EIA is not science, it is premised on the use of 'state of the art' science and methods to guide decision-making. This model adopts a holistic, multidisciplinary approach in evaluating the impacts of agency actions, and assumes that ' <i>wise science-driven decision-maker would not eschew any environmentally destructive project</i> ' (Culhane <i>et al</i> 1987: p14).
<i>Rational-objective</i>	Less vigorous than the rational-scientific approach, and based on early court decisions in the United States. Does not require a perfect analysis, and as a minimum legal requirement, this approach requires EISs to be technically informed, 'reasonably thorough' and most importantly, unbiased (Culhane <i>et al</i> 1987: p15).
<i>Ecological Rationality</i>	Bartlett (1986: p109) suggests that EIA should not be viewed simplistically by focusing on scientific rationality, nor should it be a ' <i>warmmed over and disguised revisitiation of the rational comprehensive decision making model</i> '. EIA works by introducing a new form of reasoning and thinking which he describes as 'ecological rationality'. <i>Procedural ecological rationality</i> occurs because organisations and individuals are required to think 'ecologically' and consider environmental factors, whilst <i>substantive ecological rationality</i> is achieved by using and legitimising ecological criteria as standards for actions (Bartlett 1990).
<i>Adaptive Rationality</i>	Gariepy and Henault (1994) abstain from viewing organisations as rational in terms of objective models of decision-making. Rather, rationality in organisations is viewed in terms of learning and adaptation, by confronting opportunities to maintain or increase their realm of influence and survival. They suggest that the ' <i>EIA process can ...be analysed as a context where the "rationality" of various actors is at play as a learning context where actors will adapt to obstacles met, and will evolve different strategies to improve their performance in subsequent projects, in order to make the future EIA environment more predictable</i> ' (Gariepy and Henault 1994: p2).

2.2.3 Internal Model of Reform

The internal model of reform in EIA (like the external model) recognises that EIA is a political process where consensus of goals is not assumed (unlike in the pure classical rational model). In this model, EIA is believed to change an organisation by altering its intra-agency politics and dynamics (Taylor 1984). Although not in the EIA context, Heffron (1989) suggests that one of the best ways to facilitate change is to create a new structural unit in the organisation with new staff, which is based on both techno-structural and human-relations approaches. It is believed that the introduction of new units and staff, which have autonomy and influence, will bring new values, enthusiasms, attitudes and behaviours into the organisation (Taylor 1984; Wilenski 1986; Heffron 1989).

Prior to NEPA, government organisations in the United States were usually dominated by a single profession (eg engineers in the Army Corps of Engineers, or foresters in the Forest Service), and Culhane *et al* (1987: 15) suggest that their '*...professional blinders tended to exacerbate the most damaging features of an agency's resource development mission*'. However, the 'interdisciplinary' requirement under NEPA suggested the need for a greater range of staff and expertise in decision-making (Taylor 1984; Culhane *et al* 1987; Bailey 1994). Even in EIA systems without such an 'interdisciplinary' directive (eg South Australia), Culhane *et al* (1987) and Taylor (1984) note that interdisciplinary teams are a practical necessity for producing EISs because of their technically demanding nature.

New staff employed to implement a new task have different 'mental blinders', and their skills and values bring '*voices of challenge and confrontation*' (Crampton and Berg 1973; Culhane 1974; Culhane *et al* 1987; Kennedy 1988b). Essentially, they become '*in-house advocates for environmental consciousness*' (Culhane *et al* 1987), or in other words, 'change agents', or 'environmental champions' (refer also Walley and Stubbs 1999). In addition to changing intra-agency politics, Wichelman (1976) notes that they facilitated change in the United States by establishing training programs, producing environmental guidelines, reviewing project proposals, and improving co-ordination in the EIA process. By doing so, the human-process/relations approach to change is facilitated as existing staff gain new knowledge and skills (Wichelman 1976). According to Wichelman (1976), an increase in environmental staff was more likely to lead to the internalization of NEPA's environmental ethic.

2.2.4 External Model of Reform

Advocates of the external model of reform in EIA make the assumption that organisational reform and the institutionalisation of environmental values in decision-making will arise only when forced by external pressures (Buckley in Tu 1993; Culhane *et al* 1987; Bailey 1994). Although not referring to EIA, Katz and Kahn (1972) suggest that external pressures for change are more significant than internal factors, and that reform will be limited in the absence of these external requirements. In this sense, EIA could be called a form of 'democratic' reform (Wilenski 1986; Yeatman 1990), because it involves opening bureaucracies up to public scrutiny. Prior to NEPA, government agencies actions were considered 'privileged communications' (Wood 1975), but the EIA requirement changed the parameters of decision-making by enabling public and government access to agency decision-making processes (Culhane *et al* 1987; Andrews 1976c). The external model in EIA operates through:

- provisions for public and agency comment on agency EISs;
- court oversight of agency compliance to NEPA; and
- CEQ and Environment Protection Authority (EPA) oversight and reviews of EISs.

Liroff notes that NEPA's requirements were to:

'...lay bare the values, assumptions and calculations underlying processes of agency choice, the presumption being that if particular environmental costs were neglected or undervalued, increased public participation and inter-agency coordination would ensure their full and fair evaluation' (Liroff 1976: p81).

As external oversight authorities, both the CEQ and the EPA were influential in the change process (see Chapter Three). While they lacked the power to force compliance (Cortner 1976), Wichelman (1976) suggests that compliance would have been slower without this oversight.

As noted in Chapter One, judicial review was the most significant external factor in pressuring organisational change in the United States, even though there were no explicit mechanisms for court oversight in NEPA (Wichelman 1976; Culhane *et al* 1987). The courts could not change the decisions of agencies, but they could enforce procedural compliance, and so, because of potential delays and costs, this avenue served as a major threat to government agencies resulting in a greater focus on public and agency comments on EISs (Andrews 1976c; Culhane *et al* 1987; Liroff 1980). Andrews (1976c) has argued that '*...few if any agencies voluntarily made strong commitments to the implementation of NEPA's procedures, let alone its purposes in the absence of such pressures*'. Similarly, Blumm (1988: p190) asserted that '*...the threat of litigation is absolutely essential to the effective functioning of the NEPA process*'. However, as demonstrated later in this thesis, it is not essential in all cases, and organisational change can occur without this threat of court action as long as other external controls are present to influence behaviour.

2.2.5 An Integrated Perspective

The models of reform could be viewed as mutually exclusive, but they are in fact, mutually reinforcing and all three models can operate simultaneously to varying degrees (*eg* Culhane *et al* 1987). Bartlett states that:

'which is the one most important way that NEPA causes policy change is not the important question. Rather, what is needed is an understanding of how these alternative explanations are complementary and interactive and, if they collectively remain inadequate, what else should be considered?' (Bartlett 1997: p56).

In the EIA context, Liroff (1976), Wichelman (1976), Fairfax and Andrews (1979), Taylor (1984), Renwick (1988), and Shepherd and Ortolano (1997) all believe that decision-making quality is influenced by both internal and external forces. Wichelman (1976) suggests that external oversight and pressures increases the legitimacy of internal agents of change (to protect the organisation), and that externally-enforced compliance precedes the change process instigated by internal officers. Taylor's (1984) 'redundancy hypothesis' assumes that EIA is more effective when there is mutual dependency between insiders within the organisation and

outsiders, rather than when one group operates alone. This has also been described as a process of 'boundary spanning' (eg Taylor 1984; see also Tu 1993), and the political tactics used to mediate between, and initiate the confidence, of internal officers and external groups (Taylor 1984). According to Liroff, this two-way interaction was particularly important in the reform process:

'Recruitment of new types of personnel may indicate agencies' openness to change, but new recruits may have only limited influence in the short run if they cannot find influential supporters outside the agency to endorse their views. Internal reorganisation may promote compliance with NEPA, but only if it significantly alters communication flows and enhances access to the agency by supportive external sources' (Liroff 1980: p157).

Also of relevance to the internal-external model is the theory of 'entrepreneurship' (eg Wandesforde-Smith and Kerbavaz 1988; Wandesforde-Smith 1989; Tu 1993). In this case, political entrepreneurship operates where individuals-leaders within and outside the organisation strive for change. Shepherd and Ortolano (1997) combines these theories into three main influences on EIA within organisations involving:

'(1) a mutually reinforcing system of internal and external support for environmental values in general and EIA in particular; (2) one or more political entrepreneurs within the organisation who see advantages in seizing opportunities to implement environmental policy; and (3) internal environmental advocates who are able to enlarge their influence and thereby transform existing intra-agency power relationships to accommodate new environmental requirements' (Shepherd and Ortolano 1997: p322).

Organisational Controls in EIA

The concept of organisational 'controls' in EIA fit within all three models of reform. The idea of behavioural controls was borrowed from organisational theory and applied to the EIA context originally by Ortolano *et al* (1987) and later by Leu *et al* (1996a). According to Ortolano *et al* (1987: p286), '*control mechanisms are intraorganizational and interorganizational processes and structures intended to assure that lead agencies (or project proponents) account for environmental impacts in planning and decision making*'. The different types of controls are summarised in Table (2.3) and include externally-based controls (legislative, judicial, public, evaluative, administrative, instrumental and international), and internally-based controls (professional and procedural control). Procedural control reflects rational models in EIA and tends to overlap between external-internal perspectives because it makes the assumption that procedural compliance will only occur if the proponent considers the procedures valid (Ortolano *et al* 1987).

However, March and Simon suggest that individuals will voluntarily comply with rules and procedures even if they prefer not to (in McCaffrey 1983). This is most likely if individuals are

ambivalent, single preferences not strong, and where rules or obligations are clear (McCaffrey 1983: p63). Rules and procedures also afford some protection to individual bureaucrats, by allowing them to operate within 'permissible limits' and reduce the potential for criticism from superiors (Pitt and Smith 1981). Moreover, as compliance to procedures occurs, internally based professional controls may become more pronounced. Ortolano asserts that:

'As EIA gains increased acceptance among project planners, and as planners learn about EIA through training, experience and contact with environmental specialists, planners themselves will increasingly call for EIAs. Impact studies will be conducted as a matter of good professional practice, even in circumstances where neither governmental EIA requirements nor pressures to do EIA as a condition for obtaining funds...exist....."professional control"...refers to cases in which an "EIA is motivated by the internalized values of planners resulting from the expert knowledge and ethical standards that their training and experience instill"' (Ortolano 1993: p359).

Despite the benefits of procedural and professional controls, Ortolano also suggests that EIA needs some form of enforcement and that procedural control on its own is ineffective, whereby EIA can be ignored unless combined with evaluative or judicial control (Ortolano 1993). This was demonstrated, in part, by the lack of compliance to NEPA in the United State until court activity became pronounced, which is further discussed in Chapter Three. These controls in the EIA context have been refined and tested by a number of authors within different jurisdictions,² but Ortolano (1993) also notes that they are not the only ways to facilitate effective EIA. Change also requires modifications in power relationships (formal and informal) and communication processes within organisations (Ortolano 1993). Nonetheless, controls are a useful way for explaining EIA effectiveness (or lack thereof), and as such, they provide a structural base for the *system-evaluation* framework, which is defined in Chapter Four.

²including (Ortolano 1993) who explored EIA controls in the context of the Philippines, United States and Brazilian EIA systems; Hirji and Ortolano (1991) who evaluated the role of controls for water resource developments in Kenya; Tu (1993) who examined the influence of controls and other factors on EIA in Thailand and Taiwan in the power sector; Leu *et al* (1996a) who adapted Ortolano's original controls and applied them to EIA in the United Kingdom; Leu *et al* (1996b) in their evaluation of the United Kingdom and Taiwan EIA systems; Leu *et al* (1996c) in Taiwan; and Leu *et al* (1997) in an evaluation of three south-eastern nations including Taiwan, Malaysia and Indonesia.

Table 2.3: Organisational Controls in the Context of EIA

CONTROL	Ortolano <i>et al</i> (1987); Ortolano (1993)	Leu <i>et al</i> (1996a)
Legislative	-	Provision of a legal foundation and guidance for the development and implementation of the EIA system
Judicial	Court has power to judge allegations of inadequate attention to EIA but does not have direct control over the project proponent in relation to EIA compliance	Provision of channels for resolving judicial appeals regarding the legal process of EIA, to safeguard the procedural legality and fairness of EIA implementation
Procedural	Centralized administrative unit promulgates environmental impact assessment requirements but does not have power to modify projects	Stipulation of clear sequential steps to be followed by all participants and the associated activities to be undertaken in the EIA process
Evaluative	Centralized administrative unit issues recommendations to decision-makers based on an appraisal of the proposed project and the EIA	Assessment of the proposed project before, during and after its EIA study, as well as the auditing of the EIA system itself
Instrumental or Development Aid Agency Control	Multilateral or bilateral lending institution offers material incentives to the lead agency (or project proponent) in return for performance of requisite tasks, which include environmental impact assessment	(termed International Control). Use of pressure and support (political, financial, technical and manpower) [sic] from international forcers to initiate and/or develop the national EIA system, as well as strengthen its capacity building
Direct Public and Outside Agency	Citizens or government agencies apply pressure to influence the EIA process, but outside the context of the above listed controls	The involvement and contribution of the public, interested groups and relevant agencies in strengthening the effectiveness of EIA
Administrative	-	Provision of a mechanism for the management and administration of the EIA system by the responsible core governmental agency, and channels for dealing with administrative appeals occurring in EIA implementation
Professional	Project planners have professional standards and codes of ethical behaviour that lead them to undertake EIAs for proposed projects	The qualification of various participants (EIA administrators, reviewers, consultants and proponents), and the improvement of their knowledge, experience and skills related to EIA
Follow-up	-	Monitoring the compliance and enforcement of EIA results to ensure that the decisions on EIA cases are truly and effectively implemented

2.3 THE CHANGE PROCESS & DEGREES OF CHANGE

Once a new policy is introduced (such as EIA), it has been suggested by several authors that a linear process of change occurs within an organisation. Given that there is so much complexity in change, it becomes easy to focus on relatively simple models of the change process, and by doing so, to break it down into a series of definable and readily understandable steps. However, such models do not account for fluctuations in change outcomes, due in part to political decisions, losses in corporate memory, or changes to budgetary resources (*eg* refer Petts *et al* 1999). Brewer (1995: p7) argues that there is no 'fail-safe' way to manage change and that rational type approaches (which most models suggest) assume a simplistic cause and effect, are prescriptive, and attempt to provide a 'generic template' which assumes that people are 'passive receptors' to change. From an 'action-oriented' perspective as opposed to a rational one, Brewer (1995) views change within organisations as a 'negotiated social reality', with interrelations between events, experimentation, communication, reflection and learning.

Nonetheless, Petts *et al* (1998; 1999) argue that the more simplistic models of change provide useful frameworks for comparing change between organisations (as long as the limitations are acknowledged). Understanding in this sense becomes more manageable, and patterns of change are addressed in the United States' context in Chapter Three, and in Part III of this thesis which evaluates change in the two case study organisations. There are essentially two types of change models (although it is sometimes difficult to delineate between them). One type delineates the *process* of change; whilst the other is *categorical*, which involves a portrayal of the degree of change achieved at a given point in time (refer also Hass' 1996 distinction between model types). Lessons can be drawn, not only from general change models, but also from private sector models of 'corporate greening' where companies develop environmental management initiatives in response to both internal and external requirements.³ Shrivastava and Scott (1992: p12) term change in this context as a process of 'greenewal' (Green + Renewal).

The corporate 'greening' literature is only a recent development which has rapidly expanded during the 1990s (*eg* Gladwin 1993; Fischer and Schot 1993; Schot and Fischer 1993; Steger 1993; Post and Altman 1994; Wehrmeyer and Parker 1995; Bhargava and Welford 1996; Hass 1996; Lober 1996; Lenox and Ehrenfeld 1997; Stikker 1997; Wycherley 1997; Fuchs and Mazmanian 1998; Gladwin 1998; Petts *et al* 1998; Stanwick 1998; Stead *et al* 1998; Tilt 1998; van de Bosch and van Riel 1998; Altham and Guerin 1999; Lamming *et al* 1999; Lyon and Maxwell 1999; Petts *et al* 1999; Ransom and Lober 1999; Walley and Stubbs 1999; Baas and

³In the last thirty years, corporations have been forced to change to accommodate environmental management. Williams *et al* (1993), Roberts (1995) and Stikker (1997) list a number of reasons for this change including increasingly tough environmental legislation and potential for liability, growing awareness of environmental impacts, increasing numbers of environmental accidents, media attention, costs associated with pollution control, commercial pressures, and increasing public expectations and influence (*eg* 'green consumerism').

Boon 2000; Ballard 2000; Jorgensen 2000; Schaefer and Harvey 2000; Strachan 2000). It should, however, be noted that many of the 'greening' models are not always empirically-based or tested (Hass 1996), and rather than building upon knowledge, authors frequently define their own models of change. This lack of cumulative knowledge-construction is also a criticism made by Gladwin (1993), but knowledge is advancing quickly.

2.3.1 Process-Based models

There is an abundance of process-based models of change in the literature (Stead *et al* 1998) (*eg* Tansik and Radnor 1971; Post 1978; Yin 1981; Gray and Gray 1983; Patrickson and Bamber 1995), some of which are summarised in Table (2.4). It is not necessary to review them all here because, despite differences in terminology and numbers of phases, they are all quite similar. Many assume a:

- period of awareness for the need for change (including the potential for resistance);
- stage of interpretation of the change requirement;
- stage of adoption (*eg* focusing on targets of change and communication of information);
- stage of implementation, maturation, integration, routinisation or, in Lewin's terms, 'refreezing' of the change requirement so that it is no longer a new behaviour; and
- learning and monitoring the change process (although this phase is not as common).

Many of the change models tend to build upon Lewin's 1947 theory of change, which is frequently referred to in the literature (*eg* Hellriegel and Slocum 1976; Steadman 1980; Conlon 1983; Heffron 1989; Rashford and Coghlan 1989; Argyris 1992; Cherrington 1994; Brewer 1995; Senior 1997; Strickland 1998). Essentially the process, which is again viewed by some as too static and linear (*eg* Brewer 1995; Senior 1997; Interview 74 1999), involves unfreezing past undesirable behaviours (State A), and replacing them with new behaviours which are then 'refrozen' into an organisations' activities (State B).

In Lewin's model, unfreezing involves removing any factors which motivated the traditional behaviour to be changed, and many of these factors reflect the techno-structural and human-process/relations targets noted previously. That is:

- *formal organisational influences*: changing formal structures including rules, procedures, reward systems, job requirements, establishing coercive measures (*eg* threats of job loss or undesirable assignments) (an example of the techno-structural approach);
- *social influences*: changing informal group rewards and punishments, groups norms/standards which increase positive reinforcements and social approval; and

- *intrinsic influences*: modifying individual skills, beliefs, attitudes and values (an example of the human-process/relations approach) (Conlon 1983; Cherrington 1994).

Table 2.4: Examples of Process-based Models of Change in Organisations

AUTHOR	MODEL OF CHANGE
Lippitt, Watson, and Westley in Brewer (1995)	<ul style="list-style-type: none"> • <u>scouting</u>: exploration of issues; • <u>entry</u>: development of expectations between participants; • <u>diagnosis</u>: identification of change goals; • <u>planning</u>: outline of action steps and potential resistance to change; • <u>action</u>: plan implementation; • <u>stabilisation</u>: determining change success and need for further action; • <u>termination</u>: completion of project or exit from situation.
Tansik and Radnor (1971)	<ul style="list-style-type: none"> • <u>penetration-missionary phase</u>: internal and external forces combine to provide opportunity for entry of new technology. Exposure and attainment of skills to practice new technology. Selling effort by missionaries, and aim to get sponsors from top management for legitimacy; • <u>organisational resistance and difficulties phase</u>: new technology not accepted by all parties for personal, organisational and/or environmental reasons; • <u>organizational and deprofessionalism phase</u>: resistance declining, entering phase of bargaining with give and take between missionaries and resisters. New technology may become compromised and less than intended as adjustments are made to 'practicalities of the given organizational situation', and as a result of the 'progressive loss of the more professionally oriented personnel who find the compromised environment unacceptable' (p648); • <u>specialist and maturity phase</u>: Alternatively there may be little 'deprofessionalization' if technology supported/protected, and the value is gradually accepted. May be demand for new technology (or becomes "reprofessionalized") resulting in specialist period where technology matures - defined as the 'full and routine organizational acceptance of the function' (p649).
Yin (1981)	<ul style="list-style-type: none"> • <u>Improvisation</u>: creation and implementation of <i>ad hoc</i> procedures for change; • <u>Expansion</u>: involves a series of 10 events which are necessary to maintain any new organisational practice such as procedures, budgets, personnel, and training; • <u>Disappearance</u>: although the process continues, it is no longer a new innovation, and it has become part of routine operations.
Lewin (1947 in Heffron 1989; Conlon 1983)	<ul style="list-style-type: none"> • <u>Unfreezing</u>: Removing influences on, and facilitators of the behaviour to be changed; • <u>Moving</u>: Adopting change mechanism/actions; • <u>Refreezing</u>: Integrating and maintaining new action.
Hage (in Heffron 1989):	<ul style="list-style-type: none"> • <u>Evaluation</u>: involves the identification of a performance gap which requires change, whether from an external or internal requirement; • <u>Initiation</u>: involves specific plans for change in response to an internal or external crisis; • <u>Implementation</u>: involves the allocation of financial and personnel resources to implement the change; whilst • <u>Routinisation</u>: involves a refreezing of behaviour and attitudes.

Table 2.4 Continued: Process-based Models of Change in Organisations

Rashford and Coghlan (1989)	<ul style="list-style-type: none"> • <u>Denial</u>: Deny need for change. Focus on processing information, disputing value, relevance or timeliness. Movement requires acceptance of data as valid and relevant; • <u>Dodging</u>: Evidence shows change is likely, but ignore the need for change, or question the need for critical change, although may be agreement on small amount of change. Equivalent of organisational anger at imposition of external change. Effort to stop change or find way to be peripheral to it. Characterised by frustration, lack of ownership, fear. May shift focus to another action; • <u>Doing</u>: Occurs quickly after frustration voiced with belief that change deserves a try. May also involve other moves such as restructuring, hiring, budgeting to facilitate major change. Focus moves from change generators to change implementors. Tendency may be overload; may require bargaining for change content; • <u>Sustaining</u>: less well defined. Focus of energy to follow through on programmes and projects. Similar to refreezing stage. Involves integration of the change into habitual patterns of behaviour and structure.
Post (1978)	<ul style="list-style-type: none"> • <u>Awareness</u>: of public issues (eg public pressure, legal change, management scanning); • <u>Commitment to Action</u>: may develop from bottom up pressures or top down commitment of management; • <u>Response selection & implementation</u>: determine appropriate action response, assign responsibility for implementation.
Buckley and Perkins in Brewer (1995)	<ul style="list-style-type: none"> • <u>unconscious</u>: begins to change unthinkingly; • <u>awakening</u>: observe signs and symptoms of change; • <u>re-ordering</u>: questions past assumptions; • <u>translation</u>: integrates new information and interprets what is going on; • <u>commitment</u>: accepts responsibility for change; • <u>embodiment</u>: integrates change into existing practices; • <u>integration</u>: evidence of acceptance among organisational constituencies.
Patrickson and Bamber (1995)	<ul style="list-style-type: none"> • <u>main thrust of change</u>: identification of goal of change - new directions in policy (eg to become more accountable), or more localised changes within specific departments or sections; • <u>staged process</u>: environmental scanning and strategic response which passes through senior management, middle management and other employees (must be significant changes in behaviour, values, beliefs and evaluation) (opportunity for reflection and reappraisal before refining change process); • <u>consequences of change</u>: changes in structures, reporting relationships, beliefs and values, procedures, products, and services.
Logistics Manag. Institute in Edosomwan (1996)	<ul style="list-style-type: none"> • <u>envisioning</u>: which involves developing a vision, building awareness through training, evolving a mission statement and commitment, establish a steering committee to lead change; • <u>enabling</u>: which involves developing top management commitment, and cultivating champions, shaping the environment by creating support systems, removing barriers, establishing rewards systems and driving out fear of change; providing resources through training, time and obtaining facilitators; empowering the organisation by involving everyone, providing authorities and focusing effort; • <u>focusing</u>: which involves establishing goals based on mission and which are practical, communicated through the organisation, and made relevant to each individual; deploy goals and policy and translate goals into practice and align efforts with goals; involve customers; • <u>improving</u>: which involves defining and standardising processes and measuring performance against current standards; assessing process performance and identifying targets for improvement; improving processes; and measure progress; • <u>learning</u>: which involves identifying learning needs and assessing knowledge shortfalls; obtaining learning materials; developing learning methods, integrate on-the-job training; and train and education groups and individuals.

The 'moving' stage of Lewin's model involves action, and ideally, new behaviours are identified with the development of new values, attitudes and internalisation of new skills through training (Conlon 1983; Cherrington 1994). Refreezing is where the change is stabilised and becomes an ongoing component of behaviour (Conlon 1983; Cherrington 1994). This mistakenly assumes a static progression of events which will be maintained, and the model fails to incorporate indicators of the actual change *outcomes*. Social and intrinsic influences in the unfreezing process are also much more complex and difficult to change relative to formal organisational influences (Conlon 1983), and Wilenski (1986: p179) notes that attitude change in the reform process is '*slow, painful and uncertain*'. In this respect, resistance is a key characteristic of the change process because:

'Most organizations have a powerful tendency to do today whatever they did yesterday. Organizations deal in more or less the same currency because established patterns represent enormous irretrievable commitments. Their behavior reflects investments of money, time, and effort, and the accumulation of experience about how to deal with an issue' (Ingram and Ullery 1980: p674).

According to some, both private and the public sector organisations rarely *anticipate* social topics which may lead to change, but rather, only *react* to those areas which are immediately relevant, and associated with massive pressures for change or as a result of 'shocks' (*eg* environmental disasters, unanticipated legislation) (Gray *et al* 1983; Brunsson and Olsen 1998; Antal *et al* 1994). Resistance to a proposed change such as an environmental policy/legal requirement can be subtle, passive, and 'smoldering' beneath the surface and characterised by a reluctance and unwillingness to participate; it can involve 'selective inattentiveness' and delay tactics; or it can be active with overt conflict and 'unregulated warfare' (Montjoy and O'Toole 1979; Pitt and Smith 1981; Conlon 1983; Wilenski 1986; Heffron 1989; Cherrington 1994; Bolman and Deal 1997).

Resistance is also a characteristic of the corporate greening models, many of which are reviewed by Hass (1996) and Bhargava and Welford (1996). They are very similar to the general change models and have been criticised for lack of clarity, and for assumptions that the stages of change are distinct, measurable, cumulative and progressive (Hass 1996). Five similar models which were reviewed by Hass (1996) are presented in Figure (2.1). Most of the greening models clearly suggest an initial stage of non-compliance to environmental management requirements, followed by a period of reactive behaviour, with gradual progressions from compliance-based behaviour to more proactive and innovative behaviour, which is sometimes premised on the concept of sustainable development. Hunt and Auster's model in Figure (2.1) is one of the original and most popular models (Wehrmeyer 1999), and is particularly detailed in terms of criteria which identify each stage, and as such, is used as basis for determining the phase of change achieved in the case study organisations in Chapter Ten.

Four process-based models of greening are also illustrated in Figures (2.2-2.5). Post and Altman's model (Figure 2.2) for instance, involves:

- an *adjustment* process on an 'as needs' basis, which is incremental, narrowly focused and triggered by external pressures;
- a phase of *adaptation and anticipation*, where environmental values become linked to other corporate values, with commitment at the executive level. Unlike the first stage, environmental staff become crucial to maintaining and reinforcing the new environmental objectives; and
- an *innovation* stage which is rarely achieved, but indicates that environmental goals are institutionalised in all areas of the organisation's behaviour.

Walley and Stubbs (1999: p27) reported on Post and Altman's earlier research which found that successful companies in this greening process had 'environmental champions' (*ie* internal agents which promote 'environmental progress' within an organisation), and that '*most innovative companies tried to create many champions at different levels throughout the organization*'. This reflects the internal model of reform noted earlier. There has, however, still been little research on the role of environmental change agents or 'environmental champions' within organisations (Walley and Stubbs 1999), and this is further addressed in Chapters Three, Seven and Eight.

Stikker's (1997) greening model in Figure (2.3), whilst involving more stages than the Post and Altman model, is similar in its progression, and perhaps idealistically, suggests that 'zero impact' can be attained. Although Shrivastava and Scott's model (Figure 2.4) is also similar, it does not imply attainment of such a lofty goal, and they acknowledge that their approach is oversimplified and that the greening process is not as 'discrete, separate and sequential' as the diagram implies (Shrivastava and Scott 1992). Unlike the other models, Altham and Guerin's model (Figure 2.5) is different, in that it does not assume that change is a linear process, but rather, involves cyclic and continuous improvements. At any given time, a company can be along different points of the continuum of environmental performance (Altham and Guerin 1999). Thus environmental improvement is not automatically assumed as a static state.

Source	Model Stages or Categories				
Hunt and Auster (1990); [Putman, Hayes & Bartlett]	Stage 1 'beginner'	Stage 2 'fire fighter'	Stage 3 'concerned citizen'	Stage 4 'pragmatist'	Stage 5 'proactivist'
Greeno (1993) [Arthur D. Little]	Stage 1 problem solving		Stage 2 managing for compliance		Stage 3 managing for assurance
Newman (1993) [Booz-Allen & Hamilton]	Reactive		Proactive		Innovative
Muller and Koechlin (1992)	Inactive ignore 'ostriches'	Reactive respond 'chicken lickers'		Proactive anticipate 'green hornet'	Hyperactive provoke 'Robin Hood'
Roome (1992)	Non compliance	Compliance	Compliance Plus	Commercial & Environmental Excellence	Leading Edge

* Name of consultancy firm which proposed the model is given in [brackets]

Figure 2.1: Continuum environmental management strategy models/typologies (Hass 1996: p61)

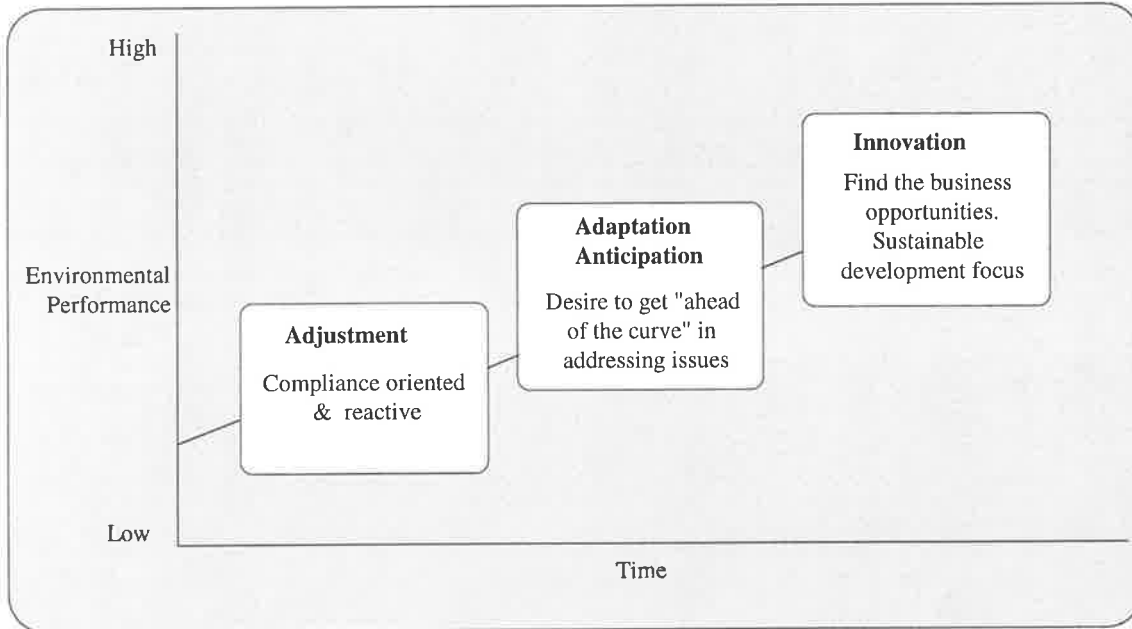


Figure 2.2: Post and Altman's Corporate Greening Model: The Environmental Performance Curve (Post and Altman 1994: p70; formatting modified slightly)

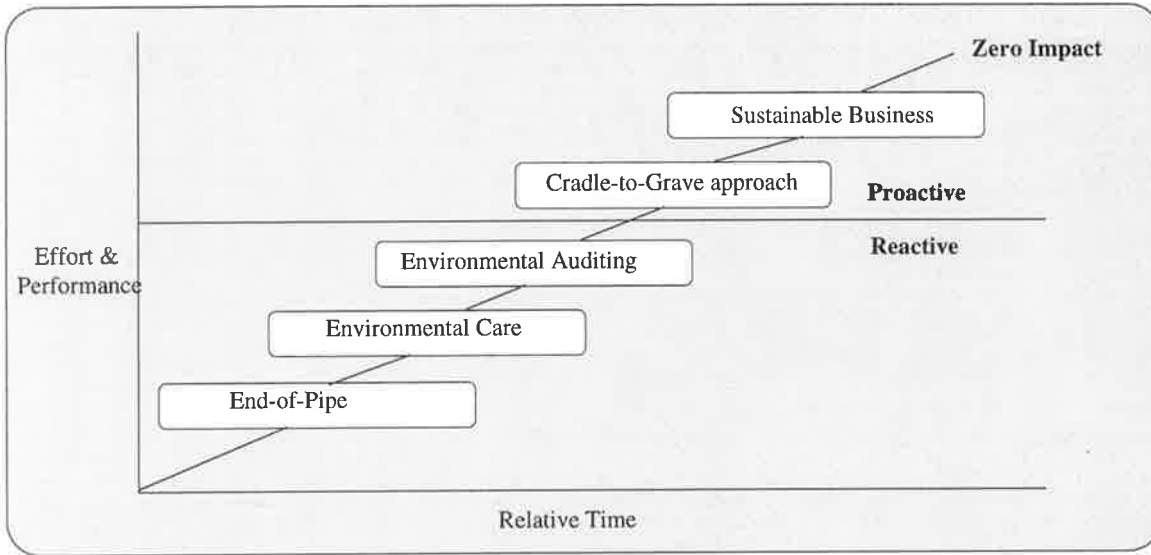


Figure 2.3: Environmental Learning Curve
(Stikker 1997: p225; formatting modified slightly)

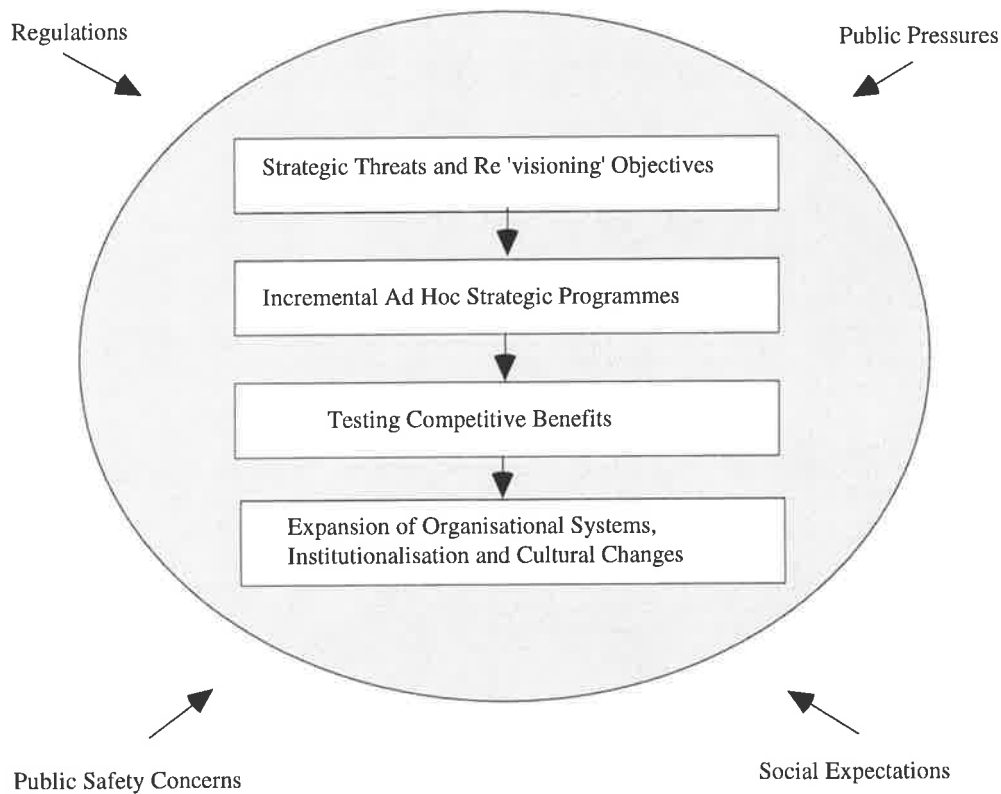


Figure 2.4: The process of Greening
(Shrivastava and Scott 1992: p17; formatting modified slightly)

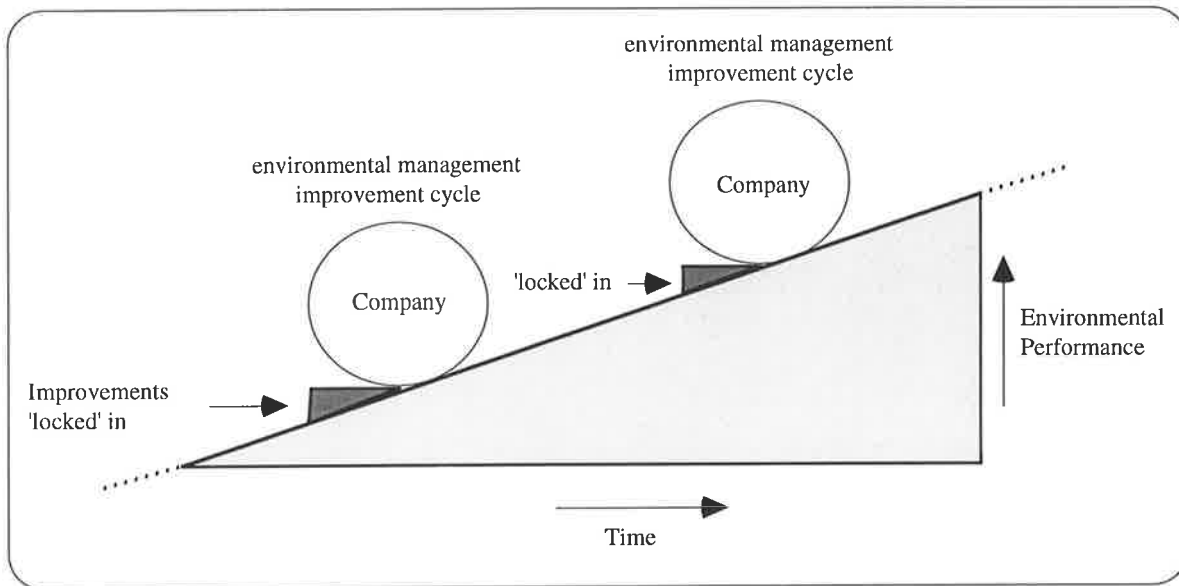


Figure 2.5: Improvement of environmental performance in a company
(Altham and Guerin 1999: p70; formatting modified slightly)

2.3.2 Categorical models of Change

The categorical models of change are very similar to the process-based models, in that they imply a progression of events, but they also seek to evaluate the degree of change achieved at a given point in time. Degrees of change can include for example, *developmental* to *transformational* change (Cherrington 1994); *single loop* to *double loop* learning (Argyris 1992); or *contextual shifts* to *contextual transformations* (Clitheroe *et al* 1998). Nadler and Tushman (1990) identify four degrees of change comprising *tuning*, *adaptation*, *re-orientation*, and *re-creation*, whilst more detailed criteria are provided in Dunphy and Stacey's similar typology of change (1993 in Senior 1997) (refer also Chapter Ten). In terms of *single loop* learning, a problem is identified and corrected, but without changing or questioning the fundamental values of the organisational system, whereas *double loop* learning involves more extensive change, when corrections are made after a review and modification of the governing values (Argyris 1992). Garipey and Henault (1994) for instance, found evidence of both single and double loop learning in Canada as a result of the EIA process. The latter was characterised by major restructuring of planning processes, development of public consultation programmes, and an increase in the status of environment groups within Hydro-Quebec (a public electricity utility) (Garipey and Henault 1994).

In the 'greening' models, change categories can include *impact amelioration* to *corporate responsibility* (James 1992), or *deep green*, *shallow green* and *mid green* change (Roome 1997). Other models use more parochial terminology such as the *why me's*, *smart movers* and

the *enthusiasts* (Simpson in Bhargava and Welford 1996), or Welford's typology of organisational responses involving *ostriches*, *laggards*, *thinkers*, and *doers* (cited in Bhargava and Welford 1996). Bhargava and Welford (1996) have provided a useful summary of the various categories of greening which is presented in Table (2.5).

Table 2.5: Ten Point Strategy for Measuring Organisational Performance in Response to Change (modified slightly from Bhargava and Welford 1996: p22)

	STRATEGY	DESCRIPTION
1	Ostrich	Companies that assume environmental challenge is a passing fad.
2	Resistant	Companies that hinder the passing of environmental laws and regulations.
3	Why Me's	Companies in which some well-publicised event or accident acts as a catalyst.
4	Indifferent, noncompliance, stable, passive, laggards, ignored	Companies have low environmental risks, low environmental returns, difficulties in changing due to cost constraints, lack of trained personnel, knowledge.
5	Thinkers	Companies waiting for others to take the lead; know something should be done.
6	Offensive, smart movers	Companies having high environmental returns; considerable potential to exploit environmentally-related market opportunities.
7	Defensive, compliance, reactive, localized action	have high environmental risks, cannot afford to ignore environmental issues because jeopardises survival; action often triggered by legislation; minimum level of compliance.
8	Compliance-plus, anticipatory, doers, corporate action	move beyond compliance, more proactive; integration of environmental management within overall management system.
9	Commercial and environmental excellence, entrepreneurial	clean technology and organisational reform; strive towards state of the art management; environmental management is good management.
10	Innovative, enthusiasts, leading edge, business scope action	have high environmental risk, and high environmentally-based opportunities for growth.

Again, the approach of these models is similar in that they all tend to rate organisational performance in environmental management in categories of non-compliance and compliance to proactive or innovative behaviour. The problem of these categories is that they are not always

mutually exclusive, which makes it difficult to assign any one particular description to an organisation (Hass 1996).

There may also be change without 'real' change, suggesting responsiveness on the surface, but not to a degree that threatens the fundamental nature of the organisation. De's (1983) research on Indian bureaucracies found that organisations resisted change by simply introducing new information into the existing institutional framework rather than making substantial changes. In the environmental management context, change requirements can simply be 'tacked on' to be politically correct (Shrivastava and Scott 1992), and Barrow (1997: p97) has stated that many '*...politicians have been quick to grasp that the quickest way to silence critical 'ecofreaks' is to allocate a small proportion of funds for any engineering project for ecological studies.*' Similarly, Petts *et al* (1999: p16) suggest that '*environmental performance itself may not be improved only the outward signs or the public perception of that performance*'. These types of behaviour have been referred to by Pitt and Smith (1981) as the '*legitimizing function*' of formal goals. That is:

'an organization which can use a formal charter, for example, to underwrite its activities and convey the impression that it has a defined purpose worth pursuing may shield itself from hostile groups and individuals in its environment' (Pitt and Smith 1981: p43).

Child (1977) also refers to this as a process of 'grafting' of new behaviour onto the existing organisation.

2.4 POLICY & CHANGE IMPLEMENTATION: THE CONTEXT

The problem with many of the change models is that they tend to focus on change *adoption* rather than its *implementation* or *outcomes*. Although there is some overlap, the literature which assesses the implementation of new policy requirements is sometimes quite separate to the literature on organisational change theories. This is because policy implementation can involve a much broader range of actors and institutions beyond that of one implementing organisation. Nonetheless, the policy implementation literature provides some useful explanations of why (or why not) new policies are complied with and integrated into organisational behaviour. The number of variables is high, but they can essentially be divided into three interacting categories: (i) the nature of the new policy or legislative requirement, (ii) the characteristics of the target organisation, and (iii) the social, political and economic context.

2.4.1 The Nature of the Policy & its Administration in the Change Context

The nature of a policy (in this case EIA) and how it structures the change process has often been cited as an important influence on the degree of change achieved (eg Backoff 1974; van Meter and van Horn 1975; Rodgers in Wichelman 1976; Montjoy and O'Toole 1979; Bullock 1980; Coombs 1980; Rosenbaum 1980; Sabatier and Mazmanian 1980; Stewart 1980; Beyer *et al* 1983; Heffron 1989; Ortolano 1997; Fuchs and Mazmanian 1998; Cicimil 1999; Petts *et al* 1999). On its own, the nature of a policy is not a *sufficient* condition to induce effective change, but it is a *necessary* condition for change (Rosenbaum 1980: p575), which is why the EIA policy in South Australia is evaluated in Chapter Five, and further explored in Chapter Ten in terms of the case study organisational responses. Several policy characteristics which may influence organisational behaviour are summarised in Table (2.6) and include policy *legitimacy* and *validity*, *specificity*, *enforceability*, *resources/incentives*, *scope*, *magnitude*, *pervasiveness*, *innovativeness*, and *duration/rate of change*.⁴

In essence, where policy legitimacy, validity, specificity, enforceability and resources are high, there is a greater chance of organisational compliance to a new policy requirement. Ambiguous policies may result in non-compliance given the discretion afforded to implementors (van Meter and van Horn 1975; Montjoy and O'Toole 1979; Coombs 1980), but it is rare to find specific policy requirements because of a desire by governments to maintain political discretion, to avoid difficult decisions, and to avoid conflict by making the requirement more acceptable to other parties (Coombs 1980; Rosenbaum 1980). Like policy specificity, policies also frequently lack adequate enforcement mechanisms (Rosenbaum 1980). The degree of enforcement required is in part dependent on how far the policy requirement deviates from an organisation's existing behaviour (Rosenbaum 1980) (this also relates to policy *innovativeness* and *magnitude*). If consistent goals already exist between a policy requirement and an organisation's behaviour, then it is argued by Rosenbaum (1980) that the requirement will be self-enforcing. The greater the disparity between goals and behaviour, the greater the need for enforcement to overcome resistance (Rosenbaum 1980).

⁴The terms magnitude, pervasiveness, innovativeness and duration are used explicitly by Beyer *et al* (1983), but other authors refer to similar concepts using different terminology.

Table 2.6: Characteristics of new policy directives which may influence compliance or resistance to change within organisations

POLICY CHARACTERISTIC	EXPLANATION
Legitimacy Rodgers in Wichelman 1976	<i>'The extent to which the regulated agree both that a legal standard has been established by a legitimate source and that the standard requires compliance'.</i>
Validity & Measurability modified from Sabatier and Mazmanian 1980; Ortolano 1997 refers to monitoring of policy	The extent to which a direct link can be made between the required behavioural change and the desired outcome. If the desired improvements are not made, the policy may be ignored or modified. This also relates to the <i>'measurability'</i> of the outcomes - how do we know that the desired outcomes have been achieved (<i>eg</i> measurement ease, knowledge, expense); and the <i>communication</i> of this information to target organisations/individuals.
Implementing Agency or Administering Authority Bullock 1980; Sabatier and Mazmanian 1980; Ortolano 1997	Agencies developed to oversee policy implementation which must have officials committed to the policy objectives who have resources and are willing to enforce them where necessary. Can either assign oversight to agency with consistent objectives, or create new agency.
Specificity van Meter and van Horn 1975; Rodgers in Wichelman 1976; Montjoy and O'Toole 1979; Bullock 1980; Coombs 1980; Rosenbaum 1980; Sabatier and Mazmanian 1980; Stewart 1980; Ortolano 1997; Cicimil 1999	The degree of specificity and clarity of the goals to be achieved in the policy, the manner or process in which they are to be achieved, and the scope of the requirement (<i>eg</i> who, when, what, where).
Enforceability van Meter and van Horn 1975; Rodgers in Wichelman 1976; Rosenbaum 1980; Stewart 1980; Ortolano 1997; Fuchs and Mazmanian 1998	The strength of enforcement mechanisms included in the policy to facilitate compliance such as fines, court enforcement, provisions for public intervention and/or external checks on behaviour (also depends on perceptions of agencies about whether sanctions will occur).
Resources & Incentives Montjoy and O'Toole 1979; Rosenbaum 1980; Sabatier and Mazmanian 1980; Ortolano 1997	The degree to which the policy provides resources for its implementation (<i>eg</i> financial, expertise). Other incentives may be present such as maintaining a government programme if the behaviour requirement is complied with.
Scope & Complexity Backoff 1974	The <i>type</i> of changes required of the organisation (<i>eg</i> structural, procedural, decision-making processes, product). How easy the policy is to understand and to use.
Pervasiveness Sabatier and Mazmanian 1980; Beyer <i>et al</i> 1983	<i>'...the proportion of total behaviors occurring within an organization that will be affected by implementing the policy' (ie how many people will be affected and must change their behaviour, and how frequently these individuals will be required to behave in this way).</i>
Magnitude Backoff 1974; van Meter and van Horn 1975; Rosenbaum 1980; Sabatier and Mazmanian 1980; Beyer <i>et al</i> 1983; Heffron 1989	Amount of change required - <i>'the amount of displacement of existing organizational states that implementing the policy will entail'</i> (this may involve existing beliefs, attitudes, behaviour, structural arrangements, and resource allocation). Or in other words, the degree of policy 'distance' from existing behaviour.
Innovativeness van Meter and van Horn 1975; Beyer <i>et al</i> 1983	Relates to previous experiences, routines and programs which are useful for implementing the change or policy (similar to magnitude).
Duration and Rate of Change, and Timing of Effects Backoff 1974; Beyer <i>et al</i> 1983	Defined as the period for which the policy is applicable (<i>eg</i> it may be temporary or a permanent change in behaviour). Rate of change refers to the speed of which the change is required to take place. Timing of effects refer to whether the changes will be long term or short term. Politicians often prefer short term commitments.

Thus, the nature of enforceability mechanisms should be flexible and tailored to the particular context or organisation (*eg* whether there is a focus within a policy on external 'stick-based' regulation or self-regulation). Rather than the typical 'command and control' type approach to regulation, Ayres and Braithwaite (1992) refer to the concept of 'responsive regulation' and present a pyramid of regulatory enforcement which can be tailored to an organisation's response, with the most stringent at the top of the pyramid (*eg* cancellation of a licence to criminal penalty) when cooperation to the regulation is not forthcoming, and the most flexible at the bottom where compliance is voluntary (*eg* cooperation and self-regulation) (refer also Laws and Aust 1994; Altham and Guerin 1999b). Altham and Guerin (1999) also acknowledge there is a need for both the 'carrot' and the 'stick' approach, and refer to Gunningham's comment that '*The bigger the stick at the disposal of the regulators, the more it is able to achieve results by speaking softly*' (in Altham and Guerin 1999: p71).

The validity of a policy relates to causal theory (Sabatier and Mazmanian 1980). In other words, the greater the certainty that the policy will directly result in the desired outcomes, the greater its validity and the greater the potential for compliance. As noted in Table (2.6) this depends on both the ability of the policy outcomes to be measured (can we identify an improvement as a result of the policy?), and the communication of this information to participants in the implementation process to reinforce (or not) their perception of the policy's validity. For effective implementation and behavioural change, policies also need to provide adequate *resources* for implementation (particularly where the targeted organisation lacks resources), otherwise compliance will be lower or 'piece-meal' (Montjoy and O'Toole 1979; Coombs 1980; Sabatier and Mazmanian 1980). Policy resources not only includes financial resources, but may also include the provision of technical expertise (*eg* in an administering or implementing authority). In conjunction, *incentives* or *threats* ('bribery') may also facilitate change (*eg* if you do this, then we will maintain a particular government programme; or if you fail to comply, we will withdraw funding from a particular programme).

In contrast to policy validity and specificity, policies which are more pronounced in terms of *pervasiveness*, *magnitude*, *innovativeness* and *duration* will lead to greater resistance (Beyer *et al* 1983), although policies of long *duration* may increase the likelihood of routinisation due to the greater sunk costs involved (Heffron 1989). For instance:

- pervasive policies will require more co-operative actions from several parts of an organisation (Beyer *et al* 1983). The greater the numbers of people involved, the greater the potential for organised resistance (*ie* the 'lone wolf' is unlikely to speak out against a requirement; refer also Kaufman 1971);
- if a new policy is *innovative*, it is unlikely that previous experiences will be useful for policy implementation, and change may be difficult due to a lack of knowledge (Beyer *et al* 1983);

- the greater a policy's *magnitude or scope* and *rate of change* (or suddenness of requirement), the greater the displacement and possibility for resistance, and change is more likely when the change requirement is small (Backoff 1974; van Meter and van Horn 1975; Sabatier and Mazmanian 1980; Beyer *et al* 1983; Heffron 1989).

2.4.2 Organisational Characteristics in the Change Process

The characteristics of an organisation which may be influential on the change and policy implementation process depends in part on the school of thought adhered to in organisational theory (*eg* human relations, cultural, political, classical). Some view change implementation as a structural problem (*ie* the existing internal environment of procedures, policies, controls; resources); some view it as an attitudinal problem (*eg* support of top management, attitudes of employees); others perceive it as a political problem (*eg* vested interests of some groups in opposing change to retain power), but most view it as a combination of these factors. Organisations vary enormously in terms of size, functions and structures, but Dawson reveals a number of common themes:

1. Organisations are interactive systems, with change in one aspect having repercussions for others ...
2. ...are highly complex systems in which there is a great deal of uncertainty
3. There is no one best way to act in organisations
4. Resources are always scarce, and any action is likely to have financial or social costs as well as benefits
5. Organisations are arenas for the activities of different interest groups which are linked through patterns of conflict, consensus and indifference
6. People in organisations perceive varying sources of opportunities for, and constraints on, possible action
7. Activities in, and outcomes from, organisations can be analysed in terms of the level of the individual, the group, organisation or society...' (Dawson 1996: p268).

Formal & Informal Elements of Organisations

A salient feature of organisations is the division between their formal and informal components, both of which can affect the change and policy implementation process. Based on research by Hellriegel and Slocum, the metaphor of the organisational iceberg is used by Mazur (1997)⁵ (Figure 2.6), where the surface and most visible level represents *formal* aspects such as organisational goals, structure, personnel, technology and finances. Existing structures, procedures, resources and knowledge barriers may have a significant influence on change

⁵Senior (1990: p99) also graphically illustrates the organisational iceberg based on work by French and Bell (1990).

(Backoff 1974; van Meter and van Horn 1975; Liroff 1976; Coombs 1980; Stewart 1980; Taylor 1984; Post and Altman 1992; Ashford 1993; Post and Altman 1994; Ortolano 1997; Fuchs and Mazmanian 1998; Petts *et al* 1998; 1999), although there is not much detail in the literature about exactly how this occurs. The formal elements of change as a result of EIA are addressed for the case study organisations in Chapter seven (*ie* organisational 'capability').

Contrary to points noted earlier, it has been argued that bureaucratic organisations are particularly resistant to change (Pitt and Smith 1981; Kirby 1994). Stewart (1997: p253) finds that '*[i]magining an environmentally-sensitive bureaucracy is no easy task*'. The ability of organisations to absorb a new requirement depends in part on the innovativeness of the policy (see last section). An organisation may already have similar decision-making structures and staff expertise in place, and can thus adopt the new function without major changes. However, if the policy imposes substantially new behaviour, then the organisation will lack the technology and knowledge, and the decision-making structures to implement the change (*eg* Post and Altman 1992). The organisation will thus have to commit new resources to the change process, and obviously, a lack of slack resources in terms of funding, staffing, expertise, or time will minimise the potential for change (Backoff 1974; Liroff 1976; Coombs 1980).

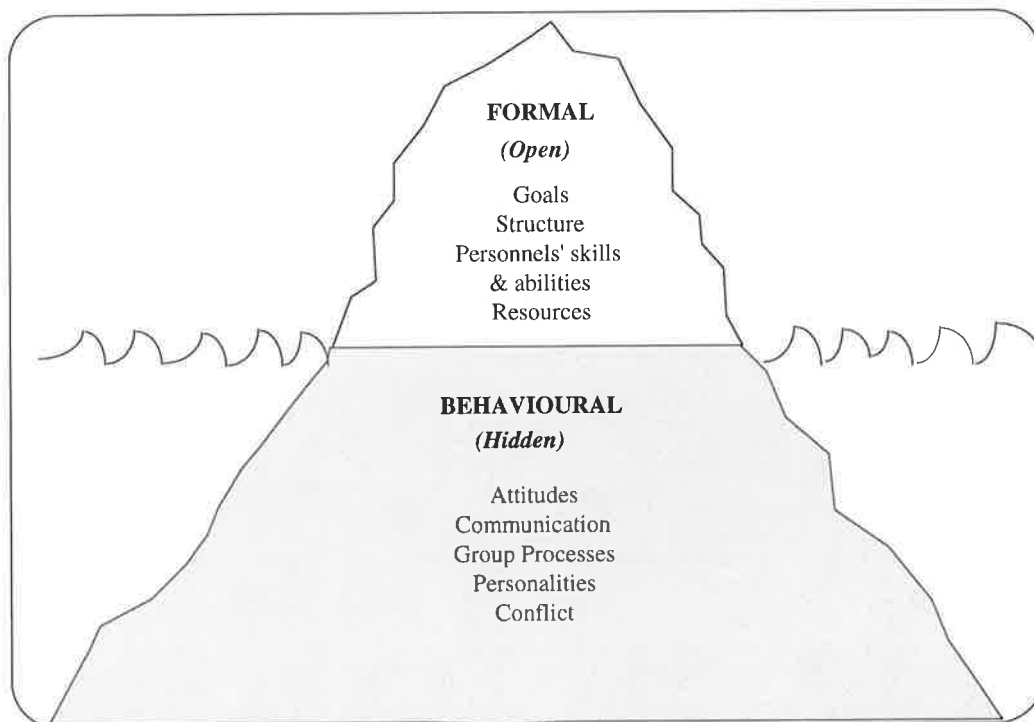


Figure 2.6: The organisational iceberg
(after Mazur 1997)

In this respect, Coombs (1980) refers to the problems of '*action-based non-compliance*' where individuals may believe in the effectiveness of a policy and value its intentions (see culture below), but the requirement itself is onerous because it involves substantial economic, time or psychological costs. The use of slack resources for the adoption and implementation of change is also unlikely if it means sacrificing other more traditional goals (Liroff 1976), and is dependent on the state of economy (refer below). Change can also be inhibited by a lack of formal feedback mechanisms, and new information needs to be shared and records need to be established to maintain corporate memory and to contribute to organisational learning (Field and Ford 1995). A loss of corporate memory about the requirements and ways of implementation may occur as a result of information overload, downsizing and loss of staff who hold this knowledge, and over-reliance on contract staff (*ie* they take their lessons away from the organisation) (Field and Ford 1995).

Change and policy implementation can also be influenced by an organisation's age and size (Beyer *et al* 1983; Wehrmeyer and Parker 1995; van den Bosch and van Reil 1998; Altham and Guerin 1999; Petts *et al* 1998). Change may be more difficult in older agencies because they have an accumulation of 'rigidifying' procedures, they have become 'set in their ways', and have more 'sunk' costs which makes it difficult to transfer resources into a new programme (Pitt and Smith 1981; Bullock and Stewart 1984; Heffron 1989). This too relates to organisational size: that is, the level of resources available for change (greater in larger organisations), the numbers of staff requiring coordination (greater in larger organisations), organisational complexity (greater in larger organisations), and internal cohesion (usually greater in small organisations) (Beyer *et al* 1983). Larger organisations are more able to create new units to implement a new requirement, although they can suffer from problems of compartmentalisation (Petts *et al* 1998). It has also been suggested by Kaufman (1971) that larger organisations may be better at being '*jarred out of their ruts*' because of their greater internal diversity, greater repertoires of behavior and flexibility. Although Beyer *et al* (1983) note that there may be greater resistance when change affects a greater diversity of people, Kaufman (1971) suggests that larger organisations may be more successful in bringing larger numbers of specialists together as a 'critical mass' to develop new approaches.

The *informal* aspects of organisations, and probably more significant factors in influencing organisational behaviour, are represented by the larger, deeper and yet less visible base of the iceberg in Figure (2.6) (Mazur 1997), and this element of change in the case study organisations is addressed in Chapter Eight (*ie* organisational 'culture'). Informal elements include individual attitudes, communication patterns, group processes, personalities and conflict, and are reflected by norms of behaviour and interactions between individuals and groups (Connolly 1983; Mazur 1997; Mullins 1996). Many of these informal elements (and some formal elements) can be represented by the notion of organisational culture. Organisational culture is a complex, multi-

level concept which has often defied universal definition (for example, Ott 1989 identified 58 different definitions of organisational culture), but it is generally understood as the dominant and persistent norms, beliefs, values, and underlying assumptions of individuals within an organisation that shape behaviour (*eg* refer Ott 1989).

The prevailing culture of an organisation, or even subcultures within different units, implies stability and provides meaning, direction and a shared frame of reference which is learned from generation to generation through a process of socialisation (Lebas and Weigenstein 1986; Roskin 1986; Ott 1989; Lundberg 1990; Schein 1991; Fletcher and Jones 1992; Brown and Starkey 1994; Marcic 1995; Niemiowski 1997). This frame of reference, which is not always obvious to employees (Wright 1996), and hence is difficult to measure and change, will invariably influence the communication of information within decision-making (Thompson and Wildavsky 1986; Brown and Starkey 1994; Marcic 1995) (*eg* who has access to vital information, who can influence this information).

The influence of an organisation's culture[s] on change and policy implementation has been noted by several authors (Tansik and Radnor 1971; Backoff 1974; van Meter and van Horn 1975; Coombs 1980; Rosenbaum; 1980; Yin 1981; Taylor 1984; James 1992; Post and Altman 1994; Ashford 1993; Gray *et al* 1993; Antal *et al* 1994; Wehrmeyer and Parker 1995; Lober 1996; Senior 1997; Altham and Guerin 1999; McHugh and Bennett 1999; Petts *et al* 1998; 1999). As noted earlier, links between attitude or culture and performance have not been proven (Crane 1997; Petts *et al* 1998). Nonetheless, there are cultural barriers to change, and the reasons for resistance at a cultural level are many. There may, for instance, be:

- 'existing loyalty to the status quo
- indifference, social conditioning and habit
- no appreciation or imagination for the untried
- and suspicion of the reformer's ulterior motives' (Caiden 1969: p24).

Change may involve individuals and organisations giving up status, power and control in decision-making (Wilenski 1986; Brewer 1995; Bolman and Deal 1997); it involves considerable uncertainty and loss of security and predictability (Kaufman 1971; Hellriegel and Slocum 1976; Steadman 1980; Wilenski 1986; Bolman and Deal 1997); it suggests criticism of existing skills and behaviour (Wilenski 1986); it means becoming a '*novice at a new trade after having been a master craftsman* [sic]' (Kaufman 1971: p13; Steadman 1980); it reminds individuals or organisations of their lack of independence and autonomy (Steadman 1980; Bolman and Deal 1997); and there may be an inability to understand the new 'language' associated with the change (Tansik and Radnor 1971; van Meter and van Horn 1975). Alternatively, if change benefits an individual or group they may accept it more readily (Heffron 1989).

Post and Altman (1992) and Ashford (1993) also list a number of culturally-related barriers, some of which refer to top management attitudes (*eg* lack of commitment and understanding, and differences between 'espoused' values and action which sends conflicting messages). The attitudes of top management and their support for a change has frequently been cited as critical preconditions in the change process because they control the location of the new function and the resources (*eg* Tansik and Radnor 1971; Yin 1981; Taylor 1984; James 1992; Gray *et al* 1993; Lober 1996; Senior 1997; McHugh and Bennett 1999). Informal attitudes towards a change requirement are also dependent on policy characteristics noted earlier (*eg* policy magnitude, pervasiveness, innovativeness, legitimacy and validity), and on the *attitudinal receptivity* of the organisation (or different groups within): that is, the distance between the policy goals and the existing attitudes and behaviour (Rosenbaum 1980). In contrast to the concept of '*action-based non-compliance*' noted earlier, Coombs (1980) also refers to '*policy-based non-compliance*' which occurs where the goals of the new policy are inconsistent with both the *beliefs* and *values* of those required to implement the policy (for example, an organisation or individuals may not *value* environmental protection highly, or may not *believe* that EIA will result in environmental protection). According to Petrick, '*...human groups find it difficult to carry out effectively acts for which they have no underlying beliefs*' (1968 in van Meter and van Horn 1975: p473).

The adoption and implementation of a policy may also be influenced by level of *participation* in the change process (van Meter and van Horn 1975), and perceptions about the *seriousness* and *immediacy* of the problem and policy (van Meter and van Horn 1975; Sabatier and Mazmanian 1980; Petts *et al* 1998). For instance:

- more positive cultural responses within organisations may be achieved if those being regulated have some involvement in the development of the policy or change process (van Meter and van Horn 1975). It has been suggested that '*subordinates will tend to resist any innovation that they are expected to implement if it is initiated solely by their superordinates*' (van Meter and van Horn 1975: p459);
- if a problem or policy is perceived to address a serious issue, there will be a greater likelihood of policy adoption (van Meter and van Horn 1975);
- the seriousness of a problem also relates to its *immediacy*, or whether or not individuals can see a direct link between non-compliance and its impacts, and how these impacts relate to themselves or to others (this in turn relates to policy validity). In the environmental management context, for instance, it has been argued that because non-compliance will have no immediate or serious impact on the individual, and will not be highly visible, the incentive for compliance may be lower (Petts *et al* 1998). This contrasts with safety policies, for instance, where non-compliance may result in direct injury or even death to one's self or to a colleague (Petts *et al* 1998).

Determining the immediacy of a problem or effects of non-compliance, is however, confounded by the difficulties of identifying the effects of a new requirement, particularly in public organisations because of a lack of valid output measures and formal feedback mechanisms which was noted earlier (refer also Heffron 1989).

Like an organisation's formal structure and procedures, culture and receptivity to change is in part, dependent on the organisation's size and age (*ie* 'administrative heritage') and the assumptions that have built up over time (Heffron 1989; Post and Altman 1994). In the former case, the 'deviant' in instigating change (*eg* new environmental staff) may be more visible in smaller organisations, resulting in greater pressures to conform; whilst in a larger system the internal change agent may feel less threatened (Kaufman 1971). In terms of organisational age, Heffron (1989) suggests that long-term members of older organisations will tend to commit themselves to the organisation itself rather than to its formal goals. As a result, they will show greater resistance towards changes which modify existing social relations (or the fundamental nature of the organisation), but will demonstrate support for modifications to goals which ensure the organisation's survival (Heffron 1989; refer also Bullock and Stewart 1984). For instance:

'as organizations age they learn more about how to cope with the environment, and the environment thus becomes safer, more predictable, and more stable. As they age, the "we've seen it all before syndrome" develops and procedures and behavior become more formalized and routines and standard operating procedures are established... goal commitment of members declines as their primary commitment is switched to the organization itself' (Heffron 1989: p168).

However, it has also been suggested that members of older organisations become conservative and may thus resist change in general (Heffron 1989; Petts *et al* 1998).

2.4.3 Social, Political & Economic Context in the Change Process

Clearly, the organisations which implement change are also affected by their environment, which in turn influences how they change or implement new policies such as EIA. There are a multitude of factors in an organisation's environment which may influence the degree of change achieved (Backoff 1974; van Meter and van Horn 1975), and not all factors can be reviewed here, but key and interacting variables include, for instance:

- degree of *political support* for the policy requirement (and the *implicit* goals imposed within a political context which may conflict with *explicit* policy goals) (*eg* Liroff 1976; Sabatier and Mazmanian 1980; Stewart 1980; Doyle and McEachern 1998);

- *public and interest group attitudes* and their degree of influence on an organisation's behaviour (and on the government) (eg Rodgers in Wichelman 1976; Sabatier and Mazmanian 1980; Taylor 1984; Fuchs and Mazmanian 1998);
- organisation's *public image, visibility, and media activity* (eg Sabatier and Mazmanian 1980; Ortolano 1997; Fuchs and Mazmanian 1998);
- economic climate (eg Liroff 1976; Sabatier and Mazmanian 1980; Pitt and Smith 1981; Doyle and McEachern 1998);
- knowledge levels, and availability and costs of technology outside of the organisation (Ashford 1993; Ortolano 1997) (where availability is low and costs are high, change will be impeded even if there is a desire to change).

For effective change to occur there needs to be among other things, both public and political support for the policy requirement (Stewart 1980). Public attitudes, which influence political attitudes, on their own are not sufficient, and it is also about the degree of action and influence (and access to the policy process) that public and interests groups have in either supporting or opposing a policy requirement (refer Taylor 1984; Rodgers in Wichelman 1976). This is further addressed in the case study organisations in Part III of this thesis. Where this support and potential influence exists, organisational image, visibility and media coverage are also influential in the change and policy implementation process (Sabatier and Mazmanian 1980). Organisations which are highly visible in the public and media arena have a greater incentive to change to reduce hostility, than organisations that are not highly visible (van Meter and van Horn 1975; Fuchs and Mazmanian 1998) (refer also Chapter Three).

Organisational visibility may fluctuate over time and may become high in response to a particular action (or project), but decline shortly after, and this is reflected in part by the level of media attention. As noted by Sabatier and Mazmanian (1980: p550), the media has a short 'issue-attention span'. Public attitudes, which interact with this media attention, are also cyclic in nature which makes continued political support for a policy difficult (Downs 1972; Sabatier and Mazmanian 1980). Downs notes, for instance, that '*we should not underestimate the ...public's capacity to become bored-especially with something that does not immediately threaten them, or promise huge benefits for a majority, or strongly appeal to their sense of injustice*' (Downs 1972: p49). Sabatier and Mazmanian similarly note that there will be a decline in public support over the longer term:

'The basic dilemma confronting proponents of any regulatory program seeking a change in the behavior of one or more target groups is that public support for their position will almost invariably decline over time. Normally, such statutes are the result of very heightened public concern with a general problem such as environmental quality or consumer protection. Such concern soon wanes as the public and the media turn to other issues and as the costs of such programs on specific segments of the population draw away previous supporters and intensify opposition' (Sabatier and Mazmanian 1980: p551).

Organisational attitudes to change and new policies will also be influenced by the state of the economy. Obviously, where the economic climate is strong, growth and greater use of resources will be encouraged, whilst during economic down-turns, activities will be constrained and organisations may be forced to minimise expenditure (Pitt and Smith 1981). Variations in the economic climate will also influence public and political perceptions about the seriousness and importance of the problem addressed by the policy (relative to other issues), and the costs of improvement, and hence, the degree of support given to the policy (Sabatier and Mazmanian 1980). In an environmental management context, for instance, Doyle and McEachern (1998: p151) note that where economic growth is the prevailing status quo, '*environmental concern, to the extent that it is given an administrative dimension, is likely to be handled in a way that favours this prevailing set of social/political assumptions*'. Similarly, Liroff (1976) argues that if survival means espousing traditional values of economic development, then other roles such as environmental protection may not be embraced to a similar degree.

As a result of these factors (economic, public, political), the effectiveness of a policy may wax and wane, and 'sovereigns' (*eg* legislature, chief executives, courts, or superior agencies) may weaken the ability of implementing or administering authorities to oversee the policy implementation process (*eg* reduced staff and financial resources), and/or revise and reduce the power of the legislation which contains the policy for change (Sabatier and Mazmanian 1980). This has occurred to some degree in the South Australian EIA context where economic development has become the priority (refer Chapters Five and Ten). In such a scenario, the enthusiasm and commitment of oversight agencies may decline. Sabatier and Mazmanian suggest:

'...the commitment of agency officials to statutory objectives--and the consequent probability of their successful implementation--will be highest in a new agency with high visibility which was created after an intense political campaign. After the initial period, however, the degree of commitment will probably decline over time as the most committed people become burned out and disillusioned with bureaucratic routine, to be replaced by officials much more interested in security than in taking risks to attain policy goals' (Sabatier and Mazmanian 1980: p553).

Thus, the change and implementation process may become inhibited over time, despite the initial adoption of a new policy requirement.

2.5 SUMMARY & CONCLUSIONS

Change in organisations to maintain legitimacy and survival is essential, but the change process is highly complex and there are a multitude of intervening and interacting variables in the organisation's internal and external environment. The models of reform in EIA, including the rational, internal, external, and external models, provide useful explanations for how EIA induces change, and reflect both techno-structural and human-process approaches to the change

process. While there is a range of change models, including corporate greening models, they are similar in that most tend to define linear, identifiable and cumulative stages in the change process. However, change is a much more complex and non-linear process, and is often characterised by resistance. The models do, however, provide useful guide posts for evaluating patterns in the change process. The categorical change models are also useful for determining the degree of change achieved, and for identifying where change has occurred without 'real' and fundamental changes to organisational behaviour. This Chapter has also revealed that there are numerous influences on the organisational change and implementation process for new policy requirements including:

- **the nature of the policy:** *ie* legitimacy, validity, presence of an administering or oversight agency, specificity, enforceability, presence of resources for implementation, scope and complexity, magnitude, pervasiveness, innovativeness and duration (this is in addition to the presence of external 'controls' in the EIA system such as legislative, judicial, procedural and evaluative control);
- **the nature of the organisation:** *ie formal* structures, existing decision-making procedures, available resources (*eg* action-based non-compliance), existing knowledge bases, organisational age and size; and *informal* perceptions about the policy's value, cultural barriers and the degree of receptivity to the policy (*eg* policy-based non-compliance), which in turn is influenced by the degree of organisational participation in policy development and perceptions about policy immediacy and seriousness (the presence of internal professional control and environmental 'champions' are also important factors in the change process); and
- **the organisational environment:** *ie* state of the economy, political support for the policy, changing public attitudes, public and media visibility of the organisations, and availability and costs of knowledge and technology.

Many of these concepts are further explored and applied to the South Australian context in Chapter Ten. The following Chapter reviews patterns of change in the EIA context within the United States to draw lessons from experience and, together with this Chapter, to provide a basis for the development of an evaluation framework in Chapter Four.

Chapter Three

ENVIRONMENTAL IMPACT ASSESSMENT & ORGANISATIONAL CHANGE

'insofar as environmental impacts were rarely, if ever, a part of agencies' decision equations before 1970, NEPA must be judged a success on its face' (Culhane 1990: p690).

3.0 INTRODUCTION

Chapter Two provided a basis for understanding organisational change processes, how the EIA requirement was assumed to induce change, and what factors influenced the implementation of a new policy such as EIA. In addressing research objective (2), the aim of this Chapter is to draw lessons from experience for the South Australian context by first, identifying how successful NEPA and the EIA requirement actually was in triggering organisational change; second, ascertaining any patterns of change over time; and third, exploring strengths and limitations in the models of reform defined in Chapter Two. The focus is on the United States given that this is where EIA was first formally introduced in 1969, and given that most of the existing research on this topic stems from this jurisdiction (refer Chapter One). The Chapter also draws further upon organisational theory in understanding the workings of the different models of reform in EIA. Because it is not possible to identify the different responses of all of the seventy different government agencies which fell under NEPA's jurisdiction (CEQ 1995), only broad trends are highlighted but some examples of individual agency responses are given where relevant. According to Liroff, the response of government agencies to NEPA was mixed:

'The various indicators of agency response - procedures, impact statement adequacy, personnel actions...- provide for the most part a portrait of agency uncertainty, inertia, and outright hostility, although amidst this rather gloomy picture a few instances of agency innovation, creativity, and responsiveness can be identified' (Liroff 1976: p121).

Before exploring patterns in the change process, the following briefly examines the context to NEPA's introduction and contrasting views about the effectiveness of the NEPA process in changing organisational behaviour.

3.1 THE INTRODUCTION OF NEPA

The enactment of EIA under NEPA was set against a backdrop of escalating public awareness of environmental issues (*eg refer Whitaker 1976*), the establishment of greater numbers of vocal, well organised community groups, and an increasing recognition by the United States' Federal government of environmental problems (Ortolano and Shepherd 1995; Culhane 1974). These environmental problems were caused, in part, by government agencies, their narrow mission statements, their '*unquenchable appetites*' for economic development, and their incremental processes of decision-making which failed to consider the broader and cumulative environmental impacts of their activities (Ortolano and Shepherd 1995; Culhane *et al* 1987). Faced with '*unanticipated embarrassing*' environmental consequences, the United States' Congress introduced NEPA after only ten months of debate (Culhane *et al* 1987; Andrews 1976). When approving the Act, President Nixon stated, '*the 1970's absolutely must be the years when America pays its debt to the past by reclaiming the purity of the air, its waters and our living environment. It is literally now or never*' (Whitaker 1976: p50).

Despite the significance of President Nixon's statement, the introduction of NEPA was initially uncontroversial, and was, for many legislators, a symbolic gesture '*akin to voting for motherhood and apple pie*' (Liroff 1970: p5). Some viewed it as '*just one more rhetorical bandaid to mollify a concerned public - long on symbolism but short and cheap on substance*' (Andrews 1976: pxv). Yet few realised the substantial impact it would have in practice, and it has been described as one of '*the most important and far-reaching environmental and conservation measures ever enacted*' (Senator Jackson in Yost 1990: p534). It has been argued by some that EIA in the United States has been successful to a '*surprising extent*' (Blumm 1988), and that it led to government reform with the incorporation of environmental concerns into project planning and agency constitutions (Fishman 1973; Dreyfus 1983; Taylor 1984; Blumm 1990; Culhane 1990). In the mid 1980s, Yost claimed that:

'Fifteen years since NEPA's enactment, one may confidently assert that the National Environmental Policy Act has fulfilled the fond hopes of its authors. It has succeeded in making environmental considerations part of federal decisionmaking. The law works. Moreover, those involved in the NEPA process - business, environmentalists, state and local government, the federal agencies themselves - all agree that it works. It is that consensus, the very absence of strife over its provisions or its implementation, that most clearly reflects NEPA's success. In short, NEPA has made environmental sensitivity an accepted part of all government decisionmaking and activity' (Yost 1985: p38).

Many of the potential direct and indirect benefits of EIA which were experienced in the United States are also recognised worldwide including the adoption of new environmental policies and administrative mechanisms, the employment of environmentally-oriented staff, increased environmental research and training, the 'anticipation' effect where environmentally unsound proposals are not even proposed to begin with, the refusal of environmentally unsound proposals, the consideration of more appropriate alternative locations and operations, cost savings for the proponent (*ie* prevention is better than reparation), and the formulation of management measures to mitigate impacts (*eg* Brown and McDonald 1993; Bailey 1994; Ortolano and Shepherd 1995; Sadler 1996). Many of these benefits of the EIA process are summarised in Table (3.1).

Table 3.1: Potential benefits of EIA
(compiled from Sadler 1996; Sadler 1996; Brown and McDonald 1993; Bailey 1994; Ortolano and Shepherd 1995)

DIRECT BENEFITS	INDIRECT BENEFITS
<ul style="list-style-type: none"> • prevention: last recourse stop to proposals found to be environmentally unacceptable; • relocation of development to more appropriate sites; • redesign to minimise, reduce or avoid impacts; • rescheduling of activities to accommodate concerns; • mitigation of impacts including rehabilitation and compensation; • attaining 'equity' benefits for communities affected by a proposal; • savings in capital and operating costs if environmental problems have not been considered at the beginning and require rectification later; • avoidance of risks, penalties and liabilities that come from overlooking important aspects of environmental performance. 	<ul style="list-style-type: none"> • allocation of additional resources to 'environment'; • development of, and streamlining of, procedures; • enhanced interagency co-ordination; • Restructuring and employment of environmental staff within proponent organisations or environmental consultants; • learning from experience and internalisation of environmental awareness including a 'greening of the boardroom'; • improvement of future decisions via anticipation and fore-knowledge of what is acceptable/unacceptable; • improvements in broader policies, programs, regulations and standards ('policy reform'); • incentive for further environmental training, education, research and monitoring; • promotion of design of environmentally appropriate technology and green business opportunities'.

Despite these benefits, and despite Yost's claims about the widespread consensus on NEPA's success noted earlier, the performance of EIA has in fact endured ongoing debate since the process was introduced. In a broader international context, Sadler (1998) notes that the effectiveness of EIA is frequently questioned, doubted and undervalued by academics,

proponents, and decision-makers alike, and suggests that many participants view the process as '*falling short*' of its potential as a decision-making tool. In the United States' context many authors indicated that NEPA has been both a success and a failure (Sandler 1970; Fishman 1973; Strohbehn 1974; Andrews 1976b; Friedman 1985; Caldwell 1989; Blumm 1990; Culhane 1990; Dennis 1997). Caldwell (1989), Culhane (1990) and Dennis (1997) suggest that, although NEPA has reformed organisational behaviour when seriously and consistently applied, its impact has been imperfect and inconsistent. In the late 1970s, Fairfax argued that:

'NEPA does not constitute a new approach to administrative reform and is actually a poor vehicle for a reformation of agency decision-making. ...The tragedy of NEPA is that it turned energy, attention, and effort away from a redefinition of agency authorities and spent it on proliferating paper' (Fairfax 1978: p268 and 272).

In the broader international context of EIA, some of the specific problems identified with the process have been many (*eg* BIE 1990; Ensminger and McLean 1993, Leeson 1994; Lee and Wood 1995; Ortolano and Shepherd 1995; Ridgway 1995; Harvey 1996; Sadler 1998). These include for instance:

- attempts by proponents or governments to avoid the EIA process because it is viewed as a 'hurdle' to development with high costs and long delays;
- high levels of political discretion in the process;
- an overemphasis on EIA of projects rather than assessment of broader policies, plans or programmes (environmental assessment of these broader decisions is often termed 'Strategic Environmental Assessment' or SEA);
- methodological deficiencies and inadequate EISs (*eg* too long, too short, biased, too technical, duplication or incorrect information, superfluous information);
- limited consideration of indirect and cumulative impacts;
- failure to adopt mitigation measures;
- lack of monitoring or feedback on actual environmental impacts or level of environmental protection achieved;
- inadequate public participation with limited opportunities for public input; and
- lack of integration into planning and decision-making.

In this latter case, EIA is often not conducted until after a proposal is already well-defined and likely to be funded and approved, thus giving the EIA process minimal opportunity to influence proposal design and location (Ortolano and Shepherd 1995). Ortolano and Shepherd (1995) describe this as an *ex post facto* rationalisation for projects. This is further addressed in the following section which examines patterns in the organisational change process.

3.2 PATTERNS OF ORGANISATIONAL CHANGE

Like the process-based models of change defined in Chapter Two, the organisational change process as a result of EIA in the United States has been delineated into a series of stages over time, which assumes a period of interpretation and initial resistance, procedural compliance, and then more innovative behaviour. The very similar models defined in the United States' context by Ash (1973), Wichelman (1976), CEQ (in ELA 1975c), and Muhic (1984) are comparatively illustrated in Figure (3.1), with Wichelman's stages including the *interpretative phase*, the *compliance/procedural phase*, the *integrated planning phase*, and the predicted *programmatic phase*. Immediately following NEPA's enactment, CEQ also denotes an *awareness phase* which preceded Wichelman's *interpretive phase* and Muhic's *phase I*. Wichelman's model is the most detailed, and is thus reviewed further. The predicted programmatic phase is not examined in detail (because it never fully eventuated), but according to Wichelman (1976) it is characterised by the integration of environmental factors into levels of decision-making which are broader and more strategic than the project level of EIA (eg Strategic Environmental Assessment of programmes and policies).

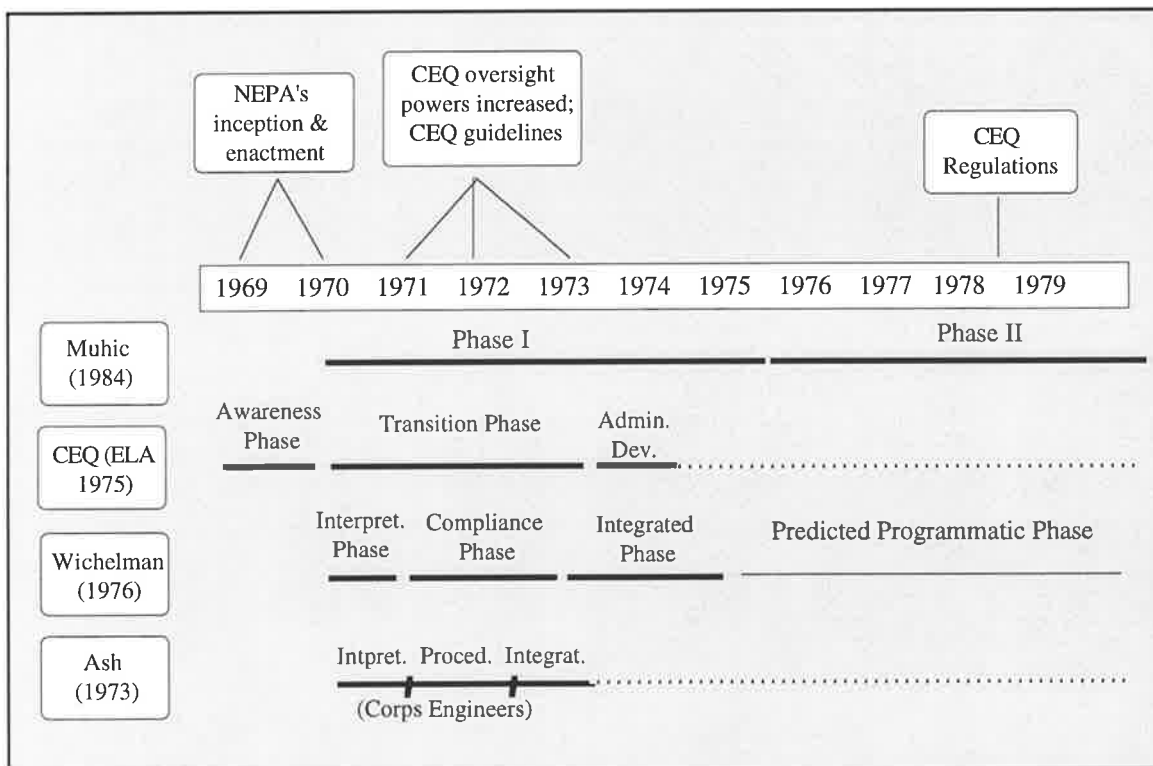


Figure 3.1: Patterns of change from 1969-1979 as a result of EIA

3.2.1 The Interpretative Phase of Change in EIA

The interpretative phase, according to Wichelman (1976) lasted from 1970 to 1971. These early years of implementing NEPA were fraught with uncertainty and resistance, and agency efforts were focused almost entirely on interpreting the Act. As a result, there was limited impact on organisational structures, procedures and decision-making, and compliance to the law was imperfect (Wichelman 1976). Consistent with the rational model of reform in EIA (refer Chapter Two), the Council of Environmental Quality (CEQ) required agencies to develop their own procedures for implementing the EIA process (Reilly 1970; Culhane 1974; Bear 1989). The initial reluctance which characterised Wichelman's interpretive phase, was indicated by the fact that only eight agencies had filed their new procedures with CEQ in the first seven months of NEPA's operation (Sandler 1970; Liroff 1976). It was a time of 'token compliance' (Ortolano 1997), and many agencies attempted to avoid NEPA's requirements by not preparing EISs (Ortolano 1995). The CEQ's requirement for public notification of proposals, '*did little to assure that agencies would shoulder this burden*' (ELA 1975b: p10012), and the only agency to comply with the CEQ's request for a quarterly submission of project lists was the Forest Service. It was thus suspected at an early stage that NEPA would require a judicial mandate for agencies to comply, rather than voluntarily doing so (ELA 1975b).

Many agencies believed that NEPA was irrelevant to their activities, and that EIAs were simply a 'finishing touch' for agency approvals (CEQ in ELA 1975c; Liroff 1976). Other agencies believed that because they already considered environmental factors in their decision-making processes, no major changes to goals were deemed necessary (*eg* the Department of Transportation,¹ Soil Conservation Service) (Reilly 1970; Fishman 1973; Andrews 1976c; Liroff 1976). This perceived goal compatibility with NEPA and lack of action in the early years is interesting given that it conflicts with findings in Chapter Two (*ie* increased goal compatibility between a policy and the implementing organisation was believed to *increase* the potential for change and compliance, not decrease it). In some agencies, there was also evidence of goal conflict and problems of prioritisation between biophysical protection on the one hand, and social issues on the other. For instance, the Department of Housing and Urban Development (HUD) believed that '*if a project had the beneficial impact of providing a decent home and suitable living environment - HUD's major goal - this would normally outweigh any adverse environmental impacts*' (Montjoy and O'Toole 1979: p468). As a result, the Department failed to prepare EISs in situations where they should have been prepared (Montjoy and O'Toole 1979).

¹Legislation prior to NEPA already required a consideration of environmental impact for those state proposals which required federal funding, but this requirement was not as broad as NEPA, it did not require detailed measures for assessing impacts, and it had no public involvement requirements (Reilly 1970).

Resistance towards EIA also emerged because NEPA was imposed upon agencies, and because it took away their autonomy and control and was an 'affront' to their expertise (Cortner 1976; Bausch 1991; Caldwell 1993; Ortolano 1993). Rather than the concept of 'policy-based non-compliance' noted in Chapter Two, Coombs' (1980) concept of 'action-based non-compliance' appeared more pronounced. Cortner (1976) noted for instance, that some agencies supported NEPA's intentions, but were resistant to the enormous costs and delays associated with its implementation. Other agencies such as the Forest Service and the Corps of Engineers had already begun to be responsive to public attitudes (hence the policy was less innovative). As a result their response to NEPA was less resistant, although there were still pockets of resistance within the organisations and uncertainty about the implementation process (refer Ackermann 1990 regarding the Forest Service).

The delayed response to NEPA in many agencies can be attributed to a number of other factors, some of which were identified in Chapter Two. For instance:

- a lack of policy *specificity* about goals, processes and scope of change which resulted in considerable uncertainty about how to implement the process, and about the 'magnitude' of the changes required (Liroff 1976). Much of the interpretation of NEPA's requirements was left to the discretion of individual agencies (Andrews 1976b; Caldwell 1976). High levels of uncertainty were exacerbated because frequent interpretations in court actions kept on changing the expectations of NEPA every few months (Taylor 1984);
- high *magnitude* and *innovativeness* of the EIA requirement (*ie* because the policy departed from traditional government behaviour, existing behaviours were often not useful for understanding or implementing the process - although some large agencies were already considering environmental factors to a limited degree);
- no *resources* were provided by government to implement the process (*eg* funding or personnel to enforce compliance). The CEQ partly fulfilled this role, but they had insufficient resources and staff to review all EISs and to oversee compliance (Cortner 1976; Wichelman 1976; Caldwell 1989);
- lack of *enforcement* mechanisms encapsulated within the Act (Nole 1970; Ortolano 1997). The CEQ lacked statutory authority to enforce compliance (Cortner 1976), and the process was essentially self-regulatory given that it relied on implementation by the very agencies targeted for reform which 'invites' non-compliance (Boggs 1993). This soon changed with increased court enforcement of the process;
- low *attitudinal receptivity* of agencies. Wichelman (1976: p272) found that '*the greater the perceived conflict between NEPA implementation activities and an agency's pre-NEPA mandate, the more likely the agency was to go slowly and cautiously in implementing the Act*' (Wichelman 1976: p272); and

- it involved a change of long *duration*, and thus could not simply be ignored or effectively delayed until it was too late to implement.

One government agency was, however, more advanced in their response to EIA, and this was the Army Corps of Engineers primarily because the organisation believed that NEPA invoked a new mandate (Andrews 1976; Andrews 1976c; Liroff 1976; Mazmanian and Nienaber 1979). The Corps' civil role was primarily a construction-oriented one which emphasised economic development, and its main mission was to construct public works projects (*eg* dams and channels to reduce flood damage, provide municipal water supply, and recreation among other things) (Andrews 1976; Mazmanian and Nienaber 1979). Shortly following the enactment of NEPA, the Corps expanded its objectives to include environmental quality (Mazmanian and Nienaber 1979). The Director of the Corps stated:

'It wasn't until the passage of the National Environmental Policy Act that we really had in our hands the authority to spend money, time and effort in this field over and above what were the precedent-setting studies in which economic development and the benefit-cost ratio were the be-all-and-end-all' (in Andrews 1976: p306).

In other words, with the introduction of EIA, the consideration of environmental factors became a 'legitimate' goal. While many agencies were initially reluctant to implement NEPA with a delay in compliance, Andrews (1976; 1976c) claimed that the Corps responded 'immediately and affirmatively' to NEPA's procedural mandate, with the internal dissemination of numerous circulars and policy guidelines which required the 'spirit of NEPA' to become part of all agency activities. Ash (1973: p30) on the other hand, observed that the early phase of interpretation in the Corps was characterised by a '*lot of talk, not much action, long unproductive debates and meaningless reports*'.

The Corps of Engineers also stood out among agencies with the immediate development of EIA procedures and guidelines for implementing NEPA shortly after the enactment of the Act (Andrews 1976; 1976c; Liroff 1976). These guidelines were described as 'exemplary' by Andrews (1976c) for three main reasons:

- the delays and reluctance evident for most agencies during the early interpretation period, were not evident in the Corps, and their procedures were prepared prior to the CEQ guidelines;
- NEPA was interpreted as a substantive mandate as well as a procedural one;
- the Corps demonstrated initiative with a stronger emphasis on public participation and on the integration of EIA into planning processes than was evident in the CEQ's policy provision (Andrews 1976c).

Consistent with the thoughts in Chapter Two, Andrews (1976c) and Mazmanian and Nienaber (1979) attributes the Corp's responsive behaviour, in part, to the high degree of public visibility associated with their 'environmentally-destructive' mission, and because they had already been 'targeted' by environmental groups as a result of this visibility. The Corps also had a greater organisational capacity and flexibility to change due to its large size, budget, existing multifunctional purpose and planning abilities, and administrative autonomy (Andrews 1976c; Mazmanian and Nienaber 1979). In contrast, agencies such as the Soil Conservation Service were slower to comply because they were less visible in the public arena, and they were not perceived to have the same degree of environmental impact (Andrews 1976c). Nevertheless, the Corps' guidelines were still limited in some areas, with a lack of substantive guidance on how and to what extent decisions and agency priorities should change, thus leaving ample discretion to the district offices in interpreting the process (Andrews 1976c). EIS quality was also poor during this interpretative phase, primarily because of a lack of experience. Some of the EIS deficiencies are highlighted in Table (3.2).

Table 3.2: Quality of EISs within the Corps of Engineers in 1970-1971
(compiled from Andrews 1976c: p60)

1970	1971
<p><i>Deficiencies</i></p> <ul style="list-style-type: none"> • 'paperwork documentation exercises'; • superficial; • lack of new studies/reassessments; • lacked information on the magnitude and significance of effects; • no consideration of uncertainty, or secondary impacts; • no review of alternatives; • restricted to view of the District engineer, often unsubstantiated by documentation, or evidence for independent review. 	<p><i>Improvements</i></p> <ul style="list-style-type: none"> • more detailed, figures/maps; • improved sections on interagency coordination; • included summaries of review comments; <p><i>Deficiencies</i></p> <ul style="list-style-type: none"> • only one summary paragraph of possible effects; • limited discussion of alternatives; • Still based on general views of District Engineer; • limited detail overall - often only 9 pages; • lack of consideration of several relevant issues (eg effects of spoil disposal, water quality changes, and ecosystem changes); • no distinction between facts and value judgements - EISs used as justification documents; • limited treatment of the broader human impacts.

During the interpretative phase, the impacts on organisational culture were also minimal in most agencies. There is a paucity of literature on this topic of culture in the EIA context, but Kennedy (1988b) did find that the cultural phenomenon of 'groupthink' was challenged within the first few months of NEPA's enactment. Originally identified by Janis in 1967, the concept of groupthink refers to a tendency of organisations to become '*unduly proud, cohesive, and confident... It results when organizational members fear being judged disruptive or disloyal,*

and fail to challenge critically their groups' beliefs and decisions' (Kennedy 1988b: p123). The outcome is often a rigid and predictable organisation based on traditional goals, with illusions of invulnerability, morality, mindguarding, and shared stereotyping among other things (Kennedy 1988b).

A degree of groupthink or cohesiveness is necessary for the effective functioning of groups (*eg* provides a support network) (Kennedy 1988b), but it can also cause defects in decision-making, with limited consideration of alternatives, rejection of expert opinions, and bias of information (Roberts and Hunt 1991). Using the Forest Service as an example, Kennedy (1988b) suggests that groupthink was confronted by NEPA by opening up the agency's existing culture to internal and external politics (*ie* the internal and external models of reform). The need to avoid external conflict resulted in a more adaptive agency which was responsive to external change requirements (Culhane in Jones and Mohai 1995). It should however, be noted that it is difficult to attribute all changes to NEPA given that numerous changes in the Forest Service also resulted from the *National Forest Management Act* (refer Ackerman 1990; Jones and Mohai 1995). The concept of cultural groupthink and EIA is addressed in the South Australian context in Chapter Eight.

3.2.2 The Compliance Phase of Change

The initial interpretation period appeared to be brief in most agencies, and it was believed that the future of NEPA's implementation was fixed only one year after NEPA's enactment (ELA 1974). Government agencies moved into a second phase of operation; namely the *compliance* or *procedural phase* which, according to Wichelman (1976), lasted from 1971 to 1973. The move to this phase was facilitated by two factors which are reflective of the external model of reform defined in Chapter Two. First, the courts became increasingly involved in interpreting the Act's purpose and reviewing agency compliance (Ash 1973; ELA 1974; Wichelman 1976). This essentially increased agency perceptions about the legitimacy of the EIA requirement. Procedural matters which were frequently challenged in court included inadequate agency procedures, failure to prepare an EIS when appropriate, and the preparation of poor quality EISs (Dreyfus 1983; Cortner 1976; Caldwell 1985). The process of judicial review also served to fulfil some of the policy characteristics which were missing during the interpretative phase (*ie* enforceability, specificity), by providing both an enforcement mechanism and a clearer interpretation of NEPA's requirements (Wichelman 1976).²

²Murchison (1984) provides a useful review of some of these court interpretations of EIA relating to, for instance, when an EIS should be prepared, what should be included in an EIS, and the consideration of alternatives, among other things.

Second, the CEQ increased its oversight and guidance powers under Executive Order (No. 11514), and developed more specific guidelines in the early 1970s (ELA 1974; Wichelman 1976). Together with informal reviews of agency EISs, these guidelines also alleviated much of the uncertainty which was evident in the earlier interpretation phase (ELA 1975b). The Environment Protection Agency (EPA) also had an important role in reviewing the EISs and this:

'routine scrutiny of the substance of their EIS's by EPA quickly forced them [government agencies subject to NEPA] to develop implementation procedures that would permit their agencies to be responsive to EPA's review standards' (Wichelman 1976: p277).

While the court action and CEQ/EPA oversight increased responsiveness to NEPA, the threat of court action simultaneously exacerbated resistance from some government agencies (Gillette 1972; ELA 1975a; Cortner 1976; Liroff 1976). Despite the fact that the Federal Highway Administration (FHWA) had prepared more EISs than other agencies in the early years of NEPA, the agency had '*shouldered its NEPA obligations grudgingly*', and only as a result of the external court enforcement mechanism (ELI 1975a, p10177). As a result, the FHWA aimed to reduce its NEPA responsibilities and staff commitment (ELI 1975a), as did the Federal Power Commission (FPC) and the Department of Transportation (DOT), which both pushed for legislation to grant them dispensation from NEPA during this phase (Gillette 1972: p30; ELA 1975a).

Despite this remnant resistance, the responses of many agencies to NEPA increased during this compliance phase, and a great deal of energy was directed towards a continued interpretation of the Act, and towards conducting training, establishing EIA procedures to comply with the Act, employing new staff and modifying structures (Wichelman 1976; Caldwell 1993; Bausch 1991; Bartlett and Baber 1989). Liroff suggests that:

'...an agency's willingness to hire new personnel might reflect an openness to the changes that might follow an influx of personnel having training and values different from the agency norm; therefore, agency recruitment practices can provide some insight into agency concern with NEPA's substantive goals' (Liroff 1976: p116).

The way in which organisations structured environmental staff and the EIA process is discussed in Section (3.3.2). The employment of such staff may have occurred anyway, but Taylor (1984) argues that NEPA accelerated this trend. Overall, approximately three thousand 'specialists' were enlisted in government agencies as an indirect result of NEPA's requirements (Caldwell 1982). New and younger employees in the traditional disciplines such as engineering, were also influential in the change process because their attitudes were apparently more compatible with the new environmentally-oriented staff (Taylor 1984).

The numbers of environment staff employed between agencies varied depending on available resources (Wichelman 1976), existing staff profiles, the level of environmentally significant activity, and of course, the organisation's attitudes towards NEPA. Some agencies made no effort to increase staff or resources to implement NEPA, and simply relied upon expanding the duties of existing staff, or increased their staff only in response to court activity (eg Atomic Energy Commission) (Culhane 1974; 1990; Liroff 1976; Andrews 1976b). Others used external contractors to prepare the EIS (eg Department of Energy), even though this practice was lobbied against by environmental groups because they believed that by using external contractors, the results of the EIA could be ignored by the internal planning staff (Funk 1990). However, the results of internal environmental offices which prepared EISs could similarly be ignored (see Section 3.3.2) (Funk 1990). Even in the 1990s (outside of this phase of change), Dickerson and Montgomery (1993) noted that EIA expertise was limited in many agencies.

In addition to the creation of an infrastructure for EIA such as new staff, the emphasis during this phase was on procedural compliance to NEPA and producing more and better quality EISs. However, the EISs that were produced were still *ad hoc*, of poor quality, and frequently prepared late and separate to the agency's decision-making process (Wichelman 1976). The lack of EIS quality was not always a reflection of inadequate commitment to NEPA, but could be explained by organisational factors such as limited time, staff, resources, and ambiguity in legal requirements (Fishman 1973; Wood 1975; Andrews 1976c). The public were also critical of the EIA process during this phase because plans were usually 'crystallized' before comment was requested by the agencies (ELA 1975b). For instance, local communities often heard about Navy proposals via rumours and distorted information, thus evoking greater controversy, and hence, risk of litigation (Strohbehn 1974). Box (3.1) provides an example of a Navy housing project where there was uncertainty about when to submit an EIS, failure to comply with public notification procedures and preparation of a poor quality EIS which resulted in a court challenge.³

As a result of agency endeavours to comply with NEPA during this phase (and later phases), volume began to outweigh substance as agencies generated extensive paperwork to comply with NEPA's legal requirements (Muhic 1984). Administrative theory suggests that because public officials must justify the legality of their actions, they act 'bureaucratically' where means of administration become more important than ends (Pitt and Smith 1981: p30; Finer in Harris 1983; Dawson 1996). As noted by Munro *et al* (1986: p20) '*codification [via procedures] often leads participants to "play the book: rather than seek the best solution"*'. Up to 6,000 EISs of often limited quality were produced and filed in the first five years of NEPA, whilst over 11,000 had been filed by 1978 (Andrews 1976b; CEQ in Clark 1997).

³Blumm and Brown (1990) also provide several examples of court cases relating to non-compliance and agency failures to prepare an EIS where appropriate.

Box 3.1: EIS for a Navy Housing Project (source: Wood 1975)**A story of non-compliance, inadequate resourcing, bias, communication gaps, & poor EIS quality**

The US Navy's usual practice was to file formal EISs only for 'significant' projects, and with those falling in 'grey' areas, to rely on internal and informal environmental protection measures. In planning a housing project of 600 units on wooded sand dunes, a number of alternatives were assessed based on economic and political feasibility. The final site chosen had severe environmental problems, but the department was now committed and the funds had to be used by a certain time. An EIS was prepared by a consultant at half the time and resources necessary for an adequate study. It was also decided not to officially file the formal EIS with CEQ (thus avoiding public comment requirements). This project was determined to be a 'borderline case', and it was believed that NEPA's requirements had been fulfilled with internal environmental protection considerations and measures. *'In fact, the Navy's environmental authorities regarded the ...project as a "showcase" for the Navy's internalized NEPA program. They believed that the Navy's system had again identified and "mitigated" environmental impacts without a filed impact statement'* (Wood 1975: p50060).

The public eventually became aware of the project, but the Navy was unwilling to modify it to respond to public requests for an alternative site. This resulted in a court case which focused on the inadequacies of the EIS rather than on substantive alterations to the project. The EIS was forwarded to the EPA, and was condemned for its inadequate assessment of alternatives, air and noise pollution from traffic. The project was criticised by an independent witness because of the displacement of wildlife, ground cover loss and dune erosion, and pollution from storm water runoff. The proposed safeguards were simply 'hortatory generalities'.

Many of the problems could be attributed to lack of resources and time, and there were claims that the Navy had 'doctored' the EIS so that it was 'pro-project'. The EIS had in fact been revised by the Command section of the Navy to understate the impacts, and no attempts were made to correct these 'errors' in the document. Thus, an inaccurate picture was presented to an internal review panel which made the decision to file or not to file an EIS with the CEQ. The Judge stated that *'when seemingly important facts and views of experts are deleted from the DEIS [Draft EIS], it tends to destroy the authorities which support the view that adequate consideration by the agency is all that is required.'* (Wood 1975: p50063). An injunction was issued, preventing action until an EIS had been officially filed.

This case study clearly demonstrated the problems of threshold decision-making (*ie* uncertainties about impact significance and whether to undertake a full EIS), lack of procedural compliance (failure to submit EIS to CEQ), preparation of poor quality and biased EISs, internal communication problems (*ie* review panel made decision based on poor quality and biased information), and the real risks to agencies of delay as a result of a dissatisfied public and court action.

The frenzy of activity in accumulating paperwork did eventually decline, and EIS quality improved. Research by Ferester (1992) and others found that the number of EISs declined significantly from 1974 until 1990 with approximately 1,900 EISs in 1974 to roughly 400 in 1989, and 576 in 1996 (CEAA 1997; refer also Dickerson and Montgomery 1993). Ferester alleged that this trend was indicative of reducing compliance and that agencies were once again disregarding NEPA's intent. It could be inferred from this, that Andrews' (1976b) more pessimistic prediction in the mid 1970s that NEPA's action-forcing mechanisms could lose force through 'bureaucratic nibbling' and direct attack, had eventuated. Ferester (1992), the CEQ (1995), and Kent and Pendergrass (1986) also found a decline in the number of court cases against agencies, and Ferester suggests that this was because environmental groups were disillusioned and unwilling to enforce NEPA procedures when it was not possible to attain a substantive result (Ferester 1992).

Nonetheless, there is evidence which contradicts Ferester's conclusions of agency non-compliance to NEPA, and Grassetti (*pers. comm.* 1997) states that procedural compliance is still relatively good today. The decline in EISs may not mean non-compliance but may be simply be explained by EIS backlogs. In other words, EISs were initially required for a backlog of activities (Andrews 1976), thus increasing the EIS output in the early years. Once this backlog had been rectified (which according to Clark 1997 was mostly achieved in the mid 1970s), then the quantity of EISs would naturally decline. The decline in court cases can also just as easily be interpreted as increased agency compliance to NEPA; that is, as agencies learned to comply with the law, litigation simultaneously decreased. It could also be related to the 'issue-attention' cycle noted in Chapter Two, and changing public opinion. Cortner (1976) states that during the 1960s the environment dominated public awareness, but this later changed to subjects of energy and inflation crises, thus reflecting a reduced number of court challenges

3.2.3 The Integrated & Programmatic Phases of Change

According to Wichelman (1976), the integrated phase of change lasted from 1973 to 1975, whilst the programmatic phase was predicted from 1976 onwards. The integrated phase was characterised by an increasing emphasis on integrated planning and substantive improvements to decisions as organisations learned from experience. This transition tended to depend on the type and extent of changes undertaken in the compliance phase (Wichelman 1976). In other words, '*...the more pervasive an agency's efforts formally to implement NEPA, the more likely it will be to exhibit the SOP's [Standard Operating Procedures] most likely to facilitate a transition to the Integrated Planning Phase of implementation*' (Wichelman 1976: p291). NEPA's procedural requirements, together with the further employment of new environment staff to implement NEPA,⁴ served to challenge the more traditional beliefs and norms of agencies, and it is likely that the internal model of reform was becoming more pronounced as experience was gained. Leaders were beginning to have more faith in the positive outcomes of EIA (*ie* increased validity of the policy), the attitudes of employees were less resistant, the process became increasingly routinised and integrated into decision-making, and consultation and negotiation began to occur prior to EIS preparation (Wichelman 1976). The status of EIA procedures also improved during this phase, and most agencies had prepared their procedural guidelines by 1975 (Andrews 1976b; Wichelman 1976).

⁴For instance, the Corps of Engineers increased their environmentally-oriented staff from 75 in 1969, to 575 in 1977, and to 600 in 1980, although some environmental roles were simply reassigned to existing staff (Culhane 1974; Mazmanian and Nienaber 1979; Taylor 1984). This appears to be a large number of staff, but they only comprised a small portion of the Corps' 30,000 staff of civilians under the direction of 250 engineers (Andrews 1976). The number of staff employed was in fact believed to be inadequate for NEPA's implementation (Andrews 1976c).

There was still some uncertainty, however, about the process in many agencies during the beginning of the integrated phase. A study of agency guidelines for EIA in the mid 1970s by Andrews (1976b) found that few agencies had prepared internal guidelines which went beyond the general guidance of CEQ, and many were of limited quality. Overall, Andrews concluded that:

'despite five years of experience and the current flurry of expensive 'cookbooks' for environmental assessment, the agencies' substantive guidelines for NEPA implementation still are quite general, quite varied, and fragmentary, and leave many central questions unaddressed' (Andrews 1976b: p50004).

The lack of emphasis on substantive goals in EIA procedures was also illustrated by a more recent analysis of the scientific content of agency procedures in the 1990s (Malik and Bartlett 1993). Using 18 criteria⁵ based on the explicit and implicit standards of NEPA and the CEQ Regulations, it was concluded that '*...[t]he procedures of most agencies were wholly inadequate with respect to several of the criteria that many field scientists might argue were most important...*' (Malik and Bartlett 1993).

Nonetheless, there was evidence of substantive changes in agency projects even in the earlier compliance phase (Cortner 1976; Andrews 1976b; 1976c). Yost (1985) argued that litigation which gave credibility to NEPA and ensured procedural compliance, served to indirectly improve federal decision-making. As experience was gained, agencies learned the '*the rules of the game*' (Cortner 1976: p335), and the associated '*rule of anticipation*' improved decision-making. For instance:

'the agency, in its desire to avoid conflict proactively is receptive to the public's response to its activities. According to this theory, if the agency anticipates that an upcoming decision might be challenged, it may alter the decision to ameliorate the objections and avoid the challenge, or at least obtain a more substantial scientific justification for the decision prior to pursuing it' (cited in Jones and Taylor 1995: p333).

The decline in EISs noted earlier could also be attributed to the increasing preparation, albeit still limited, of EIAs on higher decisions such as policies, plans and programmes which was noted by Andrews (1976b) (*ie* 'programmatic EIA' or 'Strategic Environmental Assessment'). A key feature of this process in the United States was, and is, 'tiering' whereby project EIAs may not need to be required, or are prepared with less detail if EIA is completed at the higher policy or plan level (Bregman and Mackenthun 1992). One could thus assume, that with more SEAs, there may in fact be less project EIAs.

⁵ It was acknowledged in this study that these criteria were limited, and provided only crude measurements. They were however, considered to be of value in highlighting general strengths and weaknesses of agency procedures. It was also noted that more informal handbooks which guide EIA were evident in some agencies, but these were ignored in the study on the basis that they were 'inadequate substitute[s] for the emphasis and salience that formal procedures give to agency guidance' (Malik and Bartlett 1993: p43).

Despite substantive improvements to projects as a result of EIA during this phase, there is still some question about whether the integrated phase (and the programmatic phase) was reached by some agencies, or even continued into the 1980s and 1990s. For instance, in the late 1990s, Ortolano (1997) noted that programmatic EISs were still rarely prepared. Moreover, Friedman asserted that, while NEPA had been successful overall in institutionalising environmental analysis into project planning:

'There is still substantial validity to early criticisms of the NEPA process as an expensive means of collecting data in unreadable large volumes, resembling the Manhattan telephone directory. There are legitimate concerns still that EISs have little impact on the environment, and that they are measured in litigation by the literal "weight" of the evidence' (Friedman 1985, p43).

Agencies were also not learning from experience by monitoring the actual impacts of their actions (Ensminger and McLean 1993), and despite the findings of integration by Wichelman (1976), the substantive changes in decision-making had been minimal, and most related to project delays rather than substantial changes or project refusals (Andrews 1976; Taylor 1984). In a broader context, it has been argued that in bureaucracies, the EIA process simply becomes an approval and justification mechanism which results in incremental changes (Doyle and McEachern 1998: p152). In other words, '*...expressions of environmental concern are used to fine-tune and justify development plans, not to replace them with environmental care itself*' (Doyle and McEachern 1998: p152). It has also frequently been assumed by proponents that all impacts are generally manageable as a result of technology (*ie* the technocrat view). As a result, mitigation measures are more commonly found in EIA, rather than more fundamental changes such as proposal refusals or changes to locations (Ortolano and Shepherd 1995). Thus, the focus appeared to remain on procedural compliance. For instance:

'Great scrutiny has been devoted to whether or not impact statements discuss every category of impact that might be considered significant; but no action has yet been rejected because it failed to approach the maximum attainable recycling of depletable resources, or because it failed to promote the achievement of NEPA's other stated goals and objectives. The fascination of both administrative agencies and courts with NEPA's procedural requirements has so far neglected, if not obscured, the policy purposes which the procedures were intended to serve' (Andrews 1976b: p50007).

Even though the Corp's policies were more 'enlightened' than some, there was still evidence of the preparation of superficial EISs (Andrews 1976), and Mazmanian and Nienaber (1979: p183) found that '*...the capabilities for meeting the agency's traditional missions [were] still dominant; environmental quality [was] an auxiliary function of the agency*'. Similarly, during the supposed transition between the compliance and the integrated phases, both the Department of Interior and the Water Resource Agency believed that the EIS was still a separate report from the decision-making process; that is, it was a 'byproduct' for 'public consumption' (Andrews 1976b). The Forest Service is yet another example of contention. Positive pictures of this agency were painted by Mohai (1995), but Ackerman noted:

'There are legitimate questions about whether the ultimate decisions that the Forest Service makes through its NEPA process are "better" than pre-NEPA decisions. Certainly more information is available to the decision makers and the public, and the public is more openly involved. It is clear that a wider range of alternatives is being considered. And it is also true that the Forest Service has developed a more broadly trained and informed employee base, better able to make and document resource decisions. However, in many instances, final decisions represent only incremental changes from existing plans, decisions that probably are not significantly different than decisions that would have been made without the costly, time-consuming, and cumbersome NEPA process' (Ackerman 1990: p732).

Negative assertions have also been made about the Department of Defense's EIA process which remained isolated from decision-making in the mid 1980s with (i) attempts to ignore NEPA's requirements by requesting exemptions for important projects; (ii) preparing EISs after the design and site selection was complete, thus making the process a 'disclosure document' with little effect on the decision and project; and (iii) undertaking EIA parallel to the planning process, but still not linked to decision-making (Mangi 1985). Although the links between NEPA and the Department's decision-making processes had improved over 14 years, Mangi noted that there was still a 'disconnect' problem:

'...the EIA process is an awkward construct built upon a hastily conceived foundation. The authors of NEPA may well have believed that the process of foreseeing the impacts of a project would stimulate its proponents to avoid the adverse impacts whenever possible. However, this fundamentally important linkage became almost completely obscured as judicial and regulatory action elaborated the form and format of EIA. Today the unwieldy process includes Environmental Assessments, Impact Statements, Programmatic Statements, Tiered Assessments, Findings of No significant Impact, Categorical Exclusions, Records of Decision, and more. The process is full of legal pitfalls and bears relatively little relationship to carrying out the National Environmental Policy. A great deal of EIA practitioners' and managers' efforts are focused on the form, on "going through the hoops" of writing and publishing documents' (Mangi 1985: p4).

Even in more recent years the debate about EIA's integration into agency planning processes is still apparent, and some still consider NEPA an absolute failure given that environmental factors are not yet an integral part of decision-making in all government agencies, particularly at the strategic level (Blumm 1990; Ensminger and McLean 1993; CEQ 1997; Clark 1997; Ortolano 1997). In the most recent study by the CEQ on NEPA's effectiveness over 25 years (refer also Welles 1997), it was agreed that NEPA was an overall success, but that it still fell short of the substantive goals:

'According to many federal agency NEPA liaisons, the EIS process is still frequently viewed as merely a compliance requirement rather than as a tool to effect better decision-making'. Because of this, millions of dollars, years of time, and tons of paper have been spent on documents that have little effect on decision-making' (CEQ 1997: p7).

Many of those interviewed in the CEQ study believed that EIA still resulted in delays and excessive costs; that training was inadequate, and that the overall process was still undertaken too late in planning to be fully effective. Limitations were also found for public participation,

which although improving substantive project design in some cases, was sometimes undertaken after important decisions were made, thus increasing the risk of litigation, which in turn, resulted in the preparation of 'litigation proof' documents. Thus the integrated and programmatic phases did not appear to be fully reached as predicted by Wichelman (1976).

3.3 PRECONDITIONS & LIMITATIONS IN THE MODELS OF REFORM

Given that change was not perfect within many organisations in the United States, and given the importance of the rational, internal and external models of reform in explaining change in EIA (refer Chapter Two), it is important to understand more clearly how the models operate and what their preconditions and limitations are in practice.

3.3.1 Preconditions & Limitations in the Rational Model of Reform

In the mid-late 1980s, Culhane *et al* (1987: p261) examined 29 EISs in the United States and found that they fell '*far short of the ideal of technically rational, comprehensive, optimizing analysis*'. They further argued that '*the empirical record and real-world limitations of the NEPA process present a grim prognosis for the rational, comprehensive, optimizing, scientific model of the prescriptive literature on EISs*' (Culhane *et al* 1987: p270). The pure rational models of reform are based on an ideal which have rarely been applied successfully and its limitations are well recognised (Culhane *et al* 1987; Weston 2000). Even the originator of this model, Herbert Simon, later believed that this approach was unattainable in the human world of decision-making given the diversity of human values and lack of commonly agreed objectives. Consensus of goals and neutrality is assumed in idealistic rational models; indeed, '*rationality cannot be defined apart from the existence of a set of goals*' (Pfeffer 1981; Van de Van 1983; Friedland in Pfeffer 1981: p19).

But this consensus is often difficult to achieve. Goals do not stem from homogenous entities and they are often multiple and conflicting, which is a point ignored by the rational model (Van de Van 1983; Ham and Hill 1984; Culhane *et al* 1987; Corbett 1992; Minkes 1994). In the very act of facilitating greater accountability in EIA, the introduction of new participants into decision-making increases the potential for different interests and values, and hence conflict. Doyle and McEachern (1998) state that conflict is a perpetual characteristic of environmental politics and policy-making, whilst Beattie (1995: p112) suggests that EIAs 'will always be political'. The political nature of EIA and decision-making has also been emphasised by Ortolano and Shepherd who state that:

'decisions on significant public or private development projects are not, in fact, made following the logic of the rational model. Instead, decisions are influenced by 'non-scientific' factors, such as agency and corporate power and interest group politics. Courses of action are often determined more by the project sponsor's narrow goals, intra-organisational politics and inter-

organisational rivalries than by scientific studies of environmental impacts' (Ortolano and Shepherd 1995: p4).

The EIA requirement within NEPA also lacked some of the explicit components of comprehensive rational models. It did not require the consideration of *all* alternatives, only those relating to the proposed activity (Culhane *et al* 1987). The problem of choosing the 'best' alternative was confounded by the lack of specific goals in EIA which made it difficult to make choices (Culhane *et al* 1987). Most importantly, the requirement to choose the 'best' alternative was not explicit under NEPA (Culhane *et al* 1987; Bartlett 1997), and as noted in the previous section, an agency could still adopt an environmentally unsound project if the procedures were adequately complied with. As Culhane *et al* (1987) state: '*NEPA led the horse to the waters of rational-optimizing decision making, but it did not require them to drink*', whilst Reilly (1970: p37) states that the '*Act is not a one-sided, development-be-dammed effort to stand astride history and yell "Stop!" to the engineer*'.

Optimal decisions in EIA are also difficult to attain because of problems in processing information. Although not in the United States' context, Walker (1994) notes that EIAs are commonly criticised for failing to consider all important information, yet at the same time, criticisms of the comprehensive approach emphasise that such information is often unavailable or too complex to fully analyse. Even though significant time and money may be expended by an agency to gain more comprehensive information in EIA, there are still problems in 'knowing how to use it', particularly given that the emphasis still often remains on economic factors rather than conservation factors (Rickson 1990). The rational model assumes that decision-makers have access to perfect information which is able to be recalled and processed, and that they have the time and resources to collect this information (Corbett 1992; Cherrington 1994). However, knowledge is limited and fraught with uncertainties (Ham and Hill 1984; Corbett 1992; Minkes 1994).

Bailey (1994) thus notes that EIA will more realistically follow the process of bounded rationality or 'satisficing' in incremental decision-making, rather than the more comprehensive rational models (refer Chapter Two). Ham and Hill (1984), Walker (1994) and Steadman (1980) similarly suggest that rationality's antithesis - incrementalism - will tend to predominate, where the reality is a process of 'satisficing' rather than optimisation. Like incremental models of decision-making, 'bounded rationality' recognises that decision-making rationality will only work where there are few choices and delimited circumstances (March and Simon in Lebas and Weigenstein 1986; Cherrington 1994). Unlike pure or comprehensive models of rationality which EIA was originally designed to reflect, bureaucratic models place more emphasis on *procedural* rationality (Pfeffer 1981). This is also one reason among many that EIA in the

United States' focused on procedural aspects of EIA rather than its more substantive aspects. In this context, Pfeffer (1981) suggests that bureaucracies will:

- use less extensive information searches and analyses;
- rely more on rules, precedent and standard procedures;
- will allocate less time and resources on decision-making; and
- will consider fewer alternatives before decisions are made;

Rules and procedures also tend to promote *minimal acceptable behaviour* (due to strict adherence to rules and procedures), and *responsibility avoidance* (where individuals are protected by rules and procedures) (Steadman 1980), with a focus on means as opposed to results. In fact, Corbett (1992) argues that it will never be possible to identify a perfect long-term solution, thus the substantive impacts of EIA and organisational change will always be limited.

3.3.2 Preconditions & Limitations in the Internal Model of Reform

Preconditions and limitations in the internal model of reform can also help to explain why the organisations did not fully change in the way that NEPA intended, and this is for reasons of socialisation, power and conflict, and the organisational restructuring process.

Socialisation

New environmentally-based staff can be important agents of change within an organisation, but they are at risk of being socialised into the existing and traditional norms of the organisation. Organisations attempt to manipulate and shape the values of new staff, and to '*instruct them in what they must do if they would like to get ahead*' (Kaufman 1971: p17). Although not in the EIA context, Kaufman suggests that:

'Directives, orders, commands, instructions, inspections, audits, reports, and all the other means of organizational control, however irksome they may once have been, are gradually accepted as one's own premises of thought and action, until compliance with them is no longer reluctant, or even indifferent, or obedience but an expression of personal preference and will' (Kaufman 1971: p18).

In the EIA context, Wichelman (1976) observed that new environment staff were often socialised in a manner consistent with the organisations' norms and customs, and suggests that they favoured the certainty associated with existing structures and procedures, as opposed to the uncertainty associated with reform. Even Kennedy (1988b) who noted the changes in groupthink, acknowledged that the more fundamental changes in organisational culture necessary for successfully implementing EIA were not always apparent, and that production and

loyalty to the agency were still rewarded in the Forest Service. Twight and Lyden similarly suggest that:

'little substantive attitudinal and behavioral change in an agency like the Forest Service is possible because the socialization and identity-building mechanisms in the Forest Service that result in conformity and "group think" themselves have changed very little over this time (in Mohai 1995: p248).

Bolman and Deal (1997) also argue that new employees will undergo an unspoken initiation, particularly in strong cultures: *'the stronger a culture, the stronger the message to newcomers that "you are different and not yet one of us"'* (Bolman and Deal 1997: p226). Thus, while new staff may aim to promote environmental values because of their professional values, they must simultaneously strive to remain loyal to the organisation in order to maintain their position of influence (refer also Taylor 1984; Ortolano 1997). Being the bearer of bad news (*eg* environmental constraints on development) or 'devil's advocate' within an organisation is a difficult process and requires courage (Mazmanian and Nienaber 1979; Rickson 1990). The ability of internal reformers⁶ to change decision premises and to overcome conflict (if the dominant culture is resistant to a new policy) is also dependent on their 'critical mass'. In other words, Kaufman argues that:

'The lone deviant, with no one to reinforce him [sic], will feel too powerless to impress his views on the system and too insecure to cleave to those views....social pressures induce outward conformity with group consensus....the isolate is apparently likely to become more conventional than anyone else... Thus, if representatives of varied backgrounds are brought into organizations in order to encourage nonconforming contributions to decision-making processes, the purposes will be defeated unless the number of nonconformists attains some "critical mass"' (Kaufman 1971: p58).

Power & Conflict

In addition to critical mass, the ability of new internal staff to trigger change (whether consciously or unconsciously), relies on the degree of power that they have. Taylor (1984) refers to this power in terms of the competing concepts of 'autonomy' (*eg* power to decide what to study, and how) and 'influence' (*eg* degree of influence on decision-making). The degree of power of environmental officers (and of engineers) in the South Australian context is addressed in Chapter Eight for the two case study organisations. Sources of legitimacy and power, although still not fully explored in the EIA context, can include:

- legitimate position power (formal authority);
- information and expert power (*ie* the disciplines required to prepare and review EISs);
- control of resources, rewards and ability to deliver jobs money, political support;

⁶ According to Caiden (1969), internal agents of change would describe themselves as 'decision-makers or expert advisers' rather than 'reformers'.

- coercive power (ability to constrain, block, interfere, punish);
- network power (types of alliances and networks available);
- access and control of agendas ('a seat at the table');
- referent or personal power (*eg* charisma, energy, political and articulative skills) (Kanter 1982; Hellriegel *et al* 1995; Bolman and Deal 1997).

Even if critical mass is achieved, the problem is that staff responsible for environmental issues are often given low status within organisations which is reflected in part by their salaries, promotional prospects, staff turnover and limited access to executive decision-makers (Rickson 1990). In the United States context, Andrews (1976b) found that environmental offices for EIA were often restricted to staff levels, and rarely integrated into lines of authority; whilst Armour (1991) found that the roles of environmental staff were often marginal and deferent to traditional engineers.

However, legitimacy and power of an environmental officer is also dependent on their role[s] in EIA and its importance to the organisation. Jenkins (1977), Price and Ortolano (1981), Ortolano *et al* (1978), and Ortolano (1983) distinguished six possible roles for environmental officers in EIA within infrastructure agencies:

1. *Planning* (active member of planning group, and coordination of environmental information);
2. *Report Preparation* (writer of the EIS or equivalent);
3. *Internal Report Review* (evaluator of EIS prepared by other staff members);
4. *Design* (member of detailed design group);
5. *System Monitoring* (monitor project operations to ensure environmental quality maintained);
6. *External Report Review* (review of EISs from other agencies).

The power and influence associated with each of these roles tends to vary. Position and coercive power may for instance, be available via the 'internal report review' role with checks on the quality of the EIS (*eg* environment staff may have the power to delay a project until information is adequate, or may have the power to refuse clearance for a project due to unacceptable impacts, although this latter is unlikely to occur). Expertise power is present in all roles, but particularly in the 'report preparation' role; whilst power associated with a 'seat at the table' may be provided under 'planning' or 'design' roles.

Experience in the United States indicated that some organisations gave environment staff the role of EIS report preparation, but that this focus tended to result in isolation of the environment staff from the planning process and hence, influence on the planning of both objectives and alternatives (Ortolano 1983). According to Ortolano (1983: p123), the '*... ability of*

environmental specialists to influence these two planning activities [objectives and alternatives] is of fundamental importance if environmental factors are to be fully integrated into infrastructure planning'. Evidently, there is also greater influence on the planning process if environmental officers are 'active' planners rather than just advisors (Liroff 1976; Price and Ortolano 1981; Ortolano 1983). Liroff notes, for instance:

'where environmental specialists functioned as active planners instead of serving as mere staff advisors, where the specialists communicated frequently and informally with engineering planners, and when the specialists had duties beyond mere EIA...environmental information exerted a relatively strong influence on planning outcomes' (Liroff 1980: p156).

Power and influence is also associated with (i) role uniqueness and substitutability (*ie* if other staff or units can do the same job, then the power of environmental officers may be reduced), (ii) the degree in which external factors are threatening the organisation's survival, and (iii) the ability of the staff to deal or buffer the organisation against these pressures (if high pressures and high ability, then power may be increased as the staff become a valued resource for the survival of the agency) (Hickson in Pfeffer and Salancik 1978: p231). In line with the integrated model of reform noted in Chapter Two, many environmental analysts believed that they gained most of their internal influence from external pressures (Wichelman 1976; Taylor 1984). Credibility and hence influence, was gained because of a need to protect the agency from increasing litigation, and the associated costs and delays. However, these informal links to external groups may have also resulted in animosity and distrust between staff, resulting in isolation of environmental officers from particular stages in the planning process (Taylor 1984).

In addition to a lack of power, the internal model of reform may also be inhibited by conflicts between different groups that are functionally separated within an organisation (see also next section on structure). Organisational theory suggests that growth of an organisation results in greater segmentation and specialisation of different subunits (Lebas and Weigenstein 1986). Although not in the EIA context, Wolf (1983) notes that organisations which are structured around functions can generate 'functional blindness' which is '*an inability to understand other departments, a superior attitude toward other departments, and competition with other departments*' (Wolf 1983: p257). Although organisations may specify the overall goals to be achieved (which in themselves may be conflicting), the organisations are comprised of individuals, and interest groups with differing views, and values which can result in 'goal differentiation' (Liroff 1976; Jenkins 1983; Minkes 1994). This 'differentiation' may, on occasion, result in a significant diversion in the overall course of actions taken by an organisation from the original policy-driven course (Buekers, *pers. comm.* 2000). Furthermore, these diversions may remain, from a policy viewpoint, 'covert', that is, they are often at odds with the organisation's stated policy (Buekers, *pers. comm.* 2000).

Although not in the EIA context, research by Post and Altman (1994) found adversarial relationships between environmental staff and other personnel because environmental staff were often perceived as 'auditors' or 'environmental white knights' as opposed to 'partners' in business. Similarly, in the EIA context, an engineer in the Army Corps of Engineers' stated:

'Engineers fancy themselves as planners, and only grudgingly admit that economists and environmentalists have anything to add. Environmentalists are viewed as a holdup, a problem. You don't plan for least-cost solutions for 50 years, and then marry up new considerations overnight' (cited in Taylor 1984: p96).

Some organisational goals can be subverted as units and individuals bargain with each other and strive for power and status (Pitt and Smith 1981; Lebas and Weigenstein 1986). As a result, Cyert and March state that some groups of employees may form a dominant coalition which controls the 'decision premises' (in Liroff 1976). Information in decision-making may be restricted, unconsciously or deliberately, via a process of filtering which leads to simplification and bias of information which protects the dominant paradigm (Liroff 1976; Dawson 1996). This propensity for politics appears to be inevitable, given that it is virtually impossible to design an organisational structure which prevents personal bias and competing political interests in the flow of information (Rickson 1990).

This has implications for EIA because the process relies on the dispersal of extensive amounts of information between a multitude of parties. The co-operation required of more pervasive policies such as EIA may be difficult if there is already conflicting beliefs and values between the different groups affected. The establishment of EIA procedures which give environmental officers power, legitimacy and a 'bargaining asset' (Taylor 1984), may also invoke greater resistance from others, because rules and procedures, whilst seeking to control behaviour, can reduce individual or group autonomy and discretion (Pondy 1967). In this sense, a lack of power also corrupts, with employees becoming increasingly concerned about 'guarding their territory' rather than with collaborating with others (Kanter 1982).

Conflict and the exercise of power between groups in decision-making is not always visible, and it is often difficult to measure within an organisation (Dawson 1996). Indeed, Pondy (1967) suggests that participants in organisational process may never perceive conflict. Covert conflict can occur where, for example, some individuals will simply refrain from pushing their view because either they believe they will be unsuccessful, or they fear the consequences, or they view the dominance of another party as more legitimate (Dawson 1996). This again reflects the concept of 'groupthink' described earlier. In this way, the *status quo* may be retained (Jenkins 1983), and via a process of accommodation, surface harmony is maintained and disagreements 'smoothed over' (Blake and Jouton in Jenkins 1983). It should also be noted, however, that overt conflict is not always destructive because it prevents stagnation and stimulates discussion (Deutsch 1969; Minkes 1994). It can also result in greater internal

internal cohesiveness (Deutsch 1969), and may in this sense give internal environmental analysts in EIA greater legitimacy because their roles tend to alleviate conflict with external parties about environmental issues.

Organisational Restructuring & Influence/Autonomy

As already suggested, conflict and the ability of environment staff to change organisations in the internal model of reform, is also influenced by organisational structure. The importance of exploring the structural location of environmental officers has been emphasised by Jenkins and Ortolano (1978). Given that there is no 'right' way of structuring the EIA process (Bartlett and Baber 1987), government agencies were faced with the difficult question of whether to 'add on' separate environmental offices or to 'integrate' new staff throughout the agency (Caldwell 1982). Three models of organisation, which appear to encompass most agency's structural responses to NEPA, have been outlined by Taylor (1984: p108):

- *integral group model*: a separate group of environmental officers supervised by an environmental officer;
- *mixed group model*: existing and dominant staff interacted closely with the environmental officers in EIS preparation;
- *dispersed model*: environmental officers were spread throughout the organisation. In this case, each environmental officer would be responsible for the entirety of the EIS, albeit under the supervision of the dominant profession.

This latter model tended to weaken the power of environmental officers, because of reductions in influence, reduced autonomy and specialisation (Taylor 1984). Some agencies made no changes at all simply because they already had environmental offices prior to NEPA (Wichelman 1976).

The structural approach chosen ultimately depended on the manner in which NEPA was interpreted, the existing organisational structure, the organisational mission (Caldwell 1982), and the six types of role in EIA noted earlier. For instance, Jenkins (1977) relates EIA to 'contingency' schools of thought, and argues that the most appropriate structural location for EIA and environmental officers depends on the degree of *task interdependence* and *differentiation*. In an active planning role, which involves greater task interdependence with planners, the location of environmental officers in the same unit as engineering planners '*facilitates the task integration and coordination*' (Ortolano *et al* 1978; Ortolano 1983: p124). This is reflective of Taylor's mixed or dispersed structural models noted above. In contrast, roles involving EIS report preparation, review, and system monitoring require greater objectivity and independence (*ie* greater task differentiation), and it may be best in this respect to

locate environmental specialists in a location external to the planning unit to alleviate bias (Jenkins and Ortolano 1978; Ortolano et al 1978; Ortolano 1983). This is reflective of Taylor's integral group structural model.

The majority of US agencies, particularly the larger resource management agencies tended to establish the first 'integral group model' or 'add-on' approach which was characterised by visible, high-level and separate environmental offices that usually comprised multidisciplinary staff (Culhane 1974; CEQ 1976; Caldwell 1982). In the Army Corps of Engineers for instance, staff responsible for EIA were situated within separate environmental offices often consisting of 10-20 specialists in district offices (Taylor 1984). The integral group offices were often responsible for implementing NEPA, developing procedures and guides, training agency staff, preparing the more significant EISs, and coordinating the internal and external (public and interagency) review process (CEQ 1976). Liroff (1976) found that environmental offices which comprised multiple disciplines tended to prepare EISs of greater quality than those environmental offices which contained traditional occupations such as engineers (Liroff 1976).

There was significant rationale for the add-on approach to structuring environment staff and EIA, because it required minimal reorganisation, involved minimal disruption to agency operations, and enabled more efficient use of the new environment staff or existing expertise (Caldwell 1982; Bartlett and Baber 1989). Agencies may have also attached a greater symbolic value to separate environmental offices, as opposed to concealing the EIA process in existing structures (Caldwell 1982). Such 'symbolic transparency' was important in demonstrating that the EIA process was not co-opted by traditional agency approaches (Bardach and Pugliaresi 1977; Caldwell 1982). Also of significance in this separate group approach was the cohesiveness, and development of a strong support network and 'group spirit' (Taylor 1984). This also relates to the need for 'critical mass' noted earlier. Caldwell (1982) has suggested that the separate status of these offices may have been particularly useful where there was minimal environmental awareness and significant agency resistance to EIA.

Yet, as already alluded to, this form of structural reorganisation was not without its problems. The creation of an environment office may be viewed as symbolic, but it also meant that environmental responsibilities were compartmentalised, and 'ostracised' from the existing decision-making processes within other offices (Mangi 1985; Funk 1990). It could, according to Andrews (1976c) become a form of 'window dressing', and any results originating from the environment office could be easily ignored simply because it was outside of the main stream decision-making structure (Andrews 1976c; Bardach and Pagliaresi 1977; Caldwell 1982). Other components of the agency thus remained 'uncontaminated' by 'exotic', multidisciplinary influences, and as a result intra-agency education and change became limited, and the true decision-makers still frequently represented the dominant profession of the agency (Culhane

1974; Caldwell 1982; Mangi 1985; Bartlett and Baber 1989). This isolation is well illustrated by the following quote:

'During the comment period, the program office considered comments on the proposed rule. The Assistant Secretary's office [for environment] considered comments on the draft EA or EIS, if there were any. The comments on the proposed rule might result in changes to the rule. Comments on the draft EA or EIS might result in changes to the final EA or EIS, but the comments on the EA or EIS were never considered by the program office, so they never had an impact on the rule. NEPA's form was scrupulously observed while its substance was ignored' (Funk 1990: p764)

Some of these issues related to the isolation of environment staff were partly overcome by the larger agencies. Environmental offices were still often separate to planning ones, but they were less isolated from decision-making because they worked under the leadership of one coordinator responsible for both offices (Caldwell 1982), thereby increasing the interaction between the two. Agencies such as the Forest Service and Bureau of Land Management attempted to bring their staff closer to agency operations by following Taylor's (1984) 'mixed group model', and by integrating environmental staff into *ad hoc*, and later permanent, planning groups, which were supported by separate environmental units (Taylor 1984). No clear distinction was made between EIS writers and the main professionals within these planning groups (Taylor 1984).

The early *ad hoc* approach used by the Forest Service is similar to the concept in organisational theory, of 'matrix' organisations, which was originally applied by Bartlett and Baber (1987) to the EIA context. In this approach, temporary project groups are created which comprise multidisciplinary members who also retain their permanent roles in their relative 'functional' departments (one would assume then that the environmental officers would still have a separate environmental office as was the case in the Forest Service). Although there is still no clear definition of matrix approaches (Ford and Randolph 1992), Roberts and Hunt (1991) note that matrix structures are best for actions which involve more than one sector, involve uncertainty, complex and interdependent tasks, and require a sharing of human resources and maintenance of flexibility, all of which are characteristics of the EIA process. Wolf (1983) has also suggested that the matrix approach is the best way of overcoming functional differences and conflict, and lack of understanding between different groups and roles within an organisation. This approach apparently has a greater impact on planning processes (*ie* Taylor's notion of 'influence'), and serves to both clarify the status of EIA groups and retain their independence (*ie* Taylor's notion of 'autonomy') (Bartlett and Baber 1987). Bartlett and Baber further argue that this approach was in fact implicit in NEPA's mandate, although it has rarely been recognised because of the gap between EIA and organisational theory literature (Bartlett and Baber 1987).

However, his matrix or mixed group approach was also not without its problems, and whilst originally advocating this approach, Bartlett and Baber later discounted the value of matrix organisational theory in the EIA context (Baber *et al* 1990). They noted that:

'it may be that the persistence of a strong bureaucratic structure overwhelms whatever positive effect of the matrix approach that may be present. Perhaps matrix organization is a very special and fragile organizational arrangement that can succeed and thrive only in very exceptional circumstances' (Baber *et al* 1990: p246).

In particular, there may be problems of coordination (Baber *et al* 1990), and potential conflicts in roles and reporting arrangements given that a member is answerable to two different managers (ie 'functional' and 'project'), where relative authorities are not really clear (refer also Ford and Randolph 1992). Moreover, even though environmental staff may be less isolated from planning in this matrix approach, their autonomy and influence could still be undermined by the traditional culture and mission of the agency, particularly if the dominant profession directed the EIA or project teams (Taylor 1984). For instance, the planning groups within the Forest Service tended to be pragmatic and avoided 'environmental purism' so that decisions could be appropriately balanced, and environmental officers, upon conflicting with the team, could easily be isolated from the whole process (Taylor 1984). Similar problems were also evident with the 'dispersed model' of organisation noted earlier, and it was possible that environmental results were lost in the 'business as usual', with minimal influence and resource justification because environmental officers were integrated under the dominant profession (Caldwell 1982; Taylor 1984). In addition, the support networks which were often characteristic of the separate and more homogeneous environmental offices, were often slower to develop in the dispersed model (Taylor 1984).

The above clearly highlights the difficulties of finding the best way to manage the EIA process.⁷ If integrated and more influential, environmental officers ran the risk of being co-opted (Taylor 1984). If 'added-on' in a separate group they ran the risk of being irrelevant to decision-making, despite having greater autonomy (Taylor 1984; refer also Shepherd and Ortolano 1997). Examples of some of the strengths and weaknesses in each approach are summarised in Table (3.3). Given the often multiple roles of environmental staff, Jenkins and Ortolano (1978) suggest that more than one approach may be adopted (*eg* via the matrix approach in addition to dispersal of staff throughout the organisation), which was becoming evident in the first case study organisation assessed in this research: Transport SA (refer Chapter Seven).

⁷Shepherd and Ortolano (1997) also provide a useful summary of the pros and cons of restructuring in EIA, although in Thailand rather than the United States.

Table 3.3: Structural approaches to EIA: Potential strengths and weaknesses

STRUCTURE	STRENGTHS	WEAKNESSES
<p>Add-on Environment Group (integral group model)</p>	<p>More transparent and symbolic of environmental commitment;</p> <p>Evidence that the EIA process has not been co-opted by 'business as usual';</p> <p>More efficient use of expertise;</p> <p>Stronger support group for environmental officers;</p> <p>Minimal reorganisation, and disruption to agency operations;</p> <p>Potential for 'critical mass' of environmental officers to develop;</p> <p>Facilitates EIA roles of EIS review and system monitoring (<i>ie</i> greater task differentiation and independence).</p>	<p>May inhibit roles of active planning in EIA, with separation from the planning and decision-making process, and hence ability to influence decision outcomes;</p> <p>Potential for conflict between different groups (<i>ie</i> 'functional blinders').</p>
<p>Integrated Model (Mixed Models, matrix structures)</p> <p>(may have both separate group status and membership on project teams)</p>	<p>Benefits of both add-on approach and dispersed model;</p> <p>Access of environmental officers to information in the planning process;</p> <p>Common goals (<i>ie</i> completing a project) may unite functionally different groups;</p> <p>Facilitates active planning and design roles in EIA (<i>ie</i> task interdependence);</p> <p>Still allows more independent review roles given separation of environment group;</p> <p>Greater potential for internalisation of environmental values if dominant discipline becomes involved in the EIA process alongside environment officers.</p>	<p>Potential conflicts in roles and reporting relationships (if member of both functional and project group);</p> <p>Inhibits EIA roles of review and clearance (which require some objectivity);</p> <p>Staff numbers may be insufficient to become involved in <i>all</i> project meetings or teams (thus lack information and ability to influence decision-making at a broad scale).</p>
<p>Dispersed Model</p> <p>(environmental staff spread throughout organisation and dominated by traditional disciplines)</p>	<p>Greater potential for integration into decision-making processes (facilitates planning and design roles in EIA);</p> <p>Access to information in the planning process;</p> <p>Potentially less conflict than add-on group (<i>ie</i> individual may be perceived to be a lesser threat than a group);</p> <p>Potential for internalisation of environmental values if dominant discipline becomes involved in the EIA process alongside environment officers.</p>	<p>Environmental officers are 'hidden', and the benefits of symbolic environmental commitment are lost;</p> <p>Inhibits benefits of system monitoring in EIA and review roles due to lack of separate environment group;</p> <p>Potential lack of power (<i>ie</i> individuals less likely to criticise dominant approach when compared to larger group);</p> <p>May be an over-reliance on the one environmental expert in a particular section.</p>

Despite the problems of socialisation, power, conflict and structure in the internal model of reform, Taylor (1984) suggests that in the Corps of Engineers and Forest Service, environmental officers learned to increase their legitimacy and degree of influence on decision-making through a process of 'routinization and mutual accommodation'. Conflicts between traditional staff and the environmental officers decreased in intensity and became a routine of compromise (Taylor 1983). Loyalty to the agency, and credibility was achieved by following an 'internal track' and by appearing 'cooperative', defensive of the agencies' decision-making, and not always 'anti-project' (Taylor 1984). More significant environmental changes in decisions were often worked for more indirectly, by altering design assumptions over the longer term, when the agency was more flexible, and when the costs were not so high (Taylor 1984).

Environmental officers thus retained their credibility, yet remained consistent with their professional roles. As a result of this internal process of routinization and accommodation, the attitudes of those in more traditional disciplines, such as engineers in the Army Corps of Engineers, gradually began to change. Increasing experience of engineers led to a decreasing fear of the EIS process (Taylor 1984). The small changes in decisions may have gradually accumulated, and organisations may have changed '*without anyone being fully aware of what is happening and without anyone even consciously willing it*' (Kaufman 1971: p44).

3.3.3 Preconditions & Limitations in the External Model of Reform

Potential limitations in the external model of reform may have also limited the degree of organisational change as a result of EIA. Despite systems of accountability and control (such as EIA), Thynne (1983) and Harris (1983) argue that they do not guarantee organisational responsive to government or community concerns because government organisations can also espouse goals of prestige, and power. 'Better' decisions are also constrained by the problems of responding to conflicting external demands, which are a key characteristic of government organisations, and response to one demand may mean constraints to responding to other demands (Pfeffer and Salancik 1978). This was indicated by the Department of Housing and Urban Development's problems noted earlier, in weighing up the need for EISs against the provision of quality housing environments. Thus, a choice must be made about which demands or groups to respond to or ignore, and the organisation may attempt to avoid or minimise some external pressures (Pfeffer and Salancik 1978). Successful external influences may also threaten the long-term survival of some organisations (Pfeffer and Salancik 1978), and once an issue becomes publicly visible and 'politicized', the bureaucracy's sense of control is diminished (Thompson 1983).

Secrecy in this context may become advantageous (Thompson 1983), and organisational power might rely on preventing threatening issues from reaching the political agenda and controlling

the level of information released (Child 1977; Pitt and Smith 1981; Thompson 1983). Outsiders may aim to influence and improve project decisions through EIA, but their influence becomes limited due to a lack of information about inside operations and assumptions. Even with the introduction of EIA, there may be exemptions on the types of information released. This was indicated in part by the case study noted earlier about the US Navy failing to officially submit their EIS to the CEQ (and hence initiate formal public participation procedures). The increasing use of EAs with lesser provisions for public comment is also an example of the control of information released to the public. Although not in the United States' context, Pitt and Smith (1981: p83) state that:

'Organizations can choose to ignore, or restrain the influence of developments within the environment and may be able to exercise authority over other organizations and individuals. The Department of the Environment [in the UK], for example, tries to manipulate the local response to large physical development projects such as motorways by restricting the public inquiry process to the question of alternative sites rather than overall need for the proposed development. In this, it may ally itself with major road-user interests' (Pitt and Smith 1981: p83).

This represents a form of *agenda control*, whereby issues and alternatives are not raised, thus reducing public awareness, and increasing bias or maintaining the *status quo* (Walker 1994). At the same time, Walker (1994) argues that while EIA may be biased towards a proposal, simply because it is usually prepared by the proponent, deliberate suppression of information is unlikely because it involves 'conscious public deceit', and it is more likely a result of failure to seek out all possible information or an underestimation of impacts.

External influences on the EIA and change process may also be reduced if organisations endeavour to 'capture', 'co-opt' or 'noble' potential critics (Pitt and Smith 1981: p31). 'Co-optation' essentially means a '*...process of absorbing new elements into the leadership or policy-determining structure of an organisation as a means of averting threats to its stability or existence*' (Selznick 1972). This may be attempted because most organisations will not directly avoid input from external groups or refuse their demands, but will prefer to avoid expression of demands in more subtle ways (Blau and Scott 1972; Pfeffer and Salancik 1978). Interests may be controlled by bringing external groups into the bureaucracy, and representing them on committees (Pitt and Smith 1981). Alternatively, more informal networks and contacts with external groups may be established, which provide opportunities for interaction and information exchange between insiders and outsiders, and the creation of 'friendships' (Pfeffer and Salancik 1978). These new external elements or 'friends' may be influential and result in changes to an organisation's policies or decisions (eg Blau and Scott 1972), but because the external parties now have a 'stake' in the organisation as a result of this influence and access, their support for the organisation tends to increase (or at least outright hostility is reduced) (Pfeffer and Salancik 1978). For these reasons, the external model of reform can be limited and organisational change inhibited.

3.4 CONCLUSION

Because of the potential strengths and limitations in the models of reform, the EIA requirement can be viewed as both a success and a failure. Andrews (1976c: p89) found for instance, that it was '*... tempting to conclude analyses of the Corps with categorical generalizations that support either a glowing endorsement or a damning indictment of it*'. The above discussion on organisational change presents a depressing picture. So too does Ortolano's (1995: p15) statement that the debate about a move towards more environmentally sound projects is 'moot' because in many cases '*...officials often promote environmentally damaging projects if the economic benefits outweigh their negative impacts*'. Cortner (1976) similarly suggests that to survive, an agency's existing mission will always outweigh environmental factors. Yet NEPA was never intended to replace existing missions with an environmental one (Culhane 1974).

Overall, and consistent with thoughts in Chapter Two, organisational change appears to have occurred without 'real' change (*ie* 'grafting' behaviour) and there was evidence of this with the focus on procedural compliance as opposed to substantive change. This double-edged outcome of NEPA was well expressed by Andrews in the 1970s, who argued that:

'NEPA's "action-forcing mechanisms" have been extraordinarily effective in raising the level of debate over the consequences of proposed actions, but not yet very effective in resolving these debates. They have forced procedural action ... but not much substantive action to implement NEPA's policy goals. They have been successful beyond any apparent expectations of their authors in drawing attention to environmental problems and issues, in a vivid and case-by-case fashion, but they have not yet resulted in coherent and consistent environmental policy making' (Andrews 1976b: p5008).

Preconditions and limitations in the models of reform need to be acknowledged in this respect. The models make several assumptions and if these assumptions or preconditions are not met, weaknesses emerge in the change process. The strengths, assumptions and potential limitations are summarised in Table (3.4). However, it should be noted that Fairfax and Andrews (1979: p505) discount concepts commonly referred to in social science inquiry such as 'capture and survival strategies', and argue that organisations are not unwilling or unable to protect environmental issues.

Thus, on a more positive note, the fact that NEPA is now incorporated into many agency operations is significant, and Zillman (1990) suggests that the effects of NEPA may evolve towards more substantive ones in the next twenty years. The value gained from NEPA in agencies such as the Forest Service and Corps of Engineers, was demonstrated by their expressed willingness to continue implementing the principles of NEPA even if the Act was later repealed (Caldwell 1982). As noted at the beginning of this Chapter '*insofar as environmental impacts were rarely, if ever, a part of agencies' decision equations before 1970, NEPA must be judged a success on its face*' (Culhane 1990: p690).

Table 3.4: Strengths, Assumptions and Limitations in the Models of Reform in EIA

MODEL	STRENGTHS	ASSUMPTIONS	POTENTIAL LIMITATIONS
Rational (<i>pure models</i>)	<p>Implicitly aims for optimum</p> <p>Comprehensive use of information & interdisciplinary science</p> <p>Objectives defined upfront</p>	<p>Optimum is attainable</p> <p>Availability of information & capacity to process</p> <p>Consensus of objectives</p>	<p>Lacks explicit mandate for best outcomes or optimum</p> <p>Information processing limited; science often lacking in reality</p> <p>Consensus difficult to achieve; ignores politics</p>
Internal	<p>New participants influence organisational culture</p> <p>Expand decision premises</p> <p>Recognises political nature of EIA</p>	<p>New staff are advocates of environmental values</p> <p>There are adequate numbers of environment staff or a 'critical mass' sufficient to pervade operations</p> <p>Staff have influence & status (<i>eg</i> structure, roles)</p> <p>Procedures & external conflict increase staff legitimacy</p>	<p>Socialisation</p> <p>Conflict with dominant coalitions</p> <p>Low status & influence</p> <p>Procedures may invoke resistance from others due to lost autonomy</p> <p>Environmental values may be diffused due to interest differences & process of compromise</p>
External	<p>New external participants and institutional influences promote compliance</p> <p>Recognises political nature of EIA</p>	<p>External agents advocate environmental values</p> <p>Internal information accessible to outsiders</p> <p>External parties have resources/time/interest</p>	<p>Conflicting demands</p> <p>May lead to procedural compliance, legal justification & inertia rather than substantive outcomes</p> <p>'Agenda control' or 'co-optation'</p> <p>Organisations may be non-responsive to parties without resources or status</p> <p>Environmental values may be diffused due to interest differences & process of compromise</p>

Chapter Four

EVALUATION FRAMEWORK & RESEARCH METHODS

'Given the inherent complexity of the EA process, the choice of method by which its performance is to be assessed needs careful consideration' (Lee et al 1994: p63).

4.0 INTRODUCTION

While there has been much research on EIA and organisations in the United States, it is rare to find systematic and comprehensive frameworks for evaluating what 'effective' organisational change means in the EIA context. In addressing research objective (3), the next stage of the research involves the translation of indicators of change identified in previous chapters into evaluation criteria which can be applied to the South Australian context. First, other EIA evaluation approaches are briefly explored, and the two levels of evaluation used in this research are defined - the *CCP framework* and the *system-evaluation framework*. The second half of the Chapter outlines the research methods used, the approach to data analysis, and finally, some of the limitations in this research. Given that this type of research is highly subjective (Sadler 1996), the acknowledgement of its limitations is particularly important. As stated by Gibson (1993: p13), there '*...is probably no one perfect design for a proper environmental assessment process, or any final test of whether any one approach is worthy of pursuit*'. Similarly, van de Gronden (1994: p33) argues that '*...a clear objective measure for assessing the effectiveness of EIA does not exist*'.

4.1 DEFINING THE EVALUATION APPROACH

4.1.1 The Evaluation of Effectiveness: Existing Approaches

Since the widespread adoption of EIA worldwide, several views have emerged about what characterises an effective EIA system, and these views are in part dependent on one's role in EIA (*eg* the proponent, the public, the government) (Mostert 1995; Ridgway 1995; Sadler 1995;

Wood 1995). Despite some differences in interpretation, Carbon states that '*there are common or widely shared ideas about the value and objectives of effective EIA*' (in Sadler 1995: p4). In relatively simple terms, effectiveness can be defined in terms of whether or not the programme or policy meets its intended goals (Sharp 1994; Ridgway 1995; Garrett and Martins 1996; Ehrlich 1998; Sadler 1998). Thus, the goals to be measured must be clearly defined, and according to Spalding *et al* (1993: p68) the '*...greater the specificity and clarity of goal statements, the more amenable EIA is to evaluation by this approach*'. The goals which structure an evaluation of EIA can be implicit or explicit in legislation or guidelines, and will vary depending on the local EIA context. This highlights a difficulty in EIA evaluation research; that is, the criteria or goals for evaluating effectiveness need to be relevant to the local context, but also framed in such a way that the evaluation is comparable with evaluations in other jurisdictions, to facilitate the construction of knowledge.

Marsden (1998) notes that, up until the recent international study of EIA effectiveness (Sadler 1996), there has been little coordination of the different evaluations of EIA performance and like the different goals in EIA, the scope of EIA evaluations has varied substantially (refer also Parrott 1998). Spalding has observed for instance, that:

'Some examine the conceptual or philosophical underpinnings of EIA... Others assess the effectiveness of implementing a statutory or policy procedures, comparing the prescribed intention with actual operational practice... Still others disaggregate EIA into its main components of tasks and scrutinize their scientific basis' (Spalding *et al* 1993: p64).

Some studies also target their focus on key participants in the process such as the public's role in influencing EIA outcomes (*eg* Harvey 1996), or EIA Commissions and their influence on EIA performance (*eg* Mostert 1995). Multiple terms have been developed to describe various evaluation approaches, some of which are summarised in Table (4.1) including for instance, audits, procedural evaluations, substantive evaluations, structural/decision-making evaluations, goal-achievement evaluations and so on (*eg* Clark *et al* 1985; Spalding *et al* 1993; Lee *et al* 1994; Sadler 1995; 1996; 1998). Useful summaries of some of these different approaches have been provided by Spalding *et al* (1993), Lawrence (1997) and Sadler (1998).

Lawrence (1997) makes a further distinction between *quality analysis* and *effectiveness analysis*, where the former refers to inputs to the EIA process (*eg* institutional arrangements, documents) whilst the latter refers to the outcomes of the EIA process (*eg* goal-achievement, project quality). Parrott (1998) makes a similar distinction but with different terminology: that is, *empirical* and *interpretative* approaches to EIA evaluation, where the former refers to measurement against external yardsticks (*eg* legal compliance, reviews of EISs), whilst the latter refers to the evaluation of EIA's impacts on decision-making (*eg* via analysis of public inquiries, interviews, document analysis). In contrast, Sadler (1996; 1998) refers to the *triangulation* approach to evaluating EIA which links *policy, practice, and performance*. Policy

refers to what is required; practice to what happens; and performance relates to results and whether or not they correspond to what is required (Sadler 1998). Sadler has also summarised various other types of effectiveness reviews including (i) auditing and reporting for EIA systems, (ii) implementation review and follow-up studies, (iii) effects monitoring and impact auditing, (iv) review of EIS quality, (v) decision-centred analysis, and (vi) post-project analysis (Sadler 1998).

Table 4.1: Different evaluation approaches and terminology used in the assessment of EIA performance

AUTHOR	TERMINOLOGY	DEFINITION
Clark <i>et al</i> (1985)	Draft EIS audits	evaluates the draft EIS against its terms of reference.
	Decision point audits	examines the effectiveness of the EIS as a decision-making tool.
	Procedures audits	examines the performance of EIA procedures at the macro level.
	Implementation audits	determines whether EIS recommendations were implemented.
	Performance audits	reviews internal environmental management of projects within companies and their ability to respond to incidents.
	Project impact audit	compares actual impacts with predicted impacts to verify or improve predictive techniques.
CEARC (1988)	Environmental Assessment Audit	compares the actual project impacts with the pre-project conditions and with predicted effects to determine the accuracy of the prediction process and management of impacts through mitigation/compensation.
	Environmental Assessment Evaluation	evaluates the effectiveness of processes used to manage impacts. CEARC is interested in the post-decision process (<i>eg</i> documenting mitigative measures, monitoring, and adjusting measures), but this approach can also refer to the assessment process at the pre-decision stage as part of more general approach to improve EIA performance.
Spalding <i>et al</i> (1993)	Process evaluation	assesses the nature of the process (<i>eg</i> legislative status, procedural compliance).
	Methodology evaluation	assesses the scientific integrity of the methods used in EIA.
	Goal-achievement evaluation	assesses if EIA meets its intended goals.
	Conceptual evaluation	examines EIA from a philosophical or ideological standpoint such as links to sustainable development and/or perspectives in modern environmentalism.

Table 4.1 Continued: Different evaluation approaches and terminology used in the assessment of EIA performance

AUTHOR	TERMINOLOGY	DEFINITION
Lee <i>et al</i> (1994)	Disaggregate	evaluates EIA practice using performance indicators throughout each different stage of the process, and examines the interdependencies of performance at each stage. For instance, it may be asked whether scoping was conducted; who was involved in scoping; or what was the quality of the scoping report.
	Aggregate	a broader approach by examining the overall outcomes of the process rather than focusing on different stages of the process. Three broad criteria are proposed including 'environmental effectiveness' (contribution to project modifications), 'cost-effectiveness' and 'balanced decision making'.
Sadler (1994; 1996; 1998)	System-wide or macro reviews	assesses the overall activity and outcomes of the EIA system.
	Decision audits or micro (case-specific) evaluations	uses test cases to determine how EIA is used for decision making.
	Activity or component-specific evaluations, or meso evaluations	assesses different stages in the process (similar to Lee <i>et al</i> 's disaggregate approach).
	Procedural research	assesses the quality of EIA procedures. Do they conform to the ideal or 'best-practice' principles of EIA? Is there compliance to the procedures as set out in law or policy?
	Substantive research	assesses the outcomes of EIA. Has it influenced and changed decisions for the better? What is the degree of environmental protection achieved in practice?
	Transactive research	assesses how efficient and equitable the process is in meeting the objectives of EIA.
	Technical/scientific	assesses: <ul style="list-style-type: none"> • adequacy of baseline studies and pre-project monitoring • accuracy of impact predictions • suitability of mitigation measures.
	Procedural & Administrative	assesses: <ul style="list-style-type: none"> • efficiency of guidelines for EIA • fairness of public involvement measures • degree of co-ordination of roles and responsibilities.
Structural & decision-making	assesses: <ul style="list-style-type: none"> • utility of process for decision-making • implications for development. 	
Wood <i>et al</i> (2000)	Post-auditing	<ul style="list-style-type: none"> • compares the impact predictions outlined in EISs with the impacts that occurred in practice following project construction. Facilitates learning and improvement in prediction accuracy and mitigation.

4.1.2 A Two-Tiered Framework

To date, there is no universal or 'right' way to evaluate EIA performance, but the existing evaluation approaches provide useful guides to evaluating the EIA legislation and practice in South Australia. However, none of these approaches are directly targeted towards evaluating overall proponent performance in EIA. As noted earlier, several indicators of organisational change and performance at this level in EIA do exist, but they have not been tailored into an explicit and systematic evaluation framework, and as a result, this research has had to develop a framework by extracting and tailoring criteria from the existing approaches. The focus of this research is not just on EIA performance in government organisations, but is also targeted towards the EIA system (*eg* legislation, guidelines, administration) in South Australia. The importance of adopting both approaches is emphasised by Andrews:

'If one wishes to understand and predict administrative agencies' responses to a new legislative mandate,...it is not sufficient to look merely at the language and legislative history of the law, important though these are. To the extent that there is any room for interpretation in the statute, agencies may be expected to interpret it in different ways depending upon the threats and opportunities that it raises in their organizational and political environments.

Nor is it sufficient to look merely at the organizational arrangements and administrative processes of the agencies that must implement the law, important though these are also. These arrangements may illuminate important areas of constraints upon the agency's response, but they are not themselves reliable indicators of that response: they are, rather, intermediate variables for explaining responses to legislated policy, influencing those responses but influenced themselves by the pressures of the agency's political environment.

An adequate explanation requires attention to both the language of the law and the organizational arrangements through which it must be implemented, but more than these, it requires understanding of the political forces influencing each agency's behaviour over time. (Andrews 1976c: p150).

Wood (1995) also states that EIA must be considered within the particular social, legal administrative and political jurisdiction or context within which it operates.

Thus, the evaluation of EIA in South Australia is tailored to two levels of performance, which encompass all three aspects of the triangulation approach in evaluation research. The frameworks developed for this research are the:

- (i) the *CCP framework* which addresses the organisational level (where CCP means EIA Capability, Culture, Performance; see later discussion);
- (ii) the *system-evaluation framework* which addresses the legislative level.

Virtually all of the approaches and terminology referred to in Table (4.1) are relevant to, and encompassed by, these two evaluation levels. Both of the frameworks are discussed in more detail below, beginning with the *system-evaluation framework* given that it is this system which influences organisational behaviour and the change process to begin with.

4.2 THE SYSTEM-EVALUATION

The EIA system-evaluation relates to the policy component in the triangulation approach, with a focus on the theoretical and *intended* requirements of EIA in terms of legislation, procedures, guidelines and administrative bodies. Practice and performance are not addressed at this stage, although this is briefly referred to in terms of numbers and types of developments subject to the process (see Chapter Five). The *system-evaluation* is based on an assumption that '*...effective EIA is related to legislative, policy or institutional design*' (Spalding *et al* 1993: p67). The purpose of this evaluation approach is, therefore, to understand the theoretical requirements of the EIA system in South Australia, and to ask whether it meets preconceived ideas of an effective or ideal system. A structured analysis at this level will help to identify those factors in the EIA system which influence the extent of change achieved at the organisational level. The question is, what are the goals to be measured? What constitutes an effective EIA system, and what evaluation criteria are most relevant?

4.2.1 Evaluation Dimensions and Criteria

Wood and Bailey (1996: p4) state that evaluation criteria are simply '*shorthand versions of principles for EIA*'.¹ Such principles are sometimes used to structure EIA evaluation research including for instance, accountability, transparency, completeness, and scope (IAIA 1996; ANZECC 1991; Devuyst 1994; Leu *et al* 1996a; 1996b; Sadler 1996). Also relevant are the policy characteristics defined in Chapter Two (*ie* policy specificity, enforceability). The existing literature on EIA principles indicate that EIA systems should be:

- *specific* with clear *goals* and *means* of implementation which relates to *certainty* and *consistency* of application (CEPA 1994; Sadler 1996; Sadler 1999);
- *flexible and adaptive* (CEPA 1994; IAIA 1996; Sadler 1996; Glasson 1999);
- *integrated* (social, economic and biophysical aspects) and *complete* (*eg* covers all relevant proposals) (Valappil *et al* 1994; Devuyst *et al* 1993; Gibson 1993; IAIA 1996; Sadler 1996);
- *open, fair, transparent and participative* (CEPA 1994; Valappil *et al* 1994; Devuyst *et al* 1993; CEPA 1994; IAIA 1996; Sadler 1996; Glasson 1999);
- *mandatory, enforceable, and accountable* (Gibson 1993; CEPA 1994; Sadler 1996);
- *verifiable* (with checks for compliance) (Valappil *et al* 1994; Devuyst *et al* 1993);
- *practical* and *purposive* or *reliable* (designed to inform decision-making about impacts and to protect the environment) (CEPA 1994; IAIA 1996).

¹For a review of the relationships between objectives, principles and criteria in evaluation frameworks refer to Marsden (1998).

Appendix (1) presents some of these principles in detail (refer CEPA 1994; IAIA 1996), although some tend to conflict (for example, certainty and consistency versus flexibility of application). The concept of controls in EIA which were defined in Chapter Two, are also excellent examples of this broad principle or dimensional approach to evaluation, where factors such as *legislative control*, *judicial control*, *procedural control*, *evaluative control*, and *administrative control*, provide a means for explaining why some EIA systems are effective and others are not (Ortolano *et al* 1987).²

Evaluations have also been structured around criteria which relate more specifically to procedures, legislation, and/or administration, some of which are also summarised in Appendix (1) (*eg* ANZECC 1991; Gibson 1993; Tu 1993; Devuyst 1994; Sippe 1994; Wood 1994; 1995; Wood and Bailey 1994; 1996; Valappil *et al* 1994; Mostert 1995; Leu *et al* 1996a; 1996b; Sadler 1996; and others). In one evaluation study, Leu *et al* (1996b) proposed seven broad dimensions for examining the '*...integrity, completeness, comprehensiveness, performance, and effectiveness of an EIA system*' which are outlined in Figure (4.1). Four of these dimensions are relevant to the *system-evaluation framework* encapsulating (i) environmental policies, regulations and guidelines; (ii) administrative framework; (iii) EIA compliance monitoring and enforcement; and (iv) EIA procedures. The latter procedural dimension includes criteria similar to those developed by Wood and others (see below). This model is useful for comparing EIA between different jurisdictions, but as Leu *et al* (1996b) themselves note, the answers are not always clear cut, and the model has not yet been extensively utilised or replicated. Nevertheless it is a good example of a comprehensive and systematic framework for the evaluation of EIA, and Glasson and Salvador (2000) used it in their comparative evaluation of EIA in Brazil and the United Kingdom.

Other studies have focused on very specific and non-categorised criteria which relate primarily to EIA procedures. One of the best examples of this approach is work by Wood (1994; 1995) and Wood and Bailey (1994). Of fourteen evaluation criteria (Appendix 1), twelve are focused on EIA procedural requirements, whilst the remaining two relate to the legal nature and the overall benefits of the EIA system in practice. Procedural questions include, for example, 'must screening of actions for environmental significance take place?'; 'must EIA reports be publicly reviewed and the proponent respond to issues raised?'; 'must the findings of the EIA report and the review be a central determinant of the decision on the action?', and so on. The value of this model is its simplicity and ease of use in comparing EIA systems between different countries, and a number of authors are increasingly referring to these criteria (*eg* Garrett and Martins 1996; Marsden 1998; Lo and Yip 1999; Glasson and Salvador 2000).

²Other controls specified relate to internal reform and are reviewed in the CCP framework (*ie* attitudes relate to 'professional control').

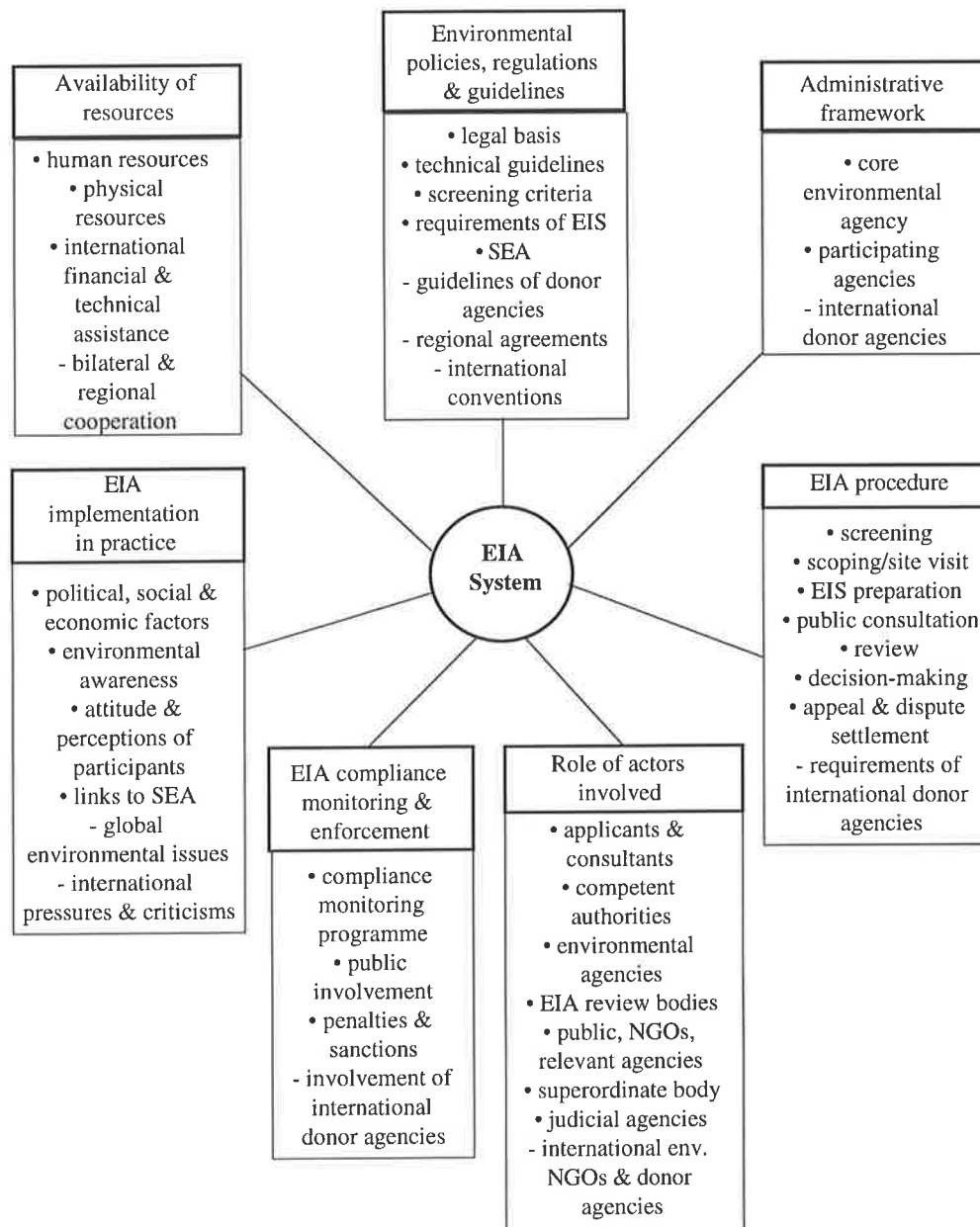


Figure 4.1: Leu et al's model for evaluating EIA effectiveness (1996b: p118)

Notwithstanding some minor variations in focus, the central themes which characterise good EIA systems tend to focus on EIA as an external regulatory mechanism. That is, effective EIA requires a firm legislative and accountable base rather than an informal base. This does not mean to say that proponents cannot or do not take the initiative with voluntary adoption of EIA, and there are indications that governments in Australia are moving away from prescriptive and enforcement-oriented regulatory approaches, towards more 'responsive regulation' (Ayres and Braithwaite 1992). As suggested in Chapter Two, this allows organisations to take initiative, adopt voluntary standards and implement self-regulation, but only so long as they co-operate with government requirements (Ayres and Braithwaite 1992; Laws and Aust 1994). In responsive regulation, the absence of co-operation means that more stringent mechanisms come

into play (Ayres and Braithwaite 1992). A major feature of the self-regulation approach is the use of Environmental Management Systems (EMS) which is receiving significant attention in the literature (*eg* Altham and Guerin 1999; Epstein and Roy 1996).

EMSs will not however, replace EIA. As Ridgway (1998) notes, there are key differences where for instance, EIA is a one-off event whereas an EMS entails ongoing management by proponents; EIA is applied to new projects whereas EMS is applicable to all operations; EIA falls within a regulatory framework whereas EMS is independent of regulatory frameworks; EIA is usually compulsory whereas EMS is generally voluntary; and EIA forces external cultural change within organisations whereas EMS involves internal cultural change (Ridgway 1998). However, as already indicated in Chapter Three, and later in the analysis of Transport SA, EIA can also involve internal cultural change in reflection of the internal model of reform. Nonetheless, there is still an assumption that threats of external legislative requirements and sanctions are the best approach, because it enables the community and government to oversee the development approval process (*eg* refer Kennedy 1988; Raff 1997). In a world of increasing self-regulation, EIA as an external regulatory mechanism is becoming more of a safety net, but it is still unclear how this increasing and internal self-regulation via EMSs will affect the practice of external EIA requirements (*eg* will it reduce the numbers of EISs required if environmental values become increasingly internalised into proponent behaviour, remembering that this internalisation was what EIA was originally designed to do in the United States).

4.2.2 The System-Evaluation Model for South Australia

There are clearly a number of useful ways for structuring the EIA *system-evaluation*, but Ortolano *et al's* (1987) organisational controls defined in Chapter Two provide a clear, comprehensive, structured and simple approach to evaluating EIA at this level. Its value also lies in the ability to immediately identify and compare those factors which may explain EIA effectiveness and its impacts on organisations. It was thus decided to tailor some of the controls and to incorporate several existing evaluation criteria such as those by Wood (1994), under each control category. It should, however, be noted that the categories are not mutually exclusive in this approach, and that some criteria could fit in more than one category; nor are the criteria always used in the manner intended by the original authors.³ This is because, in addition to structuring the evaluation around broad categories, it was also attempted to structure the framework around a sequence of events, although this was difficult because the process is in fact iterative. But there are some linear occurrences (*eg* the EIS is required, guidelines are produced, public review occurs [but this can occur throughout the process including at the

³For instance, public and agency control were defined as informal public pressures *outside* of the EIA system and existing procedural controls by Ortolano *et al* (1987), whereas in this research, public/agency control incorporates formal procedural requirements for public involvement.

triggering stage], evaluation and decision-making follows, finishing with monitoring and follow-up).

The full evaluation framework is presented in Table (4.2), and is framed around six evaluation categories: legislative-administrative control; judicial control; procedural control; public-agency control; evaluative control; and follow-up control. In a similar manner to Lawrence (1997), performance will be assessed on a three-point scale where: 0=not addressed; 0.5=partly addressed; and 1=addressed. Partly addressed can also relate to informal practice where there is no formalised requirement in the EIA system. Additional increments in grading performance could also have been used as done by Lawrence (*eg* 0.75=somewhat addressed), but these were not included because not all of the criteria could be assessed to this level of detail (see also Section 4.4.4: data analysis).

It is also possible in the *system-evaluation framework* to attain an index of performance in many of the EIA principles noted earlier. That is:

- purposive (criteria 1.6, 1.7, 1.8, 1.9, 3.4, 3.7-3.12, 3.14-3.16, 5.5, 5.8, 5.9);
- specificity and certainty (criteria 1.8, 1.9, 1.10, 1.11, 2.1, 2.4, 2.5, 3.1, 3.2, 4.1, 5.2, 5.5, 5.8);
- integrated and complete (criteria 1.6, 1.7, 1.9, 1.10, 1.11, 1.12, 3.1-3.17);
- flexible (criteria 1.5, 1.12, 4.2, 5.3, 5.7, 6.6, 6.7);
- transparent and participative (criteria 1.8, 1.9, 2.3, 2.4, 3.1, 3.2, 3.13, 4.1-4.16, 5.1, 5.5, 5.8, 6.1, 6.8);
- mandatory, enforceable, accountable (criteria 1.1, 1.2, 1.3, 1.4, 2.1-2.3, 4.1-4.16, 5.1, 5.3, 5.4, 5.6, 5.7, 5.9, 5.10, 5.11, 6.2, 6.3, 6.4, 6.5, 6.6); and
- verifiable (criteria 6.1, 6.2, 6.3, 6.4, 6.7).

The inclusion or omission of particular criteria to measure these principles and the controls is ultimately subjective and more criteria could be included in some cases,⁴ but they do have comparative value as long as they are used consistently between evaluations. The *system-evaluation framework* is applied to the South Australian EIA system in Chapter Five, and is further addressed in Chapter Ten in relation to factors such as the magnitude, pervasiveness, innovativeness and resources of the EIA policy to understand government organisational responses in South Australia relative to the United States.

⁴For example, specificity could also include all of the procedural criteria; verifiable could include all criteria which relate to information provision against which outcomes can be measured, such as stipulation of mitigation measures.

Table 4.2: System-Evaluation Framework

1. LEGISLATIVE & ADMINISTRATIVE CONTROL
<p>1.1 Is the EIA system based on legislative provisions?</p> <p>1.2 Is there a central environmental/planning agency which oversees and co-ordinates the process?</p> <p>1.3 If there is a central agency, is it independent of the proponent?</p> <p>1.4 If there is a central agency, is it independent from government?</p> <p>1.5 Are there opportunities for the Minister for Environment or Planning to trigger or call in an EIA?</p> <p>1.6 Is the EIA process/legislation co-ordinated with the land use planning system?</p> <p>1.7 Is the process co-ordinated with the environment protection system (<i>eg</i> pollution control)?</p> <p>1.8 Does the process have clear environmental objectives outlined in legislation or guidelines?</p> <p>1.9 Is the 'environment' broadly defined to encapsulate social, biophysical, cultural and economic factors?</p> <p>1.10 Does EIA apply equally to both private and public works?</p> <p>1.11 Does the EIA system apply to programmes, plans and policies, as well as to projects?</p> <p>1.12 Is the process flexible enough to include different levels of formal assessment which consider variations in the scale of proposals?</p>
2. JUDICIAL CONTROL
<p>2.1 Are there mechanisms for court action regarding a breach of compliance to the EIA process (<i>ie</i> judicial review)?</p> <p>2.2 Are there mechanisms for court action regarding the final decision (<i>ie</i> appeals)?</p> <p>2.3 Is there provision for third party judicial review (<i>ie</i> broad 'standing' rights)?</p> <p>2.4 Is there provision for third party appeals?</p> <p>2.5 If provisions for court action/appeals are present, are there clear guidelines available about when the action is appropriate and the process involved?</p>
3. PROCEDURAL CONTROL*
<p>3.1 Are clear steps of the EIA procedure outlined in legislation (or less mandatory guidelines)?</p> <p>3.2 Are there prescribed generic contents for the EIS?</p> <p>3.3 Must scoping occur resulting in project-specific guidelines?</p> <p>3.4 Must the proponent outline the need for the proposal?</p> <p>3.5 Must means of financing the project be detailed or guaranteed?</p> <p>3.6 Must the existing environment be described?</p> <p>3.7 Must the proponent consider alternative actions in the EIA process?</p> <p>3.8 Must the proponent outline the direct effects of the action?</p>

Table 4.2 Continued: System-Evaluation Framework

- 3.9 Must the proponent consider cumulative effects?
- 3.10 Must the proponent consider the irreversible nature of impacts?
- 3.11 Must the proponent consider indirect effects?
- 3.12 Must the proponent evaluate the relative 'significance' of impacts?
- 3.13 Must the proponent describe any public involvement in draft EIS preparation (or equivalent)?
- 3.14 Must the proponent outline mitigation and management measures?
- 3.15 Must the proponent define the effectiveness of any mitigation or management measures (*ie* note residual impacts)?
- 3.16 Must the proponent stipulate monitoring measures, and details of implementation and contingencies?
- 3.17 Must the EIS make note of uncertainties?

4. PUBLIC AND AGENCY CONTROL

- 4.1 Are the requirements for public involvement transparent and certain?
- Are there mechanisms for public and government input into:***
- 4.2 referring proposals for the Minister to consider in triggering the EIA process?
- 4.3 determining the levels of assessment?
- 4.4 the scoping process when formulating guidelines (or equivalent)?
- 4.5 during draft EIS preparation (or equivalent)?
- 4.6 upon release of the draft EIS (or equivalent)?
- 4.7 public meeting/hearing?
- 4.8 the Government Assessment Report (where prepared) (*eg* at the highest level of assessment in Tasmania, a draft assessment report is released for consultation prior to final assessment report)
- 4.9 Is there provision for the proponent to respond to public and government comments?
- 4.10 Are there provisions for the public to comment on the proponent's response if it is inadequate or misinterprets public submissions?
- Is there a requirement for the following documents to be published?**
- 4.11 Guidelines for EIA process (or equivalent)?
- 4.12 Draft EIS (or equivalent)
- 4.13 Final EIS (where relevant)?
- 4.14 Government Assessment Report (or equivalent)?
- 4.15 Decision (including a justification of the decision and how the EIA influenced it relative to other factors)?
- 4.16 Monitoring and compliance reports (where prepared)?

Table 4.2 Continued: System-Evaluation Framework**5. EVALUATIVE CONTROL**

- 5.1 Is there a list of actions which automatically trigger the EIA process?
- 5.2 Are there clear criteria for determining the need for EIA (if the decision is discretionary)?
- 5.3 Is the triggering process controlled by an independent authority?
- 5.4 Is there an explicit mechanism which postpones the decision until the EIA process has been completed (unless criterion 5.5 applies)?
- 5.5 Is there provision for an early refusal so that the EIA process is not undertaken unnecessarily?
- 5.6 Is there provision for a reviewing unit and/or Minister to request further information and/or amendment of the EIS?
- 5.7 Are there mechanisms which enable a reviewing unit and/or Minister to prevent the use of inadequate EISs in the final decision?
- 5.8 If EISs are centrally reviewed, is there a clear outline of the criteria to be considered in the evaluation of the EIS quality?
- 5.9 Is there provision for the reviewing unit to make recommendations to the decision-maker regarding the decision and conditions?
- 5.10 Is there clear guidance on the factors to be considered in the final decision which identifies priority areas and outlines impact acceptability?
- 5.11 Must the findings of the EIA be central considerations in the final decision?
- 5.12 Can the final decision involve refusal and the attachment of conditions on the proposed action?
- 5.13 For private sector proposals, is the final decision resulting from the EIA process made externally and is it binding on the proponent (or advisory)?
- 5.14 For public sector proposals (ie crown development), is the final decision made externally and is it binding on the proponent (or advisory)?
- 5.15 Can decisions and conditions be formally enforced by penalties/sanctions if the proponent fails to comply?

6. FOLLOW-UP CONTROL

- 6.1 Are there mechanisms for EIA outcomes to be linked to construction with requirements for Environmental Management Plans (more detailed than mitigation measures outlined in the EIS)?
- 6.2 Are there mechanisms which allow the government to request monitoring or auditing?
- 6.3 If monitoring provisions exist, are there provisions for monitoring be conducted by a party external to the proponent?
- 6.4 Are there requirements for the proponent to submit regular monitoring and compliance reports?
- 6.5 Are there mechanisms for the government to impose contingency procedures on the proponent in the event of non-compliance?
- 6.6 Is there provision for the EIA system to be monitored and, if necessary, be amended to incorporate feedback from experience?
- 6.7 Is there a central database of all EIAs undertaken and decisions made?

** Procedural control focuses on the proponent role and the EIS. Procedures outlining public input and government input are addressed in subsequent dimensions.*

4.3 THE CCP FRAMEWORK: ORGANISATIONAL LEVEL

4.3.1 A Universal Definition of Change?

Significant insight about change and EIA at the organisational level has already been gained in previous chapters. However, three authors on the subject of organisational change, two of which were referring to EIA, refrained from rigidly defining this issue in order to avoid becoming '*bogged down in a semantic quagmire*' (eg Mosher in Caiden 1969; Liroff 1976; Mazmanian and Nienaber 1979). Caiden (1969) suggests that the concept of reform is not clear-cut, whilst Mosher suggests that:

'...any definition...would be either so encompassing as to call forth the wrath or ridicule of others, or so limiting as to stupefy its own disciples. Perhaps it is best that it not be defined' (in Caiden 1969: p10).

Yet because different approaches in research will ultimately produce different types of analysis and outcomes (Caiden 1969), attributes of organisational change need to be clarified upfront. Originally, it was intended to have one defining statement which encapsulated effective organisational change, but similar to Liroff and others' conclusions, this became unwieldy. Instead, a number of key goals to guide the evaluation were extracted from Chapters Two and Three, including Mazmanian and Nienaber's (1979) four indicators of change: environmental objectives, reorganisation (or capability), changes to substantive outputs (*ie* better decisions), and moves towards more open planning (or 'openness').

The identification of these goals for change (translated to criteria) is guided by the underlying notion that certain preconditions should exist, not only within the EIA system, but also within the organisation which will facilitate (but not guarantee) more effective outcomes in decision-making. The use of multiple indicators and criteria across a wide scope of behaviours or organisational characteristics may be more reliable than having 'one' broad indicator of change. Drawing the information from previous chapters together, the measurement of organisational change in this research focuses on three broad aspects of organisations which are encompassed by the *CCP framework* (Figure 4.2); that is:

- an organisation's *capability* to implement EIA;
- an organisation's *culture* for EIA; and
- EIA *performance*.

A preliminary version of this framework was presented at the International Association of Impact Assessment Conference in 1998 (McCarthy 1998). The three components of the *CCP framework* are defined below.

4.3.2 Capability for EIA

The criteria for the 'capability' component of the *CCP evaluation framework* are presented in Table (4.3), and are assessed in Chapter Seven for the two case study organisations: Transport SA and ETSA. The organisational capability refers to the broader organisational response to EIA. It is in part reflective of the surface level of the organisational iceberg defined in Chapter Two and, in this research, comprises the formal and visible response to EIA requirements. The indicators of organisational capability encapsulate EIA goals, procedures (including other environmental management processes), staff, structures, resources and knowledge which are reflective of the techno-structural and human-relations approaches to change defined in Chapter Two. Other researchers (*eg* Mazmanian and Nienaber 1979; Gray and Gray 1983; Lenox and Ehrenfeld 1997) similarly refer to the concept of organisational 'capability' in the change or policy implementation process.

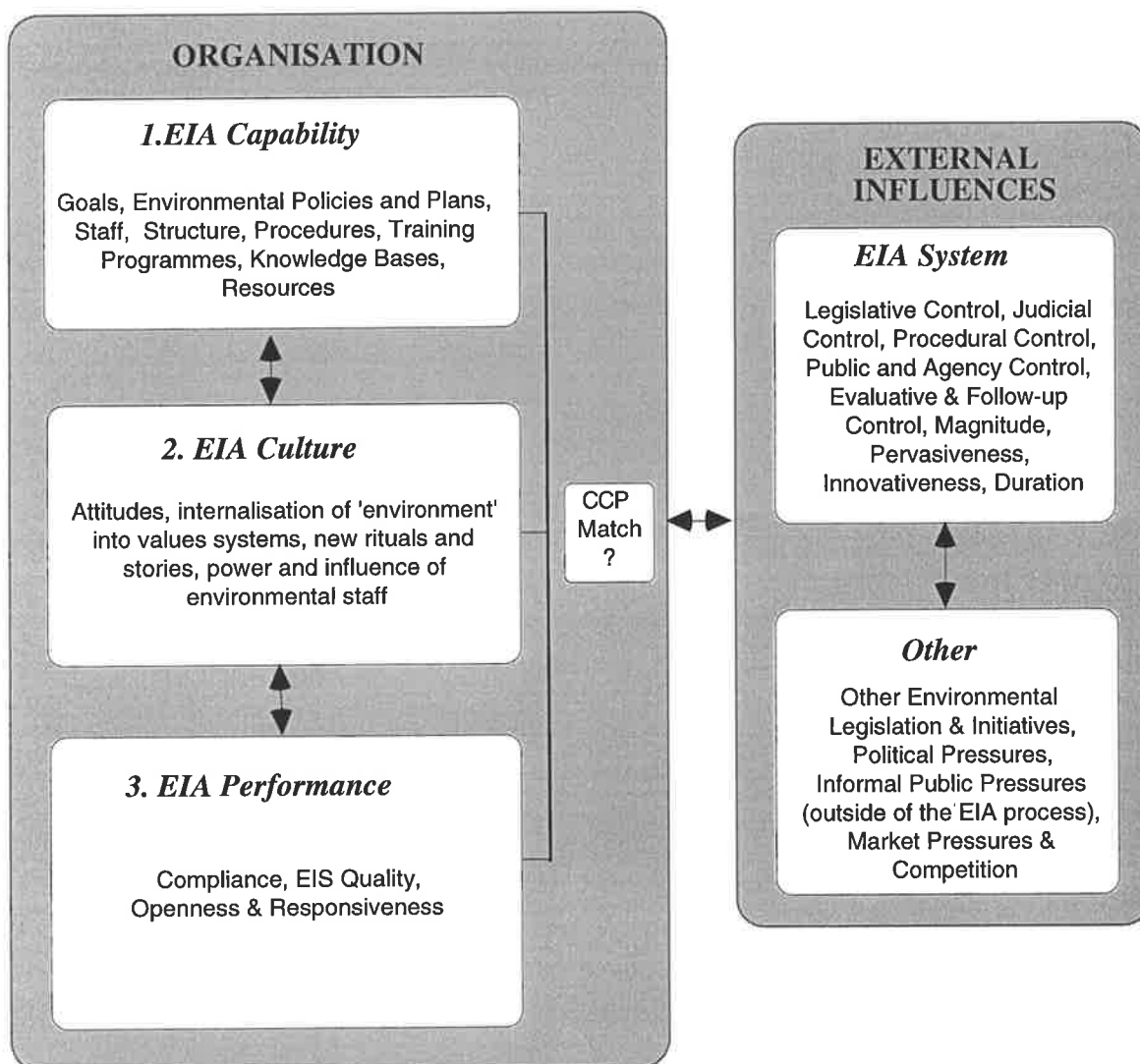


Figure 4.2: Illustration of the CCP Framework

Table 4.3: Evaluating Capability for EIA in the CCP Framework

1.1 OBJECTIVES AND PROCEDURES	
1.1.1	Has the organisation developed environmental goals in its mission statement?
1.1.2	Have internal EIA procedures been developed by the organisation?
1.1.3	Do these procedures (where they exist) rate at least satisfactory according to the system-evaluation framework?
1.1.4	Has the organisation developed broader environmental procedures, management systems, and/or guidelines which may inform the EIA process?
1.2 STAFF AND STRUCTURES	
1.2.1	Has the organisation employed staff with environmental expertise?
1.2.2	Is there a 'critical mass' sufficient for these staff to pervade both EIA for new project developments and other activities?
1.2.3	Do these staff have a range of disciplinary backgrounds?
1.2.4	Are these staff located in the organisation's structure to facilitate <i>autonomy</i> and independence in reviewing organisational operations?
1.2.5	Are these staff located in the organisation's structure to facilitate <i>influence</i> on the planning and decision-making processes in EIA?
1.2.6	Do these staff have broader environmental management roles such as education, research, policy development which may indirectly guide the EIA process?
1.3-1.4 KNOWLEDGE & RESOURCES	
1.3.1	Do employees involved in the EIA process have sufficient knowledge of the EIA procedures?
1.3.2	Are employees aware of, and have sufficient knowledge levels of, <i>external</i> environmental policy requirements which may guide the EIA process?
1.3.3	Are employees aware of <i>internal</i> environmental policies, procedures or guidelines which guide the EIA and planning process?
1.4.1	Are the financial resources considered sufficient to adequately implement EIA?
1.4.2	Are the time resources considered sufficient to adequately implement EIA?
1.4.3	Are the staff numbers considered sufficient to adequately implement EIA?
1.4.4	Are the levels of internal expertise considered sufficient to adequately implement EIA?
1.4.5	Are external consultants used where internal staff numbers are insufficient?

Organisational goals are also included in this research, not only because they were indicators in research on EIA in the United States (eg Mazmanian and Nienaber 1979), but also because they are considered an important 'first step' and 'roadmap' in the change process (Ransom and

Lober 1999: p2). Similarly, resources are an important and obvious factor in the implementation process, and must be adequate for '*without a minimum critical mass of resources, you become consumed with day-to-day firefighting and never make progress*' (MacLean and Monty 1999: p19). Yet they are not sufficient on their own, and environmental information also needs to be valued and understood (Lenox and Ehrenfeld 1997), which leads us to the consideration of culture.

4.3.3 Culture for EIA

As also indicated in Chapter Two, organisational culture is a complex concept and not open to simple definition, yet if one was to dwell on this complexity and rhetoric of definition, then an evaluation which attempts to encompass many contextual factors becomes difficult, if not impossible. Organisational culture is treated in this research as one aspect of the organisation, but others have stated that organisations *are* cultures (Meyerson and Martin 1987). That is, formal capability is simply a reflection of the organisational culture. But organisational capability and culture are deliberately separated in this research to differentiate between the more official, visible responses to EIA (*ie* capability), and the less visible and informal responses at the base of the organisational iceberg (*ie* culture). It is a restricted view of culture, with a focus on subcultures within the organisation (*ie* EIA participants) which may not be reflective of the overall dominant culture (if there is one), which is similar to the approach taken by Petts *et al* (1999). While attitudes are not always a good predictor of behaviour (refer Chapter Two), they are important indicators in EIA. According to Liroff:

'One certain indicator of agencies' desire to comply with NEPA was their willingness to speak in opposition to the statute and its mandated procedures. If an agency launched an especially strong attack on the statute, it was a sure sign that it cared little for compliance' (Liroff 1976: p119).

An accepted and quick methodology for measuring culture does not exist (*eg* refer Ott 1989; Tucker *et al* 1990),⁵ and the full depth of an organisation's culture is difficult to diagnose accurately (Ott 1989). Ott (1989) defines culture as a dynamic 'concept' rather than a static 'thing' which is an important distinction given that the latter can be measured, whilst the former is simply 'created in people's minds'. The difficulties of evaluating this aspect of organisational behaviour have also been noted by Senior:

'It is significant that the metaphor of an iceberg not only points to the overt and covert aspects of organisations, but draws attention to the proposition that the informal systems, as well as being hidden are the greater part of the organisational iceberg. However, as with an iceberg, they may not become apparent until one collides with them unwittingly. Thus the difficulties in detecting the extent and characteristics of the hidden part of the iceberg are analogous to the

⁵However, some methods have been proposed (*eg* Tucker *et al* 1990; Fletcher and Jones 1992), and Ott (1989) and Rousseau (1990) give a summary of the different qualitative and quantitative approaches, although quantitative approaches are believed by Ott to be limited.

difficulties encountered in examining and understanding the more informal, hidden aspects of organisational behaviour' (Senior 1997: p100).

Nonetheless, aspects of the deeper culture[s] for EIA participants will arise from in-depth interviews (see later reference to the interview process), and the criteria used in the evaluation are presented in Table (4.4). The culture for EIA in the two case study organisations is explored in Chapter Eight.

Table 4.4: Evaluating Culture for EIA in the CCP Framework

2.1 ATTITUDES & VALUES	
2.1.1	Are <i>individuals</i> involved in EIA within the organisation committed to the values of EIA and environmental protection, particularly those who are from 'non- environmental' backgrounds (<i>ie</i> value it at least equally with other issues such as technical or economic issues)?
2.1.2	Do employees perceive that the <i>organisation</i> has a strong environmental commitment in theory?
2.1.3	Do employees perceive that there is a match between the organisation's commitment in theory to commitment in practice?
2.1.4	Do employees believe that EIA is an important tool for achieving the organisation's environmental goals as opposed to simply improving organisational image or public relations?
2.1.5	Are environment staff valued within the organisation?
2.1.6	Is there a culture which formally rewards good performance in EIA?
2.2 COMMUNICATION	
2.2.1	Is communication considered to be effective in the EIA and planning process between all internal parties in EIA?
2.2.2	Is communication considered to effective particularly with environment staff?
2.2.3	Is communication considered to be effective in the EIA and planning process between the organisation and external parties?
2.2.4	Is EIA perceived to be a mechanism for improving coordination between the different parties in the process?
2.2.5	Is the culture such that individuals are confident about expressing their opinions concerning environmental factors in a peer group situation, particularly if this opinion is contrary to the dominant perspective (<i>ie</i> lack of groupthink)?
2.3 INFLUENCE IN EIA	
2.3.1	Are all internal groups involved in EIA perceived to have an influence on the EIA and planning process?
2.3.2	Are environmental staff in particular, perceived to have the power to influence, change or prevent environmentally inappropriate projects?
2.3.3	2.3.3 Is the organisational culture open to influence from external groups such as the public and conservation groups?



4.3.4 EIA Performance

There is little point in evaluating organisational change in response to the EIA requirement without examining EIA performance in practice at the project level.⁶ Thus, eight project case studies which have undergone EIA are examined and are addressed in further detail in Chapter Nine. Some indicators of EIA performance were addressed in Chapter Three (*eg* compliance, EIS quality, improvements in decision-making), but there are also several other studies which measure EIA practice and performance at the project level. Many of the indicators and criteria are summarised in Appendix (2). Ortolano *et al* (1987), for example, developed five broad indicators of EIA effectiveness comprising procedural compliance; EIS completeness; appropriate methods used; influence on decision-making; and weight given to environmental factors (*eg* Ortolano *et al* 1987; Ortolano 1993; Tu 1993). The international study of EA effectiveness used similar indicators including contribution of EIA to decision-making; implementation of terms and conditions; and benefits to the environment (Sadler 1996).

These evaluation categories are similar to those identified by others including Lee *et al* (1994) who assessed EIA in terms of its influence on project modifications, cost-effectiveness, and balanced decision-making; Kobus and Lee (1993) who used three criteria comprising timing of EIA, degree of integration into planning, and the management of EA activities; Anderson and Sadler (1994) who related EIA effectiveness to timing of assessment, EIA quality, and outcomes (decisions and 'on-the-ground'); and the CEARC (1988) which defined dimensions of 'effectiveness', 'efficiency' and 'fairness' in EIA (for example, does the EIA information contribute to decisions, are the predictions accurate?). One of the more important conclusions commonly reached is that EIA should be integrated into planning at an early stage, although this rarely occurs (*eg* refer Ortolano 1993; James 1995; van Eck and Scholten 1996).

Examples of other significant studies which outline or use indicators or criteria for evaluating EIA practice and/or EIS quality, some of which are summarised in Appendix (2), include those by Enk (1973), Curtis (1982), Ross (1987), Lee and Colley (1992), Lee and Dancey (1993), Lee and Brown (1992), van de Gronden (1994), Wood (1995), Wood and Bailey (1994); Wood *et al* (1996), Devuyt (1994), Devuyt *et al* (1993), Valappil *et al* (1994), Ridgway (1995), Mostert (1995), DEP(WA) (1996), Leu *et al* (1996a; 1996b), Sippe (1994a; 1996), Hirji and Ortolano (1991); Radcliff and Edwards-Jones (1995); Guilanpour and Sheate (1997) Raff (1997), Salk *et al* (1999), and Byron *et al* (2000). Although also important, criteria which measure the actual impacts on the environment (*ie* was environmental protection achieved?) are rare, and one would have to examine the literature which directly refers to 'auditing' to gain a

⁶The focus is on the project level given that in South Australia, EIA is not directly targeted at higher policies, plans or programmes (*ie* Strategic Environmental Assessment). However, the organisations were asked whether or not they practise a form of SEA regardless of the lack of formal requirements.

better picture of this aspect of EIA evaluation (*eg* Bailey and Hobbs 1990; Wood *et al* 2000). It is not, however, a focus in this thesis given the limited presence of auditing and monitoring documents in the organisations studied.

The structure of the EIA performance component of the *CCP framework*, which draws upon existing criteria and dimensions, is presented in Table (4.5) and in more detail in Appendix (3). Four categories structure the evaluation comprising: EIA compliance; EIS quality; proponent openness; and proponent responsiveness. A more detailed rationale for each of these categories is presented in Chapter Nine which assesses EIA performance in the two case study organisations. The quality of the organisation's EISs were evaluated based on eight categories of information, and the criteria reflect a modified version of Lee and Colley's (1992) review package (without the higher review areas). The EIS evaluation categories comprise the proposal-policy framework, description of the environment, impact assessment, consideration of alternatives, mitigation, monitoring, communication and presentation, and degree of community and government controversy (see Chapter Nine). Grading of EIA performance is similar to the approach used in the *system-evaluation*, although greater numbers of increments are used based on Lawrence's approach. For instance:

- 1=addressed (excellent);
- Partly addressed was subdivided into:
 - 0.75=largely addressed (satisfactory/very good);
 - 0.5=somewhat addressed (just satisfactory); and
 - 0.25=addressed to a limited extent (not satisfactory)
- 0=not addressed.

This is further subdivided by equal increments of 0.12 (*ie* 0.88=B-A; 0.63=C-B; 0.37=D-C; 0.12=E-D). The approach adopted for analysing the data is briefly explored in Section (4.4.4).

4.4 RESEARCH APPROACH & METHODS

The case study research strategy is adopted in this research (refer Yin 1989) because it can be used to both test and to generate new theories, and because there are several organisational and implementation studies which have used this approach (refer Montjoy and O'Toole 1979; Bryman 1989). Given that the approach is a combination of exploratory and explanatory research (*ie* what, how and why), it is not guided or constrained by rigid hypotheses, and involves in-depth analysis of both the phenomenon being studied (*ie* the organisations and EIA) and its context, both of which are particularly important features of case study research (*eg* refer Hellriegel and Slocum 1976; Bryman 1989; Yin 1989).

Table 4.5: Criteria for Evaluating EIA Performance

DIMENSION	CATEGORY	CRITERIA
1. Compliance		1.1 Legislative Compliance 1.2 Guidelines Compliance 1.3 Decision Compliance 1.4 Compliance Plus
2. EIS Quality	2.1 Proposal	2.1.1 Project Rationale 2.1.2 Project Description 2.1.3 Policy Framework
	2.2 Environment	2.2.1 Environment Categories Referred to? 2.2.2 Environmental Description Detail 2.2.3 Future Environments and Capacity 2.2.4 Definition of Environmental Boundary
	2.3 Description of Impacts	2.3.1 Impact Categories Referred to? 2.3.2 Impacts Details 2.3.3 Indirect Impacts 2.3.4 Evaluation of Impact Significance
	2.4 Alternatives	2.4.1 Alternatives Addressed? 2.4.2 Ranking Alternatives
	2.5 Mitigation	2.5.1 Mitigation Identified? 2.5.2 Mitigation Detail
	2.6 Monitoring	2.6.1 Monitoring Addressed? 2.6.2 Monitoring Detail
	2.7 Communication & Presentation	2.7.1 Description of Methods 2.7.2 Information Sources 2.7.3 All relevant Sections? 2.7.4 Arrangement of EIS 2.7.5 Readability 2.7.6 Integrated Whole? 2.7.7 Length? 2.7.8 Information Emphasis 2.7.9 Conclusions Emphasis
	2.8 Controversy	2.8.1 Public Controversy 2.8.2 Government Controversy
3. Openness & Consultation	3.1 Attitude	3.1.1 Genuine 3.1.2 Openness (range of options considered)
	3.2 Timing/Integration	3.2.1 Integration EIA with Project Conception 3.2.2 Integration of EIA with Site Selection Planning 3.2.3 Integration of EIA with Project Design 3.2.4 Integration of EIA with Construction 3.2.5 Timing of Public Consultation
	3.3 Approach	3.3.1 Consultation Techniques 3.3.2 Transparency of Information 3.3.3 Resource and Time Table Flexibility
	3.4 Controversy	3.4.1 Public Controversy 3.4.2 Government Controversy
4. Proponent Responsiveness	4.1 Alternatives-Weighting	4.1.1 'Best' Option Adopted? 4.1.2 Environmental Weighting
	4.2 Changes	4.2.1 Process Changes 4.2.2 Proposal Changes 4.2.3 Evidence of Broader Learning?
	4.3 Controversy	4.5.1 Public Controversy 4.5.2 Government Controversy

The researcher's perspective is also an important factor in this type of research (Taylor and Bogdan 1998), where the researcher can '*bring a distinct perspective...which does not deny the possibility of achieving a degree of objectivity in investigation, but one which equally does not deny the presence and the significance of the values, the passions, and the subjectivity of the observer*' (Turner 1988: p115). Taylor and Bogdan similarly note:

'What you see and report as findings depends on who you are and how you see the world. Findings do not exist independently of the consciousness of the observer. All observations are filtered through the researcher's selective lens' (Taylor and Bogdan 1998: p160).

This research is premised upon a perspective constructed from several years of study in the environmental studies field; that is, the research is conducted from an academic and interdisciplinary-advocacy view of environmental protection. This is likely to contrast with the views of those being researched in the organisations, given that most are engineers who perhaps have different priorities and a more pragmatic view of the world. Given the potential extremes in perspective (and hence interpretation of results), the challenge in this research was to attempt a balance between being overly critical (from the advocacy and sometimes 'idealistic' perspective), and being overly complimentary (from the more pragmatic and 'realistic' perspective).

4.4.1 Case Study Research & Selection Rationale

The case study approach is frequently based on only a small number of cases, and although larger numbers of cases improves the generalisability of results, as the number increases, the '*distinctiveness of the case study approach becomes questionable, especially since the emphasis on the unique context that is a feature of the case study is easily lost*' (Bryman 1989: p172). The depth of analysis associated with a small number of case studies has been criticised because it cannot be generalised to other contexts, but this has been challenged (Bryman 1989). According to Bryman (1989: p173) the '*aim is not to infer the findings from a sample to a population, but to engender patterns and linkages of theoretical importance*'. To attain as much understanding as possible about organisational behaviour in the EIA context, it was believed that an in-depth study of one jurisdiction and two organisations would be more valuable than a superficial study of more organisations. As Taylor (1984) noted in his research on the Corps of Engineers and the Forest Service, any more than two organisations would '*tax...research resources or result in a superficial understanding of each organization, while studying only one organization would undermine one's confidence in the generalizability of findings*' (Taylor 1984: p340). Although not in the context of EIA, calls for more in-depth studies of organisations in the environmental change or 'greening' process have also been made by Shrivastava and Scott (1992), Schot and Fischer (1993), and Walley and Stubbs (1999).

An 'embedded' case study approach was adopted in this research (refer Yin 1989) with case studies at three levels: (i) the *jurisdiction* (ie South Australia),⁷ (ii) the *organisations* (ie Transport SA and ETSA), and (iii) *projects* which have undergone EIA in both organisations, with the organisation being the main unit of analysis. South Australia was chosen both for logistical reasons (ease of access to information), and because it has an EIA process which is similar in many ways to the United States' EIA process, but without mechanisms for court enforcement. The choice of organisational case studies was restricted to those government agencies which had the most EIA experience, and hence, potential for change. ETSA Corporation (with a particular focus on its subsidiary Electranet SA) had the most experience under EIA law and completed approximately 15 EISs (some prior to the formal enactment of EIA under the Planning Act).⁸ No other government agency had a similar amount of EISs under the formal EIA system, but Transport SA was chosen because of its significant experience in informal and internal EIA (although in two cases, the formal process had also been triggered). A more detailed introduction to the case study organisations is presented in Chapter Six.

In terms of the project case studies, whilst it would be ideal to examine all projects undergoing EIA in each organisation, this was not possible given that in-depth information was sought from a variety of information sources. The number of project case studies within each organisation was thus restricted to four which, although not comprehensive, still provides considerable insight into the organisations' attitudes and behaviour in EIA. Two large-scale projects which triggered the formal EIA process were selected within each organisation, in addition to two projects which were either smaller in scale, or triggered an informal EIA process. It is important to note however, that given the limited choices available, the project case studies which underwent EIA are not directly comparable with each other in terms of level of assessment and time-frames. Rather they simply serve to illustrate organisational behaviour and decision-making at particular points in time during the 1980s and during the 1990s. The project case studies are discussed in detail in Chapter Nine.

4.4.2 Organisational Access

Another key criterion for the choice of case studies was approval from each organisation to conduct the research, as was also the case in Ridgway's (1995) research on EIA in Australia. Access is a key issue in organisational research, and has been described in methodology literature as something of a unique experience (*eg* Buchanan *et al* 1988; Bulmer 1988; Bryman

⁷Whilst also comparing outcomes with trends in the United States, it is not technically a comparative study of jurisdictions because the US information utilised in this thesis is based on secondary data, and a systematic comparison protocol was not adopted to generate primary information for both jurisdictions.

⁸Relative to the United States which has produced thousands of EISs, the number of EISs in South Australia is considerably lower. Since the enactment of the Planning Act, only 41 EISs had been completed overall (Harvey 1998), although a number of EISs had also been completed prior to this Act.

1989; May 1997). It has been said for example, that when seeking access, researchers are faced with '*seemingly unlimited contingencies... ranging from being gleefully accepted to being thrown out on one's ear*' (Johnson in Lee 1993: p121). Because of these difficulties, Crompton and Jones (1988) note that in-depth studies of organisations are still rare. Fortunately, both of the chosen organisations were co-operative, open to analysis and approved the research within a very short time frame. The process of gaining access was relatively straightforward:

- a key 'environmentally-oriented' contact was established and maintained in both of the organisations (*ie* what Buchanan *et al* 1988 would call a 'gate-keeper');
- preliminary interviews were held with this contact, during which the possibilities of gaining research access to the organisations was discussed and contacts at the executive levels were identified;
- formal letters requesting permission and outlining a summary of the research, the benefits to the organisations, and the importance of confidentiality of information were then forwarded to the executive/corporate staff in September and October 1997; and
- it was arranged that the organisations have access to the thesis, and a confidentiality agreement was signed with Transport SA.

Permission to undertake the research was received from both Transport SA and ETSA in October 1997. Permission was also sought from the EIA Branch (then in DHUD) and approved in August 1996. To protect participants in the EIA process, an 'invisible footnoting' system is adopted in a similar manner to the one used by Ridgway (1995). In other words, unpublished sources of information are coded and only made available to the examiner.

In organisational research there is sometimes an assumption that formal access automatically grants unconditional access, but access is in fact an ongoing process of negotiation and is often conditional (Lee 1993). The research required an introduction to each project manager (which had responsibility for the projects assessed in this research), to section managers, and to individual staff members for interview participation. Access to internal reports was not always guaranteed (*eg* Cabinet reports were confidential), and because access required ongoing negotiation, it required some degree of persistence. According to Bresnen:

'The point that is often missed about research in the real-life social setting of an organization is that many of the methods that are useful for obtaining reliable and valid case data rely upon some degree of cunning, deviousness, opportunism and persistence on the part of the researcher' (Bresnen 1988: p47).

Persistence was necessary because requests for information were sometimes forgotten by employees in the chaos and business of meeting time constraints in each organisation, but there also needed to be respect for hierarchical protocols in organising interviews and questionnaires.

4.4.3 Multiple Methods

As is often characteristic of case study approaches (Yin 1989; Hakim 1987), the assessment of organisational change and EIA performance relied on multiple research methods to both cross-check accuracy and to fill gaps in information which could not be provided by relying on only one research method. Yin notes (1982: p85) that there is '*no adequate research craft in the social sciences for studying the situation where phenomenon and context are intertwined.*' The methods in this research encapsulate a combination of interviews, a limited form of participant observation, questionnaires, and document analysis. This resulted in a large amount of data but as noted by Whiteley:

'Because of the need to chart the way through a case, often having to fill in gaps and imagine information that is not explicitly given, the linear approach and the 'one solution' are discouraged. The idea is to generate as much data as possible about the situation including ideas and concepts as well as the facts as they appear' (Whiteley 1995: p130).

This was facilitated in part with the use of a research journal, and by the end of this research, four journals were filled with ideas for the evaluation approach and themes for discussion.

Interviews

The '*favoured digging tool*' of the social researcher is the interview (Taylor and Bogdan 1998: p87). The research began with preliminary, open-ended and 'loosely' structured interviews (refer Bryman 1989) which aimed to identify how the EIA process operated in each organisation, who was involved, any common themes which might be worth pursuing, and how to gain access to the organisations. The approach was similar in nature to Harrison's (1987) 'orientation' interview, although not as detailed. Many of the 'what' and 'how' questions were answered in this phase so that other issues such as attitudes could be focused on in subsequent interviews. Following the administration of a questionnaire (see below), interviews were arranged with as many EIA participants as was possible, although some individuals were unable to participate due to time constraints. The number of interviews selected essentially involved 'theoretical sampling' where a saturation point is eventually reached, and additional interviews provide no significant new insights (Taylor and Bogdan 1998).

A total of 60 interviews were conducted within, and external to, the organisations, although some people were interviewed more than once. Interviews ranged from approximately three quarters of an hour to three hours. The primary group of participants included planners, designers, project managers and environmental officers. The number of EIA participants identified in ETSA (9) was considerably lower than in Transport SA, partly because ETSA had fewer projects, relied heavily on consultants, and triggered the EIA process less frequently (refer Chapter Seven). Interviews were also conducted where possible with other employees to

gain a broader context of the organisations, although this was primarily achieved in Transport (eg human resources, policy development, and the executive including the Executive Director). Other interviews were also conducted outside of the case study organisations to gain insight into EIA's evolution in South Australia. These included:

- an officer from the Department of Environment and Natural Resources (who was one of the first environmental officers to administer EIA in the State within the then Department of Environment and Conservation);
- the first environmental officer in Transport SA (then the Highways Department) who had moved on to another organisation;
- three officers from the EIA Branch in Planning SA;
- an officer from the Commissioner of Public Employment Office; and
- two past Ministers who were responsible for the environment portfolio in the 1970s and 1980s.

Several attempts were also made to arrange an interview with the current Minister for Transport and Urban Planning, but these were unsuccessful.

The interviews were semi-structured or what Yin (1989) terms 'focused' interviews, so that important issues were consistently addressed, but also so that participants had the opportunity to expand on a topic or move to a related topic. In this way, several issues were picked up which would have been omitted if the interviews had been rigidly structured. Three themes guided the interviews for designers, planners and project managers within the organisations: (i) historical perspective of the organisation's behaviour and individual attitudes towards EIA and environmental protection (for long-term employees); (ii) organisational goals and culture; and (iii) the EIA process and its implementation. Interview themes for other participants were tailored differently, where environmental officers were also asked about their role and influence in the EIA process.

Most of the interview participants were happy to help and were interested in the study, although some were initially and understandably reserved about my role and the use of the information, which is consistent with Whyte's (1991) summary of the interview process. Ethics in research is a significant issue (Kumar 1996), and it was believed important to maintain the anonymity of individuals. Participants were told that they could stop the interview at any time, and verbal consent was sought to use the information in the thesis. Any comments included in this thesis are expressed as an interview number rather than sourced by name. In most cases, the interviews were taped (45 of the interviews) unless the participant felt uncomfortable with this approach. Buchanan *et al* (1988: p61) also taped interviews where they could to better '*capture the richness of the verbatim account*', but they noted that the benefits are counteracted by the

time required for transcribing. Nonetheless, it had advantages over note-taking which tends to distract from the interview and the flow of 'conversation' (Whyte 1991).

Participant Observation?

Every bit of time spent within the organisation, whether considered structured or not, can be viewed as part of the research process, a point which is recognised in participant observation research (Crompton and Jones 1988). Although this research was not an in-depth participant observation approach, some insight into the organisation's cultures did become apparent just by being present in both organisations over a number of months perusing EIA documents and conducting interviews. The approach was thus a form of indirect and periphery participant observation where the '*researcher is constantly in and around an organization but does not possess a work role in it*' (Bryman 1989: p143). This presence was significant because as Bresnen (1988) notes, research often relies on being at the right place at the right time:

'many issues that are important in the study of organizations and their management (for example conflict) occur only sporadically and in relation to specific events. In order to get a fuller understanding of the dynamics of the process (rather than, say, rely upon respondents to classify a situation as more or less conflict-free), it is helpful to be able to witness these events in 'real time' (Bresnen 1988: p46).

One thus becomes dependent on chance events. Of course, this was not always possible and much of the day-to-day operation was missed because the role of participant observer was not more extensive. Full participant observation is not always practical given that one cannot examine past events or force entry into all situations, and because it involves substantial time and effort that is not always justified (Taylor and Bogdan 1998). It was originally intended to have fuller involvement by attendance at project meetings, but this fell through. However, greater participation was achieved on becoming a member (as an observer) of Transport SA's 'Environment Technology and Advisory Group' (ETAG) which comprised both internal and external membership. Although not directly related to EIA, this group gave some insight into attitudes and organisational commitments to the environmental management and research process.

Self-Administered Questionnaires

Following the preliminary interviews, a self-administered questionnaire was designed to ascertain the commitment and attitudes of EIA participants about the EIA process and its effectiveness (it thus covered aspects of EIA capability, culture and performance). The questionnaire was distributed to research colleagues and contacts in the case study organisations for their evaluation of its ease of use, relevance, and quality (*eg* any leading or biased questions, double-barrelled questions, ambiguities, and so on). Most questions were closed although there

were opportunities to add comments. Several more questions could have been included but the questionnaire was kept as short as possible to minimise intrusion upon the organisation's time and to improve the response rate. The final questionnaire (Appendix 4) contained four sections:

- background information (*eg* age, gender, job title, year of employment, structural location);
- *individual* awareness of environmental goals and processes (*eg* priority personally attached to the environment, familiarity with internal and external environmental policies and procedures, knowledge levels);
- *organisational* commitment to environmental management (*eg* organisational priority attached in both theory [espoused values] and in practice [observed values], the importance of EIA for achieving the organisation's environmental goals); and
- EIA experience (*eg* stage EIA begins in project development, constraints and incentives, the effectiveness of communication and influence of different internal and external groups on the process, influence on planning and decision-making, and adequacy of resources among other things).

The questionnaires were tailored slightly differently for each organisation in terms of knowledge of internal policies. The questionnaires focused on the entire population (55 employees) rather than a sample of the population. In this case the population was defined as all EIA participants within the organisations which were identified by the organisations via a process of 'snowballing' (introductions and names from others). Again, the relevant numbers of participants who responded were much less in ETSA (7 compared to 41 in Transport SA). In Transport SA, the questionnaire was distributed with an accompanying internal memorandum of support from the Environmental Unit which gave it more credibility and probably worked to facilitate the overall response rate of 87% (48 participants from both organisations).

Document Analysis

To supplement the interviews and questionnaire, archival research (Bryman 1989) was also conducted over several months. This involved accessing project files for each project case study. Thousands of documents were viewed including internal reports, memoranda, letters, minutes of meetings, speeches, and copious notes were taken so that a picture of each case study could be compiled (Volume II). This information could not however, provide insight into the nuances and intricacies of communication between different groups, given that much of this was not documented. Several other sources of information were used to gain insight into the organisation's history, commitment to environmental management, and culture, and also towards the evolution of the EIA system in South Australia:

- corporate plans, policies, mission statements, change strategy documents, structure diagrams, training programmes;
- annual reports, community environment reports, internal newsletters;
- public reports (*eg* draft EISs, Final EISs, Assessment Reports, Public Works Committee Reports, Working Reports),
- internal reports (*eg* technical design and planning reports);
- media (newspaper articles, radio reports, television news broadcasts);
- hansard reports; and
- general literature (including historical narrations of both organisations).

Like the interviews and questionnaires, the analysis of documents did not assume that they represented 'independent facts', and it was acknowledged that they could present bias and provide different interpretations of events (*eg* refer May 1997).

4.4.4 Data Analysis

In performance evaluations, it has been suggested that '*the methodology and assumptions applied to the scoring systems can have a greater impact on the results than the choice of criteria themselves*' (Peak in Jones and Alabaster 1999: p28). Two different approaches to grading performance have been used in the EIA evaluation literature, one using categorical representations of performance, whilst the other uses numerical representations which are subject to mathematical manipulation (*eg* averages). In the former case, reviews of EIS quality by Lee and Colley (1992), and of EIA effectiveness by Hirji and Ortolano (1991), Devuyt (1994), Vallappil *et al* (1994), and Sadler (1996), were based on 'ordinal' scales using categorical names rather than numerical representations. Ordinal measurements are those where an item or issue can be ranked or ordered in priority, but where there is no equality of difference between the ranked items (Antonak and Livneh 1988; Salkind 1997). Lee and Colley's approach orders categories from high to low, and encapsulates grades A-F, where A equals the highest performance category (*ie* '*relevant tasks well performed, no important tasks left incomplete*'), and where F is the lowest category (*ie* '*very unsatisfactory, important tasks poorly done or not attempted*') (Lee and Colley 1992: p13). They avoided using numerical representations of these categories so that 'crude aggregation' of performance was not undertaken. Similarly, Foster (1985) in her research on EIA in forward land use planning avoided the aggregative quantitative approach and used a more qualitative, descriptive one.

In contrast, other authors have treated data emerging from EIA evaluations as a form of 'interval' data with the use of numerical scaling approaches to facilitate comparison by averaging scores. For instance, Hill and Ortolano (1976) defined performance categories for questionnaire analysis in EIA (*eg* 'not at all' to 'substantially'), assigned numbers 1-4 to these

categories, and then presented a crude comparison of means for specific criteria (*eg* perceptions about improved coordination in EIA). In Lawrence's (1997) approach, scores were summed and averaged to obtain an aggregate score of overall EIA performance. A similar approach has also been undertaken in several studies which measure performance in corporate environmental reporting (although with different scale terminology and numerical representations) (refer Jones and Alabaster 1999 for a review of several such studies).

The numerical approach is an attractive one because it allows for the management and manipulation of large amounts of qualitative information, and facilitates comparative benchmarking (Jones and Alabaster 1999). As such, this approach was adopted in this research, but theoretical disputes about the different approaches are acknowledged. Based on Jones and Alabaster's (1999) understanding, the type of scaling system used by Lawrence (1997) and other corporate studies is actually based on ordinal and not interval data. Unlike interval scales, it is generally considered inappropriate to subject ordinal data to mathematical manipulation (*ie* addition, means, multiplication) because an equal distance cannot be assumed between the numbers (Jones and Alabaster 1999). The average is however, applicable to interval scales which are also categorised and ranked, but there is also knowledge about the differences between categories; the distance and value between intervals is assumed to be equal; and there is an arbitrary zero point (*ie* for convenience, but does not indicate the absence of an item/attitude) (*eg* refer Antonak and Livneh 1988; Sproull 1995; Salkind 1997).

Nonetheless, many researchers treat ordinal data as if it were interval data (and hence subject to mathematical manipulation) (*eg* Labovitz 1970; Bryman and Cramer 1994; Salkind 1997). Labovitz in particular notes that any errors will only be minimal and that they will be outweighed by the advantages of this approach. Salkind goes further to state:

'Most researchers take some liberty in treating ordinal variables (such as scores on a personality test) as interval level variables, and that is OK as long as they remember that the intervals may not be (and probably are not) equal. Their interpretation of the data needs to take that inequality into account' (Salkind 1997: p117).

The other problem is that there is no 'rule of thumb' to define exactly when data is ordinal or interval (Bryman and Cramer 1994; Aaker *et al* 1995). Sproull (1997) states that the responsibility lies with the researcher to defend a choice about whether it is ordinal versus interval data. The data used in this research is ordinal, but the question was, could it also be considered interval data? Can one assume an approximation of equal intervals between the grading categories? According to Aaker *et al* (1995: p257) '*usually it is doubtful that the intervals between categories are exactly equal, but they may not be so unequal as to preclude treating the whole as an interval scale*'. What is becoming apparent is that some data may not fit neatly into any of the classifications of ordinal, interval or ratio. Salkind (1997) notes that this typology, which was originally developed by Stevens in 1946 (Bryman and Cramer 1994), has

been challenged: '[i]n other words, the taxonomy might be too strict to apply to real-world data. As with so many things in the world of research, this four-level taxonomy is a starting point to be worked with but not to be followed as law' (Salkind 1997: p117).

Bearing these points in mind, different approaches are applied to different levels of analysis depending on how close the data approximated either ordinal or interval data. For instance:

- in the *system-evaluation* analysis it is highly improbable that the distance between intervals is equal given that there are only three categories of grading performance (0, 0.5, 1). A 'partially addressed' (0.5) in one criteria may not equal a partially addressed in another criteria, and thus, the data should be treated as ordinal data where averaging of scores is inappropriate. Instead, performance will be evaluated using frequency bar graphs (*ie* how many criteria were graded at '1' or '0.5') which is appropriate for ordinal data. A similar approach is adopted in the 'capability', and 'culture' dimensions of the *CCP framework*;
- analysis of the questionnaire results was more difficult to clarify. There were slightly more scoring categories, but because multiple respondents were grading performance for different questions, the assumption of equal distance could also not be adequately supported. At the same time, the mean provides an excellent visual comparison of relative performance between the organisations (as was done by Hill and Ortolano 1976). Thus, mean performance will be used, but given the contention about this approach, frequencies will also be presented to illustrate the actual distribution of scores; and
- for the detailed evaluation of EIA performance in Chapter Nine, the data are treated as an approximation of interval data. In other words, the larger number of increments in the scores (refer back to Section 4.3.4) (relative to the system-evaluation and the questionnaire responses) indicates a knowledge about distance between grades which is sufficient to make subtle gradations in the scoring process. This in turn suggests 'equal' distance between the grades. Moreover, several criteria were used to gain an index of performance (*eg* several criteria for measuring 'EIS quality' or proponent 'openness'). This, according to Bryman and Cramer (1994), is a type of interval data. They suggest that there are two types of interval data, the first of which is true interval data, whilst the second is a form of ordinal data which can be treated as interval data. In this latter case, there are several similar questions or criteria which all form an index of one attitude or issue being measured. Thus, averages to compare performance are used, in addition to more specific frequency distributions to highlight differences in scores.

Because of the controversy on this topic, however, the limitations of this approach are acknowledged and the point is made that, rather than indicating absolute performance, any comparison of averages merely illustrates *relative* performance (*ie* Transport SA may perform better in this criteria or vice versa).

4.5 RESEARCH STRENGTHS & LIMITATIONS

The quality of an evaluation framework is primarily dependent on three factors: the criteria used (and excluded), the interpretation of those criteria; and the level of information and time available to assess these criteria. More specifically, the value of the evaluation framework can be assessed against a number of criteria defined by Lee and Colley (1990) and McAllister (1980 in Devuyt 1994) to evaluate EIA methods. In this respect, the evaluation approach should be unambiguous, well defined, quick, inexpensive, simple, comprehensive (yet at the same time have few criteria which can be assessed in a reasonably objective manner), and systematic to facilitate replicability. The framework meets most but not all of these criteria.

The evaluation framework used in this research is inexpensive to apply, and is systematic with comparable evaluation dimensions and criteria which should be universally applicable to all government organisations which implement the EIA process. The criteria cover a comprehensive range of issues (at the EIA system, organisational and project level), yet the number of criteria to be assessed are still manageable. At the same time, however, the replicability of research may be hindered by the extensive time and detail required to evaluate EIA performance (the project-evaluations in Volume II), the potential problems of gaining permission to access organisations, the high degree of subjectivity in grading performance, and the ambiguity of some criteria (particularly those relating to 'culture' and determining the level of proponent openness and responsiveness). As noted by Ott:

'ultimate truths about organizational culture...cannot be found or discovered...When someone claims to have identified an organizational culture that discovery represents nothing more than the results obtained from applying that person's concepts of organizational culture. Another discoverer who uses a different concept-driven deciphering process will find a different culture in the same organization' (Ott 1989: p100).

This is also a problem in corporate planning where indicators are sometimes subjective, difficult to quantify, and relate to process rather than outcome (Buekers 1990; Sharp 1994). Process goals or indicators in the EIA context are relatively easy to measure (*eg* compliance), but outcome goals are more difficult to measure because they are not readily quantifiable (how does one actually know if a proposal is more environmentally 'sustainable')?

Another point to note in defining evaluation frameworks in EIA research is that the evaluation criteria are not weighted for significance and that they can be easily manipulated. The choice to include or exclude particular criteria can make an EIA system look strong or weak. Unconsciously, an individual developing a framework who already has strong knowledge of the EIA system[s] to be evaluated can incorporate criteria which already reflect the contents of these EIA systems. Thus, the EIA system which is evaluated will invariably look good on paper. This is why it is so important to establish standard evaluation frameworks which are

consistently applied in different research projects between jurisdictions, rather than each researcher developing their own framework (as was also the case in this research). The difficulty is, however, in determining which evaluation framework to use as a standard.

It is also important to note that many of the principles and criteria in the evaluation frameworks are based on an ideal, but such high standards are often difficult to meet in the political world of decision-making. According to Hirji and Ortolano (1991: p167), one will tend to find that *'in many cases EIA will not be 'effective' or 'ineffective'. It will be somewhere in between'*. Despite these limitations in the evaluation frameworks, Sadler (1995: p6) argues that many of the problems in EIA evaluation research are not insuperable as long as they are acknowledged. Likewise, Hirji and Ortolano suggest that:

'although the measures used to gauge EIA effectiveness are not unambiguous and they could not survive rigorous tests of internal validity...they have important virtues... For the purposes of analysing the role of EIA in a planning study and providing a basis for comparing dimensions of EIA effectiveness for one study relative to another, the measures are useful and not difficult to apply' (Hirji and Ortolano 1991: p156).

In addition to those already noted, there are other limitations in the research which need to be acknowledged. For instance:

- as noted in Chapter One, there are only vague links between cause and effect between different variables (as also noted in Chapter One). Sadler (1995: p6) notes that *'many aspects of EIA effectiveness are difficult to evaluate. ...the relationship of environmental benefits or decision influence to the EIA process will often be 'circumstantial' rather than 'provable', leaving a wide latitude for interpretation and variance of participant judgements.'* Would change have been achieved in the organisations even in the absence of EIA for instance (Lee *et al* 1994; Mostert 1995), particularly given the increasing public awareness and pressure and other environmental initiatives? In the United States' experience, Renwick (1988) suggests that the substantive role of NEPA has been superseded by other environmental legislation; Caldwell (1982, p54) states that NEPA was not the only Act to reform agency behaviour with the use of scientific procedures; whilst Fairfax (1978) argues that mechanisms were already in place prior to NEPA which required the consideration of environmental requirements.
- there are limitations in the interviews and questionnaire techniques. Whyte (1991: p117) notes that interviewing *'...can never pin down with absolute certainty 'what actually happened'*. Because of the distance between researcher and participant, the 'cultural incompetence' of the researcher, and the fear that the research may be released to superior officers, those being researched can put on a front (Lee 1993). They may also wish to please the interviewer and appear politically or socially 'correct' (Whyte 1991; Taylor and

Bogdan 1998; Petts *et al* 1999). Participants may also be ambivalent about some attitudes, and believe or say something different under different circumstances or at a different time (Whyte 1991; Taylor and Bogdan 1998). The interviewer may also misunderstand the language of the participant, and the participant may generalise and make assumptions about the interviewer's level of knowledge (Taylor and Bogdan 1998).

- there are limitations in participant memories. This research is similar to what Williamson *et al* (1977) refers to as a 'one-shot study', in which a group of people is researched *after* exposure to a programme for change. Thus, the research lacks an adequate baseline. This can be overcome by asking participants about their memories of the situation prior to the change programme, but memories are limited and influenced by subsequent events (Williamson *et al* 1977).
- there are problems in duplicating the type of information available in each organisation. It was virtually impossible to replicate the amount and quality of information in both organisations (*ie* less participants to interview in ETSA, but more documented information available in ETSA relative to Transport SA);
- there are problems of direct comparability between the project case studies due to different time frames, although they do provide good indicators of behaviour within the organisations.

Buchanan *et al* (1988) distinguish between the 'theoretically desirable' and what is 'practically possible' in organisational research, where the ideals are frequently compromised by the realities of the situation being studied. Bearing these points in mind, the next part of this thesis (Part II) focuses on the EIA and organisational context to the *CCP framework* (which is applied later in Part III), beginning with the application of the *system-evaluation framework* to the EIA system in South Australia.

PART II:

**THE CONTEXT:
EIA SYSTEM AND
THE ORGANISATIONS**

Chapter 5

EIA IN SOUTH AUSTRALIA: THE SYSTEM-EVALUATION

5.0 INTRODUCTION

There have been several accounts of the EIA system in South Australia since its informal introduction in 1974. For instance, there have been extensive government reviews of the process (*eg* PARC 1985; EIA Review Committee 1986); and illuminating academic assessments of EIA's evolution in its early years (*eg* Evans 1976; Fowler 1982; Hazell and Whyte 1985); and of procedures and EIA trends in practice in more recent years (*eg* Harvey 1994; Harvey and Ferguson 1994; Harvey 1995; Harvey 1996; Harvey 1998). Yet none of these accounts have systematically compared the EIA process and legislation with principles of 'best practice' in a manner similar to the *system-evaluation framework* defined in Chapter Four. An exception to this trend is Fookes' (1987) comparison of EIA in South Australia with the United Nation's Environment Programme (UNEP) goals and principles of EIA,¹ but this evaluation was conducted at a time which predated significant changes made to the EIA process in the 1990s.

In addressing research objective (4), this Chapter sets the EIA context to the case study organisations by evaluating the EIA system in South Australia. Key features of the EIA system are linked to Transport and ETSA's response to the EIA requirement in Chapter Ten. This Chapter begins with a summary of EIA's evolution which covers EIA's inception under a Cabinet requirement in 1974, the enshrinement of EIA into legislation in 1982 (the *Planning Act*), the re-enactment of EIA under the subsequent *Development Act 1993*, and amendments to the EIA process under the Development Act in 1996/1997. The second part of this Chapter evaluates the EIA system in terms of the six types of 'controls' defined in the last Chapter, and makes conclusions about improvements (or otherwise) over time.

¹These principles related to EIA coverage and timing, EIA content, expert and public involvement, relationship of EIA to decision-making, and the importance of follow-up in EIA.

5.1 THE EVOLUTION OF EIA

As was the case in the United States, EIA was introduced during a time of increasing public and government awareness about the 'price of progress' in the late 1960s and early 1970s. An overview of the lead-up to EIA's inception in South Australia is provided in Appendix (5), with reference to a 'forced industrialisation' process and lack of social or environmental concerns during the 1950s, and the 'political transformation' which was evident over three subsequent governments, and which turned the focus towards improved planning and social reform during the 1960s and 1970s. In December 1973, South Australia's newly created Environment Protection Council (EPC) recommended that EIA be applied to private and public works in South Australia (Fowler 1982). This recommendation was 'approved in principle' by Cabinet in 1974 (Lothian and Welsh 1978), but a circumspect approach was initially adopted and it took nearly ten years to gain legislative backing for EIA. Since the initial recommendations, the establishment of EIA in South Australia has undergone several evolutionary stages, as governments aimed to increasingly co-ordinate and control decision-making at a more strategic level, and to entice development to improve the State's ailing economy. The stages of change in EIA are summarised in Table (5.1) and are discussed below.

5.1.1 Cabinet Requirement (1974)

Soon after the EPC's original recommendation for EIA, the State Cabinet required in 1974, that all government departments forward their development proposals to the Department of Environment (DoE) for appraisal (Lothian and Welsh 1978; Shepherd 1980; Fowler 1982; Hazell and Whyte 1985; Fookes 1986). This Cabinet requirement was reinforced in 1977 and 1979 with an official Cabinet agreement on the EIA process. South Australia was not the only State to follow this path, and most jurisdictions in Australia introduced non-statutory Government requirements for EIA procedures in the early 1970s, which were later replaced by legislation (Lothian and Welsh 1978; Hazell and Whyte 1985).² Although there was a lack of official EIA guidelines to support the initial 1974 Cabinet requirement, the DoE produced detailed procedures in 1978 which reflected current EIA practice (Lothian and Welsh 1978; Fowler 1982). Specific stages in the procedures (for the EIS) are illustrated in Figure (5.1) including the submission of a 'Notice of Intent', preparation of guidelines (the scoping process), preparation of a Draft EIS, public review of the EIS for 28 days, preparation of a Final EIS, assessment of the EIS by the DoE, and a final decision by the Minister of Environment (usually made by Cabinet) (Lothian and Welsh 1978; Whitaker 1981).

² These requirements differed in form. Fowler (1982: p10) noted that '*..the attempt to establish a uniform national approach to EIA procedures did not succeed, and in consequence, each State has pursued subsequently an independent course in framing procedures, with considerable variations emerging between the various schemes now operative at State level.*'

Table 5.1: The Evolution of EIA in South Australia

DATE	EIA REQUIREMENTS	AUTHORITY
1974-1979	Informal Cabinet EIA requirement (reconfirmed in 1977 & 1979) and production of EIA Handbook in 1978	EIA administered by Department of Environment and Conservation (later Department for the Environment)
1974 - 1999	Commonwealth EIA requirement - <i>Environment Protection (Impact of Proposals) Act 1974</i> for proposals involving Commonwealth interests, land or funding (for example, national highways)	Administered by Commonwealth Environment Department (changing portfolios since 1974, but now called Environment Australia)
1974-1976	Draft EIA Bill for South Australia - <i>Environment Protection (Impact of Proposals Bill) 1976</i>	Drafted by Environment Protection Council and Department for the Environment
1979	Draft Regulations for proposed <i>Environment Protection (Assessment) Act</i>	
1982	Integration of EIA into the <i>Planning Act 1982</i>	EIA administered by Assessments Branch within the then Department of Environment and Planning (DEP)
1983-1985	Minor review of the EIA process resulting in greater State government control over the EIA process	Planning and Review Commission (PARC)
1984-1987	Major EIA review of EIA practice leading to White Paper	EIA Review Committee
1989	White Paper outlining proposed changes to Planning Act EIA process	Government of South Australia
1994	<i>Development Act 1993</i> replaced Planning Act and linked to <i>Environment Protection Act 1993</i>	EIA administered by Department of Housing and Urban Development
1996-1997	Major amendments to EIA under Development Act (came into effect 1997)	EIA administered under Department of Transport, Urban Planning and the Arts (EIA Branch situated in 'Planning SA')
1999	Review of the administration of the Development Act (in process)	Minister of Transport, Urban Planning and the Arts
1999-2000	Major review of the Commonwealth EIA process (commenced in 1994) culminated in new Act: <i>Environment Protection and Biodiversity Conservation Act 1999</i> (to come into effect July 2000) (Conacher and Conacher 2000).	Environment Australia, Environment Protection Group

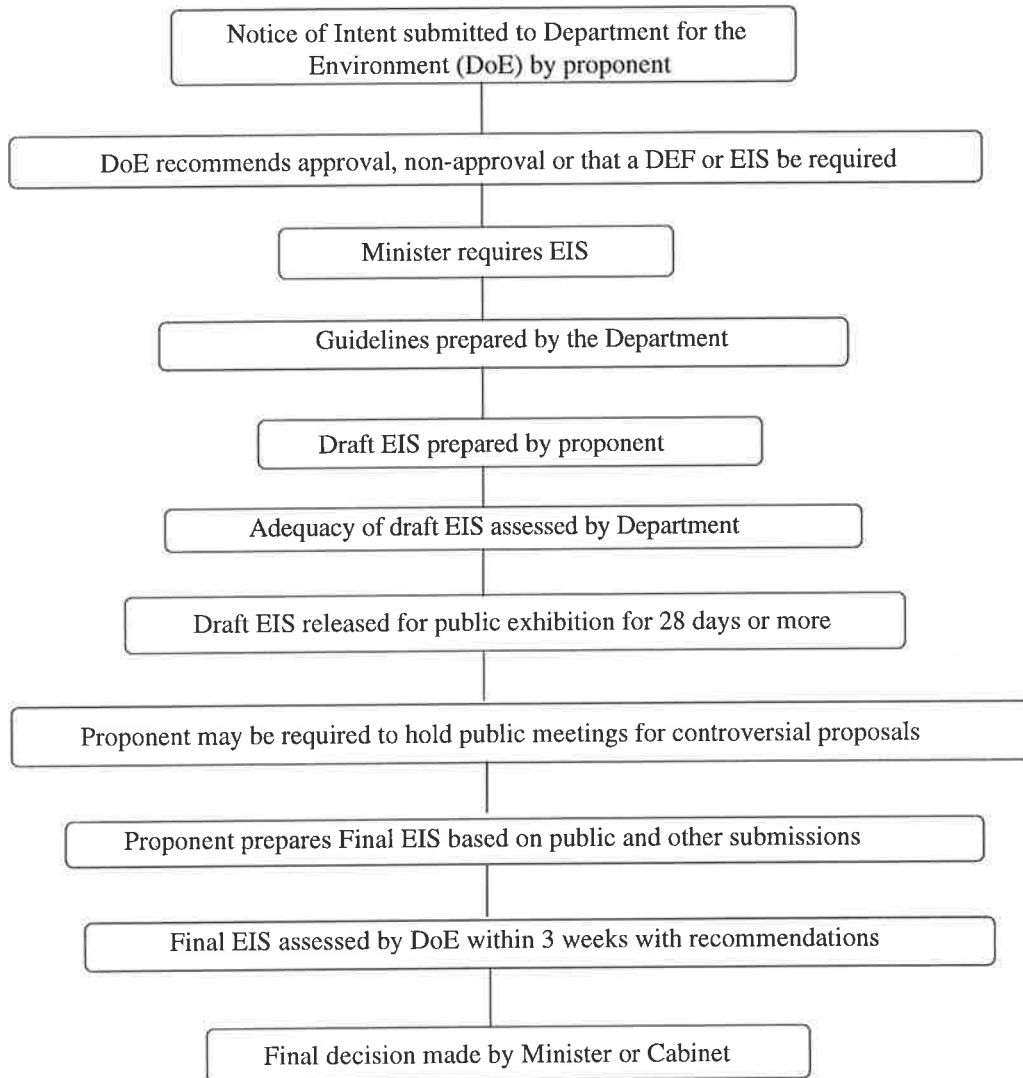


Figure 5.1: EIA process under the 1978 Handbook
(Cabinet Requirement) (compiled from Lothian and Welsh 1978; Whitaker 1981)

The EIA process at this time was predominantly focused on public works rather than private ones, despite the recommendation of the EPC for EIA to encapsulate both forms of works under legislation. EIA was essentially considered an 'optimisation' process to balance environmental factors, with economic, social, technical and political factors, as opposed to attributing the environment greater significance (Cabinet Agreement on EIA 1979; Interview 70 1999). Although EIA was not designed to veto existing agency missions (Interview 70 1999), the introduction of EIA in South Australia marked a '*revolutionary departure from established bureaucratic practices of secrecy and paternalism*' (Evans 1976: p34). Implicit within the early EIA process was a strong education base which aimed to improve the environmental attitudes and knowledge of government proponents:

'Adoption of a strong educational role within the process, at least in the immediate future, means bringing about changes in attitudes, awareness, policies, and development of process - changes which are unlikely to regress but would strengthen with time until they become the normal way by which decisions are reached' (Lothian and Welsh 1978: p4).

This approach was clearly analogous to the reform nature of NEPA and because of this educating role, the proponent was required to undertake the EIA rather than a central body or consultant, to '*enhance the developer's appreciation of, and competence in, environmental matters*' and to prevent EIA from being an add-on (Lothian and Walsh 1978: p3).

5.1.2 Commonwealth Requirements (1974)

In addition to the South Australia Cabinet requirement, significant proposals in South Australia which had Commonwealth involvement (*eg* highway developments) were also subject to the Australian Commonwealth's EIA procedures contained within the *Environment Protection (Impact of Proposals) Act 1974* (EPIP Act). The Commonwealth process was largely based on the United States' model, albeit designed in a more discretionary manner to avoid the courts and associated delays which were experienced in the United States (Hazel and Whyte 1985) (refer Chapter One and Three). The specific process is similar to the process outlined within the 1978 Handbook under the Cabinet requirement, and a second level of assessment was added in 1984 for less significant proposals (the Public Environment Report) (Lothian and Welsh 1978; Hazel and Whyte 1985; Harvey 1995). Due to some confusion about which proposals involved Commonwealth/State involvement, 'joint assessment arrangements' were established in July 1977 which resulted in only one EIS being prepared, and essentially gave a greater role to the State government in EIA (Whitaker 1981; Hazell and Whyte 1985). An even greater role for the States was provided with the introduction of the *Environment Protection and Biodiversity Conservation Act 1999* which replaced the EPIP Act, and was planned to come into effect in mid 2000 (Conacher and Conacher 2000).

5.1.3 The Development of State Legislative Requirements

While EIA was conducted under the Cabinet and Commonwealth requirements, the DoE continued to draft legislation for EIA (EPC 1975-1976). The EPC also pushed for the enactment of EIA believing it was of '*the greatest importance, second only to noise legislation*' (EPC 1975-76: p6). The first attempt at legislation was entitled the *Environment Protection (Impact of Proposals) Act* which reflected the Commonwealth's approach to EIA, but draft, confidential regulations were also evident in 1979 (*Environment Protection (Assessment) Regulations*). A key aim of the legislation in these early years was to avoid court action and to provide Ministerial discretion in EIA's implementation (Interview 70 1999). However, the EIA legislation failed to be enacted for four key reasons:

- first, limited resources were allocated to the DoE to prepare a Brief on the Bill to Parliamentary Counsel;

- second, the government was cautious about committing the State and developers to binding requirements;
- third, there were a number of questions about how to define proposals of 'significant' effect, and how to define the process of approval following assessment; and
- finally, there was significant debate about whether the process should be enshrined within the planning or the environmental protection system (Fowler 1982).

In this latter case, the Parliamentary Counsel suggested that EIA should be '*engrafted harmoniously*' onto the development control system already in existence, given that there was no clear evidence that this system had been unsuccessful in promoting environmental protection (Fowler 1982). It is likely that the enactment of EIA was also delayed because of a major review of the existing planning system which was instigated by the Planning Minister in 1977, and undertaken by Stuart Hart with his report prepared in 1978 into the 'Control of Private Development' (Hart 1978; Hazell and Whyte 1985; Hansard 10 March 1993). This was a significant undertaking given that there were 80 Acts which regulated private development in the State, and one recommendation of several, suggested that EIA should accompany planning approvals for projects of major significance (Hart 1978).

The Planning Act 1982

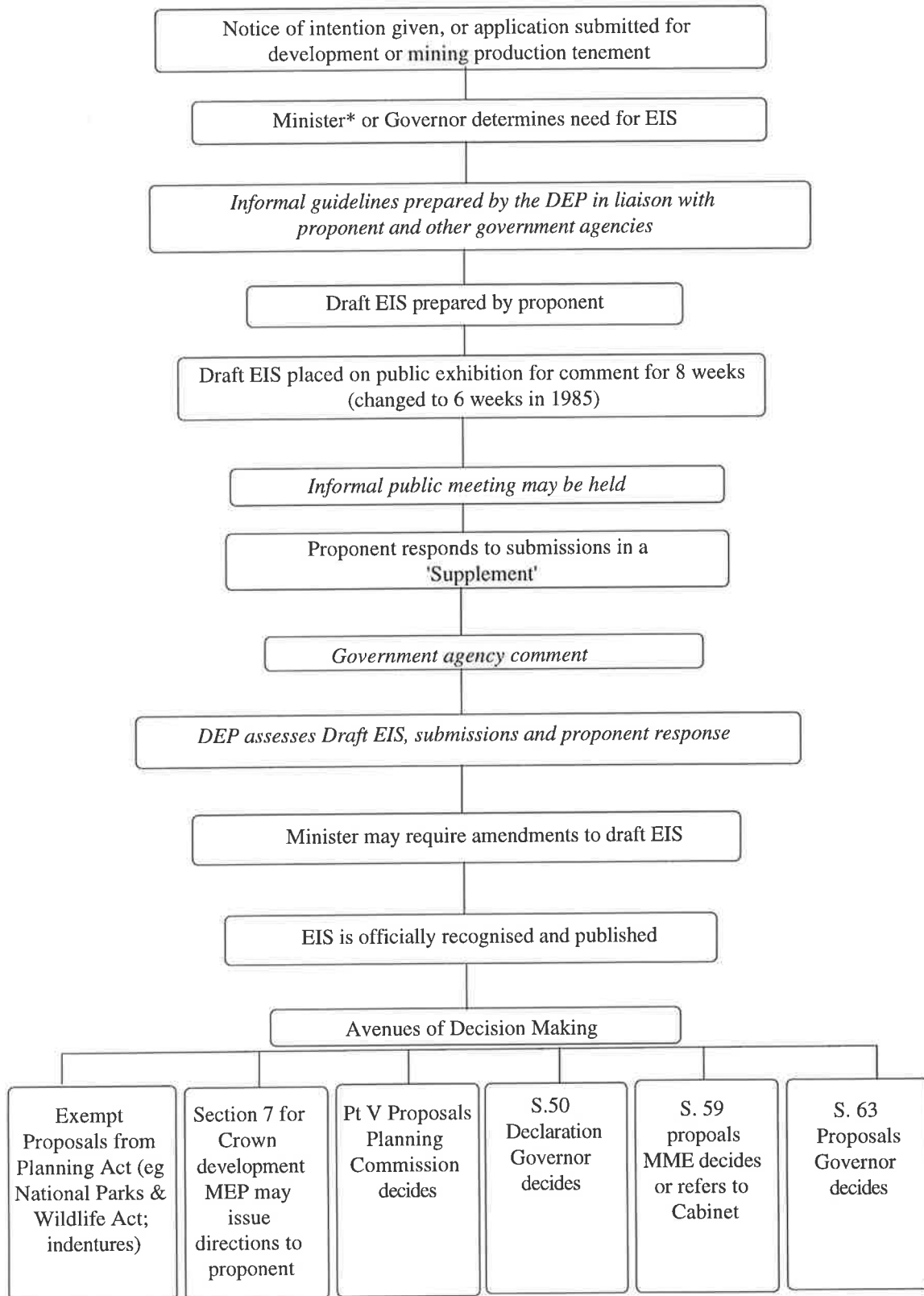
As a result of the Hart Review, the earlier attempts to enact separate EIA legislation were ceased and EIA was integrated into the planning portfolio in November 1982 under the *Planning Act 1982* (Government of Australia 1989).³ It had finally been decided that legislative support for EIA was necessary, but the establishment of a separate EIA Act which could '*be imposed at will on any private development*' could result in '*potential conflict*' whereby a developer may be '*faced with uncertainty, delays and added costs*' (Hansard 10 June 1981: p4137). The integration of EIA with the planning system, which also occurred in New South Wales, was justified because it provided one single system of administration which simplified existing laws, streamlined and integrated planning and environmental decision-making, and provided flexible methods to regulate development (Hansard 10 June 1981: p4135). However, Hook (1985: p5) argued that one consequence of the direct link to development control rather than the environment protection system was '*...that EIA is seen only as a process to prevent environmentally undesirable development, rather than a process to advance an environmentally desirable future.*'

³ This approach was not adopted in all jurisdictions in Australia where, for example, Western Australia enshrined EIA requirements within pollution control legislation - the *Environmental Protection Act 1986*; whilst Victoria established separate EIA legislation under the *Environment Effects Act 1978*. In contrast, in New South Wales EIA was integrated into planning legislation under the *Environmental Planning and Assessment Act*.

The process of EIA under the Planning Act was contained in Section 49 (refer to Figure 5.2), and has been well described by Harvey and Ferguson (1994) and Harvey (1995). The process was essentially similar to the Cabinet procedure, although there were some changes relating to the triggering process, public involvement, assessment and decision-making. For instance:

- discretionary criteria were included to determine the need for an EIS (see evaluative control). The Governor also had the power to require an EIS under Section 50 in order to take control of either individual developments, general types of development, or development within specified areas (Harvey 1995);
- the time frame for public submissions on the draft EIS was extended from 28 days (from the earlier EIA handbook of 1978) to eight weeks;
- a mechanism to ‘officially recognise’ a complete EIS was included to signal the end of the EIA process; and
- the avenues of decision-making were broader with seven avenues of decision-making (refer Figure 5.2).

Section 7 of the Planning Act applied to crown development (*eg* development by the two case study organisations assessed in this research: Transport SA and ETSA), and although an EIS could also be called under this Section, any directions made by the then Minister of Environment and Planning (MEP) were not binding. Some Crown actions were also exempt such as the alteration, reconstruction and maintenance of roads, and the construction of transmission lines below 33kV (refer also Harvey and Ferguson 1994). Nonetheless, for larger projects, the South Australian Planning Commission (SAPC) could recommend an EIS, which could then be called in by the Minister for Environment and Planning. It was usually the case that the normal EIA process (as outlined under Section 49) was followed in practice by crown developers (Harvey and Ferguson 1994; Harvey 1995), and where an EIS was required, a report prepared by the SAPC was put before both Houses of Parliament (Harvey and Ferguson 1994).



*Minister means either the Minister of Environment and Planning or the Minister for Mines and Energy for mining proposals

Figure 5.2: Planning Act 1982 EIA process
(after Harvey 1995: p13) (italics denotes informal practice; not required by legislation)

EIA Reviews

Only two days after the proclamation of the Planning Act, there was a change of government and a review into the EIA process was instigated in 1983 (Hodgson 1996). At the time, the Minister responsible for the environment and planning portfolio (Hopgood) was quite senior and was also Deputy Premier in 1985, which is unusual given that this portfolio was often given to junior members with less power (Interview 71 1999). Unlike the 1970s where the government was focused on social and democratic reform (refer Appendix 5), the new government adopted a persona of economic responsibility, and the aim was to be '*good economic manager[s]*', to diminish the size of the public sector, and to once again entice new industries to the State (Donovan 1991). The government thus amended the EIA process to give the State government more control over development approval, by removing the decision-making powers of local councils for proposals involving EIA, and by reducing the formal public exhibition period on Draft EISs from eight to six weeks (PARC 1985; refer also Harvey 1995).

In September 1984 a second, more significant review of the EIA process was instigated which culminated in a White Paper (EIA Review Committee 1986; Morris 1987; Government of Australia 1989), but the recommended changes (see Appendix 6) were never adopted due to another change in government in 1989 and the instigation of yet another review into the planning system in 1990 (DEP June 1992).

The Development Act 1993

The 1990 planning review aimed to establish a more strategic approach to development, with greater coordination of different government interests, and a recognition of a community that was '*...increasingly well-informed, educated, articulate and vocal*' (DEP June 1992: p3). The planning system review culminated in a '2020' vision for South Australia (eg DEP 1991; DEP June 1992), a Planning Strategy (Department Premier and Cabinet January 1994a; 1994b), and new legislation including the *Environment Protection Act 1993*, and the *Development Act 1993*. The Development Act replaced the Planning Act and became operational from January 1994 following three versions of an earlier Development Bill (Harvey and Ferguson 1994; Hansard 10 March 1993; Hansard 30 March 1993). An illustration of the new 'integrated planning system' is presented in Figure (5.3).

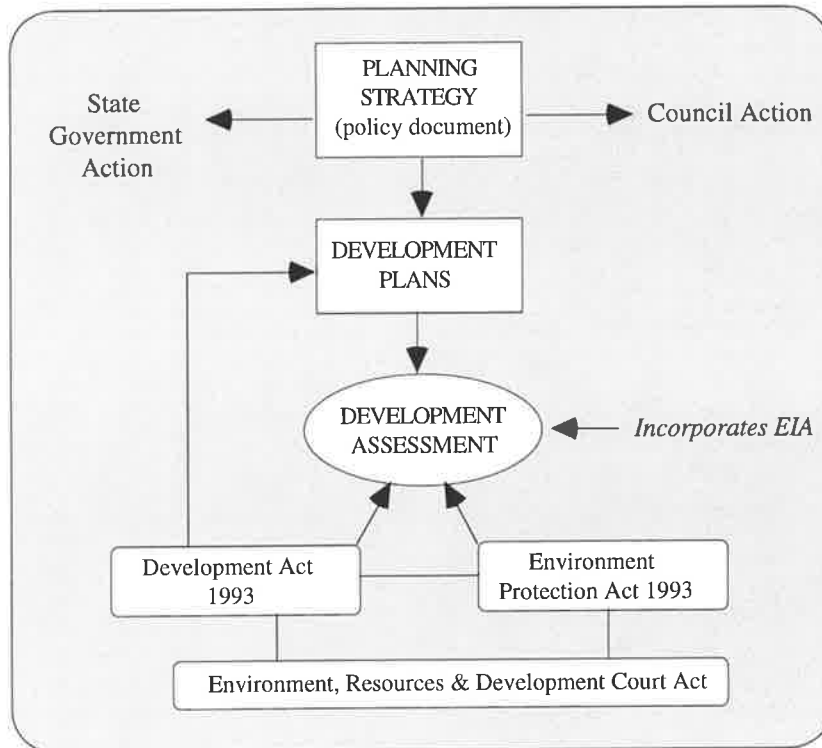


Figure 5.3: Integrated Planning System in South Australia
(modified from DHUD 1993: p4).

These major changes to the planning and environmental protection system were developed because of significant dissension about the existing process:

'planning authorities lacked the confidence to plan, developers lost the incentive to develop, and the broader community lost faith in the ability of the system to maintain and extend their physical environment...

The result has been an all pervasive perception that the South Australian community is incapable of supporting imaginative, value added development' (Crafter, Hansard 10 March 1993: p2433).

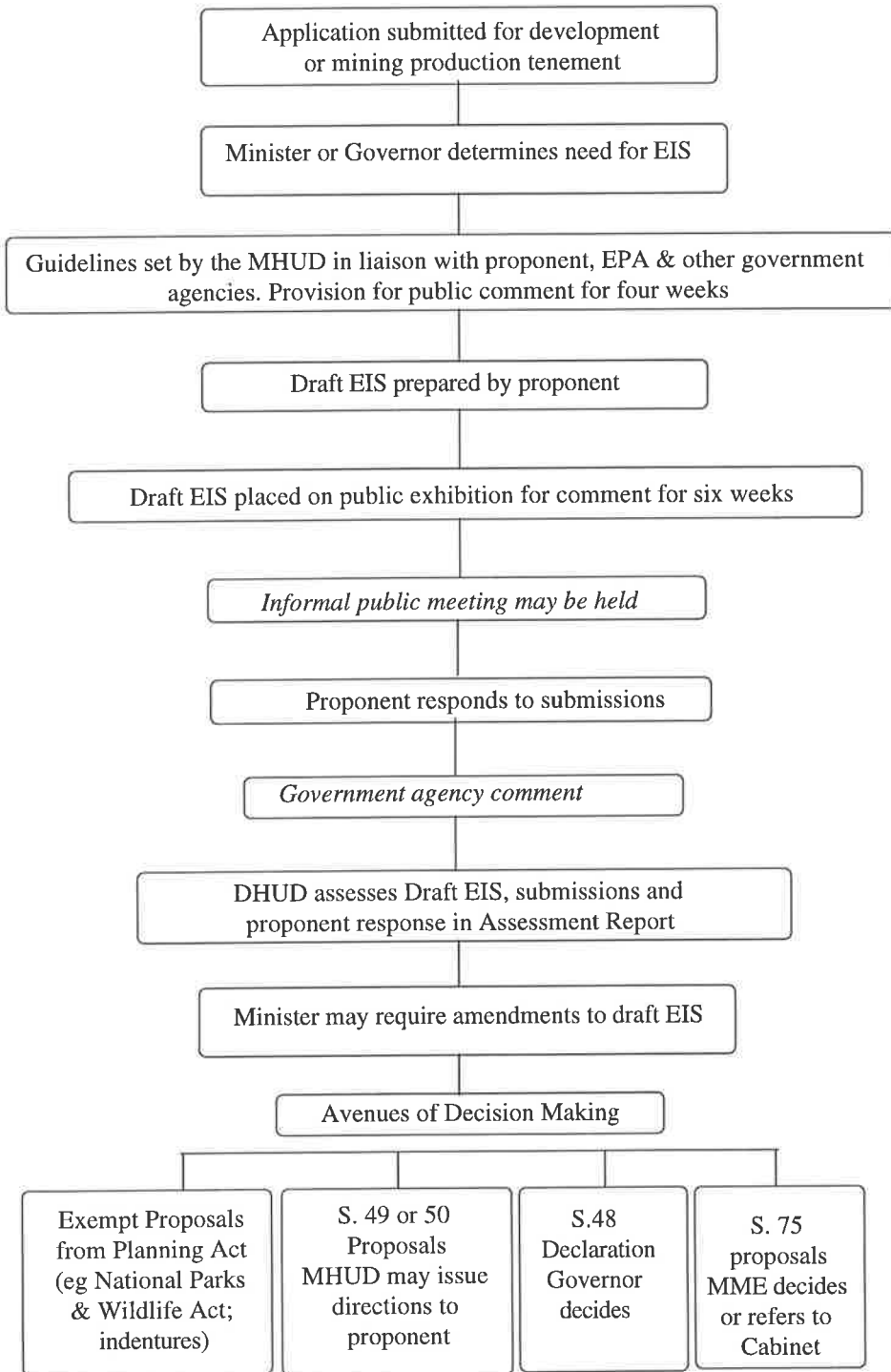
The Act was also developed in the context of a particularly unhealthy economic climate (Hansard 30 March 1993) which re-emphasised the need for increased development activity. Thus, according to the government, the Act aimed to '*free up some of the constraints on the development industry*', to provide greater certainty, simplicity, more efficient resolution of conflict and less *ad hoc* planning (Hansard 30 March 1993: p2709; p2720). Other likely influences on changes to the EIA process were the National Approach to EIA formulated in 1991 by the Australian and New Zealand Environment and Conservation Council (ANZECC) (ANZECC 1991), and the Intergovernmental Agreement on the Environment (1992) which outlined principles of environmental policy.

The EIA process under the Development Act (refer Figure 5.4) remained similar to the EIA process under the Planning Act, but with some changes in public accountability, EIS content, the government's assessment, and decision-making avenues. For instance:

- public accountability was increased with new mechanisms for public comment on the EIS guidelines for four weeks, and for public exhibition on any major amendments required in an EIS (Hansard 10 March 1993);
- formalised links were established with the environment portfolio with requirements that the guidelines and the draft EIS be referred to the newly established Environment Protection Authority (EPA) for projects of environmental significance (environmentally significant projects were listed in Schedules 21 and 22 of the Development Act);
- the requirement for 'official recognition' of the EIS was removed;
- the assessment report which had been previously been prepared informally was given legislative status;
- the basis for decision-making was expanded with closer ties to the planning system (see later section on evaluative control);
- the proponent, in preparing the EIS was also required to outline the consistency of their proposal with other planning and environmental requirements such as the Planning Strategy (see evaluative control);
- decision-making avenues were reduced to four compared to the previous seven under the Planning Act;⁴ and
- there was new legislative provision for an early refusal if the proposal was considered inappropriate at an early stage (Hansard 10 March 1993; Harvey 1995).

The approval process for Crown development was now encapsulated under Section 49 and it was still possible to trigger an EIS under this Section. Some of the actions proposed by Transport SA (then named the Department of Transport) and ETSA continued to be exempt (in areas similar to those noted earlier) except in areas of State heritage.

⁴ Section 49 replacing the original Section 7 for Crown Developments, Section 48 replacing the original Section 50/51 decision-making avenue (although the Governor could now delegate this role to the Development Assessment Commission), and Section 75 replacing the earlier Section 59 for decisions by the Minister for Mines and Energy.



MHUD=Minister of Housing and Urban Development;
 MME=Minister for Mines and Energy

Figure 5.4: Development Act 1993 EIA process (after Harvey 1995)

The Development Act Amendment 1996

Shortly after the enactment of the Development Act, the government once again decided to change the EIA process via a *Development (Review) Amendment Bill 1995*. This failed to be passed in the Legislative Council (Hansard 29 May 1996), and the proposed changes were subsequently revised and incorporated into the *Development (Major Development Assessment) Amendment Bill 1996*. The new EIA process (refer Figure 5.5), which came into operation in 1997, was substantially different to previous EIA procedures with the incorporation of three levels of assessment, comprising the 'Development Report' (DR), the 'Public Environment Report' (PER), and the 'Environmental Impact Statement' (EIS).⁵ The inclusion of different levels of assessment was significant given that PERs had been informally prepared in the past, but planning authorities were technically unable to have regard to them, and they were given less weight than an EIS (PARC 1985; Fookes 1986). Other changes under the Development Act Amendment included:

- modifications to the triggering process which was now the role of the Minister (responsible for the planning portfolio) (Governor declarations were removed);
- the creation of an 'independent' and multidisciplinary 'Major Developments Panel'(MDP) for determining the level of assessment and scoping process;
- the preparation and publication of an 'Issues' paper by the MDP for determining the scope of issues to be addressed and the appropriate level of EIA assessment (with public input);
- formalisation of the public meeting under legislation, which became mandatory for the EIS and PER, but not the DR;
- a protection from legal proceedings clause (refer later section on judicial control); and
- changes to public review periods, with comment periods on the EIS redefined as 30 *working* days, whilst comment periods on the PER were the same, and the DR comment period amounted to a minimum of 15 working days (Harvey 1998) (see also section on public-agency control).

Moreover, if an EIS was called for Crown development then the Crown approval process under Section 49 no longer applied (DHUD 1997a). This essentially increased accountability because the decision by the Governor then became binding. In 1999, the Development Act was again under review. A survey on the implementation of the Development Act was initiated and it was concluded that the system is 'one of the best in Australia', but that it was 'not realising its full potential' (Laidlaw 1999). Improvements were recommended for a better integration of decision-making (an improved 'one-stop shop'), increased focus on State Strategy and policy,

⁵This change was likely a result of recommendations from previous EIA reviews to incorporate a second level of assessment to cater for projects which did not justify an EIS, but were still more significant than proposals undergoing normal planning processes (Government of Australia 1989).

greater efficiency and accountability of Councils, improved rules and processes, and improved information and education (Laidlaw 1999).

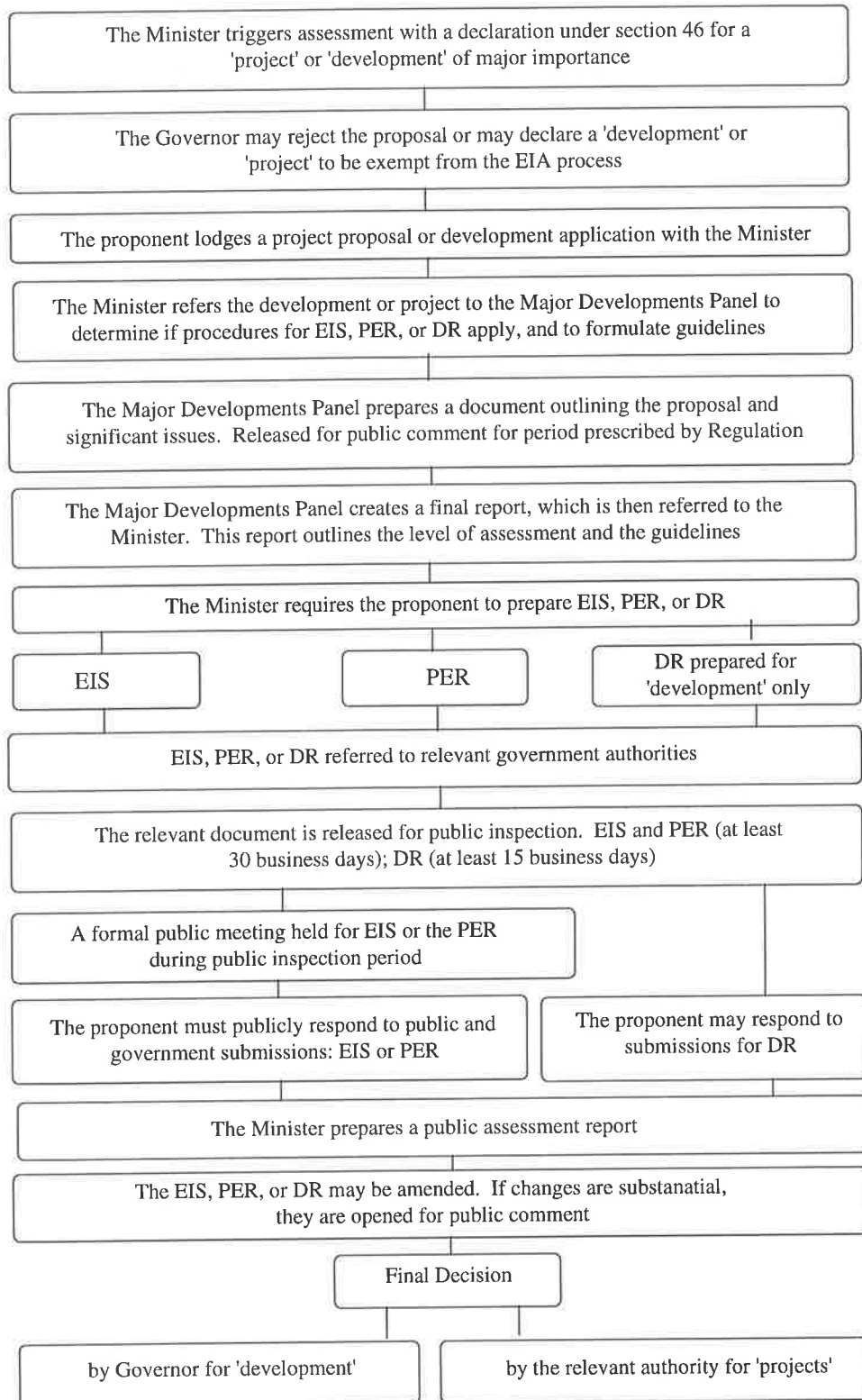


Figure 5.5: Development Act Amendment (1996) EIA Process
(modified slightly from Harvey 1998: p32)

5.1.4 Trends in Practice

Despite the extensive time and effort devoted to establishing a legislated EIA system in South Australia, the process has rarely been triggered in practice when compared to, for instance, the United States where thousands of EISs were produced. Only a very small proportion of developments undergo the full EIS process, and Harvey (1998) notes that only 60 EISs had been required between 1982 and 1994. Harvey (1993; 1995) provides a useful summary of projects which triggered the EIA process under the Planning Act 1982 in terms of proposal type, the proponent and consultant, timing of the process, public involvement, decision-making avenues and so on. Of the EISs required under the Planning Act (most of which were marina developments):

- 61% (n=37) were completed (other projects were abandoned due to public opposition, or due to changes in government policy: refer Harvey 1995);
- of the 37 EISs completed, 64% (n=24) of the projects were approved, 18% (n=7) were refused (but Harvey and Ferguson 1994 note that only 2 were effectively refused), whilst the others had not had decisions at the time of Harvey and Ferguson's research; and
- of those projects approved, only 54% (n=13) had commenced construction, which amounted to 21% of all EISs required.

Although some of the projects were still being assessed at the time of Harvey's research, and some were abandoned due to policy changes, it is perhaps for this reason (*ie* the low numbers of projects getting through to construction) that the government had become concerned about the delays involved with the EIA process and losses in development opportunity.

5.2 EVALUATION OF EIA IN SOUTH AUSTRALIA

Clearly, the development of EIA in South Australia has undergone considerable delay, debate and refinement since the EPC's first recommendation in 1973. The first legislative requirement for EIA under the Planning Act was '*canvassed to a fuller extent*' than in other Australian jurisdictions (Fowler 1982: p89), yet even with these extensive deliberations, the EIA system fails to meet some of the criteria of an 'ideal' system and there have been a number of criticisms of its operation (*eg* Fowler 1982; Hazell and Whyte 1985; Parkin and Patience 1992; Harvey 1995). The following evaluates the EIA system (including the Planning Act, Development Act and its Amendment) using the *system-evaluation framework* to determine how EIA compares with 'best practice', and the degree to which it has improved (or not) over time. It needs to be borne in mind throughout the evaluation, that most of the project case studies assessed later in this thesis triggered the EIA requirements under the Planning Act.

5.2.1 Legislative-Administrative Control

Performance in Legislative-Administrative Control is illustrated in Figure (5.6) and Table (5.2) which indicates a slight improvement over time with the best performance under the Development Act Amendment 1996 (eg 66% of criteria were 'fully addressed' compared to 50% under the Development Act 1993 and 41% under the Planning Act 1982). Strengths of all the Acts in legislative-administrative control included: the legal basis of EIA; the presence of a central administering body which is independent of the proponent; opportunities for the Minister for Environment and Planning (later the Minister responsible for the planning portfolio) to trigger EIA; and the broad definition of 'environment'. The following evaluates the system in terms of legislative-administrative control, including co-ordination with other systems, EIA objectives, and application and coverage of the process.

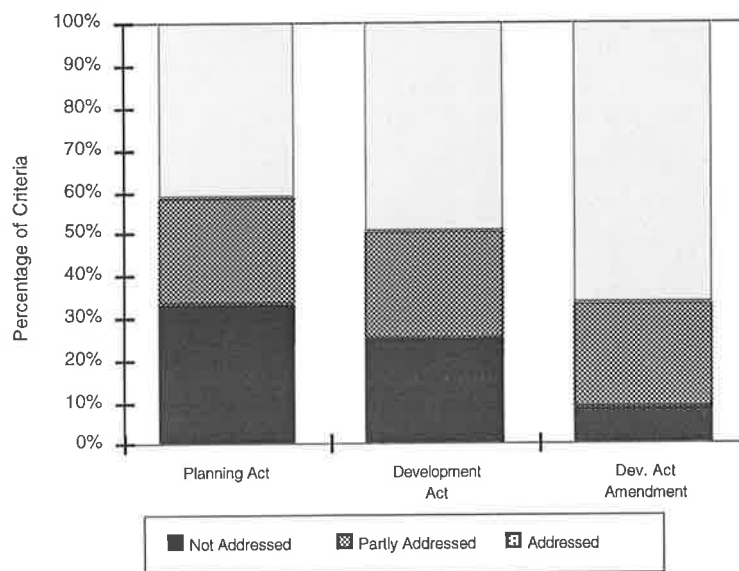


Figure 5.6: Performance in Legislative and Administrative Control

Table 5.2: Performance in Legislative and Administrative Control
(0=not addressed; 0.5=partly addressed; 1=fully addressed)

1. LEGISLATIVE & ADMINISTRATIVE CONTROL	Pl.Act	Dev. Act	Dev. Act Amend.
1.1 Is the EIA system based on legislative provisions?	1	1	1
1.2 Is there a central environmental/planning agency which oversees the process?	1	1	1
1.3 If there is a central agency, is it independent of the proponent?	1	1	1
1.4 If there is a central agency, is it set up to be independent from government?	0	0	0.5
1.5 Are there opportunities for the Minister for Environment or Planning to trigger or call in an EIA?	1	1	1
1.6 Is the EIA process/legislation co-ordinated with the land use planning system?	0.5	1	1
1.7 Is the process co-ordinated with the environment protection system?	0	0.5	0.5
1.8 Does the process have clear environmental objectives outlined in legislation or guidelines?	0.5	0.5	0.5
1.9 Is the 'environment' broadly defined to encapsulate social, biophysical, cultural and economic factors?	1	1	1
1.10 Does EIA apply equally to both private and public works?	0.5	0.5	1
1.11 Does the EIA system apply to programmes, plans and policies, as well as to projects?	0	0	0
1.12 Is the process flexible enough to include different levels of formal assessment which consider variations in the scale of proposals?	0	0	1

Administration & Coordination with Planning-Environment Systems

As suggested earlier, the issue of who or which department should have jurisdiction over EIA has been an issue of contention since the EPC's recommendations in the early 1970s (evaluation criterion 1.2). Prior to EIA's legislative requirements, EIA was administered by six environmental officers within the Environment Division of the Department of Environment and Conservation, with links to the planning portfolio (State Planning Office) contained within the same department (Hazell and Whyte 1985; Interview 70 1999). With the decision to move the Planning Office to the new Department of Housing and Urban Affairs in 1976, the links to planning were lost, but the issue was partly resolved with the subsequent amalgamation in 1981 of the two departments into the Department of Environment and Planning (DEP) (Whitaker 1981; Fowler 1982; Porter 1985; Fookes 1986; Miller 1988). This amalgamation was driven predominantly by problems in the EIA process associated with integrating environment and development, although isolation of each of these factors continued despite the amalgamation (Interview 70 1999).

Being part of a government department, the administering authority for EIA was not independent of government, but was independent from proponents which proposed actions for approval (evaluation criterion 1.3; 1.4). The administration of EIA essentially included activities such as proponent liaison and guidance on the EIA process, scoping of issues (and resulting EIS guidelines), guidance on and assessment of EIS quality (or Declaration of Environmental Factors: DEFs), and preparation of an Assessment Report outlining recommendations to the final decision-maker. In 1981, the number of environmental officers responsible for the EIA process had increased to twelve with disciplines of geology, chemical engineering, botany, ecology, sociology and geography, among others (Whitaker 1981). The Environment Protection Council (EPC) was also involved in reviewing EISs, but this practice stopped in the late 1980s because the EPC believed that this was more appropriately conducted by the relevant administering department (EPC 1989-1990).

The DEP was eventually divided and the environment and planning departments again became separate entities, both of which have undergone several different name changes. It has been suggested that *'when the Department was split up, it was just as if they'd got an axe and chopped it down the middle and whatever fell that way, went that way...and its never really been sorted out since'* (Interview 73 1999). In recent years, EIA was administered within the Department of Housing and Urban Development (DHUD) which later became part of the 'mega' Department of Transport, Urban Planning and the Arts (DTUPA). The number of officers to administer EIA gradually reduced to a very small environmental group within 'Planning SA' which was a division of DTUPA, and in the year 2000 there were only five environmental officers responsible for EIA compared to twelve in 1981.

However, as noted earlier, the links to the environment protection system were strengthened under the Development Act 1993 (*ie* with provisions for project referral to the Environment Protection Authority), and the issue of independence from government improved slightly (from a theoretical point of view), with the introduction of a 'Major Developments Panel' (MDP) under the Development Act amendment. The MDP was responsible for determining the levels of assessment and scoping the major issues in EIA, but has not escaped criticism in terms of delays (Interview 60 1999), bureaucratic duplication and potential lack of independence in practice (Hansard Reports, 3 July 1996: p1834). Duplication of expertise was also apparent given that, under the Development Act amendment, the administration of the process, assessment of EIS quality and the formulation of recommendations in an Assessment Report were roles which remained with the EIA Branch in DTUPA. Nonetheless, the EIA Branch was not 'independent' of government in a similar manner to the MDP.

Defining the Environment and EIA Objectives

None of the Acts which incorporate EIA in South Australia have included an explicit definition of the 'environment' (criterion 1.9), but the scope of the environment, including physical, biological, social and cultural factors, has been defined through statutory EIS contents and through guidelines (eg DEP 1987) (see also procedural control). More specific *objectives* of EIA have also been limited (criterion 1.8), being non-statutory and predominantly process-oriented (for example, consider environmental factors in the process, incorporate public participation). Unlike in the United States under NEPA, EIA in South Australia has always lacked an upfront and broad environmental policy to guide the EIA process, which may in part be related to EIA's integration into planning legislation as opposed to environment protection legislation or a stand-alone Act. Broad guidelines for the Planning Act simply stated that:

'The capacity of the physical, social and economic environment needs to be considered when making land use and development decisions. Environmental impact assessment procedures seek to ensure that any environmental impacts and constraints are identified early in the planning and design process and that the impacts on the environment are minimal' (DEP 1986: p18).

The specificity of goals improved slightly under the Development Act 1993, with greater emphasis on process-based goals, but this improvement was not sufficient to increase the grade to 'fully addressed'. Of particular note for all of the Acts is the lack of explicit reference to substantive and outcome-oriented concepts such as sustainable development, maximising environmental benefits, or preservation of particular aspects of the environment such as biodiversity. Clearer objectives for the EIA process were recommended by the earlier EIA Review Committee (1986: p19), but these recommendations do not appear to have been adopted (although some are subsumed into the broader guidelines).

Some idea about substantive goal expectations could be derived from other sources, but they have been fragmented and not always directly tied to the EIA process. For instance, specific objectives for EIA under the Development Act and its Amendment could be indirectly interpreted from criteria used to determine the need for an EIS, and from the State's Planning Strategy, Development Plans and Environment Protection Act, particularly given that decisions were required to be consistent with these policies. Moreover, in non-statutory guidelines, the process was becoming increasingly linked to principles of ecologically sustainable development (ESD), and the Intergovernmental Agreement on the Environment (IGAE) noted earlier (DHUD 1993: p1; Commonwealth of Australia 1992). This increasing clarity of objectives in the development control system was a strength, but participants must still refer to several sources for a list of upfront expectations. In this respect, the evaluation criterion regarding goals is only partially met under all of the Acts outlining EIA. This is also a weakness in evaluative control (see later discussion).

Application and Coverage

An effective EIA system should be one that encompasses all possible actions which may have a major deleterious effect on the environment, but in South Australia, the coverage of EIA has only been partially addressed under all of the Acts (evaluation criteria 1.10; 1.11). Harvey (1995) provides a detailed outline of EIA's coverage under the Planning Act, and notes that there were two levels of EIA: minor and major (although at the time there was no guidance as to what constituted a major or minor proposal).⁶ In the 'major' EIA process, which is the subject of this Chapter, the process did not equally cover private and public works (evaluation criteria 1.10). Public works were the focus of the earlier and less formal Cabinet agreement on EIA, but under the Planning Act, the focus turned to private works. As noted earlier, Crown developments were subject to a separate section of the Act, and although an EIS could be called under this Section, decisions were not binding and some actions were exempt from planning control. Goodall (1982) provides a useful summary of some of the arguments used against binding the Crown with planning laws. The 'public benefit' argument for instance, is often used:

'A major difference between public and private development is that the motive of private development is frankly commercial, whereas in the case of public development it will often be claimed that the public benefits of the development will more than offset any adverse planning or environmental effects' (Goodall 1982: p5).

Hart believed, in his review of the planning system, that it was inappropriate for the Crown to enforce itself (Goodall 1982). Similarly, Minister Wotton (the then Minister of Environment and Planning) believed that:

'Administrative and legal problems arise when legislation authorises one arm of Government to carry out a public work, yet other legislation gives another arm of the same Government a discretionary power to approve or refuse the work with rights of appeal to an administrative tribunal and the courts. It is difficult to prosecute the Crown (Hansard 19 June 1981: p4138).

However, under the latest Development Act Amendment, public works were more equally treated given that if an EIS was called, the discretionary Crown approval section no longer applied (DHUD 1997a) (refer also evaluative control).

The coverage of major-level EIA has also been limited in that it has not explicitly encapsulated policies, plans and programmes (*ie* Strategic Environmental Assessment) (refer also Hooks

⁶In minor proposals under the Planning Act, environmental factors were considered via the normal planning approval processes which were determined by local councils or the South Australian Planning Commission (SAPC) (Harvey 1995). The SAPC based their decision upon an 'informal' EIA prepared by the then Department of Environment and Planning (Harvey 1995). Under the Development Act, if a proposed action did not comply with the State's Development Plan, the proponent was required to prepare a 'Statement of Environmental Effects' which, among other things, outlined the social, economic and environmental effects of the proposed action (Development Regulation 17[4]).

1985; Harvey 1995) (evaluation criterion 1.11). EIA in South Australia essentially covers major 'developments' or 'projects' which are defined in Table (5.3). 'Development' and 'projects' could both be interpreted broadly in terms of a 'change in the use of land', or as an 'activity or circumstance', but these interpretations are restricted in theory and practice, and there is virtually no evidence of SEA under EIA legislation.⁷ Attempts to introduce a form of SEA under the Development Bill during the early 1990s were also unsuccessful. In this respect, a government Minister suggested that if development is in 'compliance' with the existing Development Plan, it should not undergo the EIA process. He argued that '*...if we get the policy right, if we get the development plan correct with community input first, Once we get that right,...and it is a permitted development, we should be able to proceed without an EIS*' (Hansard 30 March: p2714). More specifically the Minister recommended that two new subclauses be inserted whereby the Governor (under Clause 48) and:

'The Minister [under Clause 46] cannot require that a proponent prepare an environmental impact statement under subsection (2)(b) if the development is of a kind described as a complying development under the relevant Development Plan' (Hansard 31 March 1993: p2798)

In this respect, the need for a broader level of EIA such as Strategic Environmental Assessment (SEA) of Development Plans is clearly evident to ensure that environmental factors are considered at this higher level in getting the policy 'right'. While the recommendation to get the policy right in the first place was a good one, the recommended clauses were not adopted due to opposition from the government about the risks involved (Hansard 31 March 1993). This was perhaps fortunate given that Development Plans, no matter how well researched and designed, cannot possibly foresee every possible circumstance related to future development, and thus EISs should not in this case be automatically precluded.

The lack of provision for SEA in South Australia is notable given the increasing national recognition of the need for SEA,⁸ and given that it was recommended by the EIA Review Committee in the mid 1980s in South Australia (albeit not termed as such). However, the lack of SEA provisions is not unique to South Australia, and most jurisdictions of Australia have put SEA in the 'too hard basket' (with the possible exception of Western Australia). Hook (1985)

⁷ A possible exception to this lack of SEA is the EIS prepared for the Upper South East Salinity Management Plan which could be considered a programmatic EIS of options for reducing long term salinity problems (Whisson 1998). Moreover, *ad hoc* SEAs are sometimes performed outside of EIA requirements (see McCarthy 1995; Harvey 1998).

⁸ For instance, the 'National Strategy for Ecologically Sustainable Development' (NESD) has a number of guiding principles including 'a recognition of the environmental impacts of actions and policies at the global level. Similarly the 'National Approach to EIA' argues that EIA is best considered in the context of ESD, and suggests that project EIA 'works best in a policy context which is already environmentally friendly'; whilst the 'Intergovernmental Agreement on the Environment' which also embraces ESD, endorses a form of SEA under Section 3 which 'requires an integration of environment and economic issues into all levels of decision-making including the project, program and policy level'.

postulated that most western governments would be unlikely to allow a Minister of Environment a right of veto on all policies and programmes, which is a point similarly noted by Gibson (1993). Thus, Jenkins (1990: p2) holds that EIA '*is by design a reactive process in that an EIS is only required in reaction to a proposed development.*' Overall, the coverage of EIA in South Australia remains a weakness in terms of both public and private works and the inclusion of SEA, but has improved slightly by encapsulating smaller projects which may have escaped the EIA net in previous years. This was achieved with the introduction of the three levels of assessment noted earlier (*ie* the DR, PER, and the EIS) (criterion 1.12), although some have criticised this approach as a potential fast-tracking mechanism (see judicial and public control).

Table 5.3: Defining 'development' and 'projects' encapsulated by the Development Act 1993

DEVELOPMENT IS DEFINED AS:	PROJECTS ARE DEFINED AS:
(a) building work; or (b) change in the use of land; or (c) division of an allotment; or (d) construction or alteration (except by the Crown, a council or other public authority - but not to derogate from a State heritage place) of a road, street or thoroughfare on land (including excavation or other preliminary/associated work); or (e) in relation to a State heritage place - demolition, removal, conversion, alteration of, or addition to, the place, or any other work (except painting) that could materially affect the heritage value of a place; or (g) prescribed mining operations on land; or (h) an act or activity in relation to land (other than an act or activity that constitutes the continuation of an existing use of land declared to regulation to constitute development, (including development on or under water) but does not include an act or activity that is excluded by regulation from the ambit of this definition (DHUD 1997a).	an activity or circumstance that does not require approval under this Act (because it is not within the ambit of the definition of " development " under this Act), but that may require approval under another Act.

5.2.2 Judicial Control and Appeal Rights

Parnell (1996) distinguishes between *judicial review* which involves a review of the legal 'process' and whether or not it has adequately been complied with (*ie* the courts can only judge an action in terms of its compliance to the law such as whether decisions had 'regard' to an issue); and *appeals* which involve changes to the actual decision on a proposal which can be made by a separate appeals body (refer also ARC 1994). Unlike legislative-administrative control which has improved over the years, judicial control and provisions for appeal have weakened (although they were not strong to begin with). This decline in judicial and appeal rights tends to reflect the government's increasing emphasis on facilitating economic

development in the State and on increasing certainty for developers. Performance in Judicial Control (and appeals) is summarised in Table (5.4).

Table 5.4: Performance in Judicial Control and Appeals
(0=not addressed; 0.5=partly addressed; 1=fully addressed)

2. JUDICIAL CONTROL & APPEALS	Pl.Act	Dev. Act	Dev. Act Amend.
2.1 Are there mechanisms for court action regarding a breach of compliance to the EIA process (ie judicial review)?	1	1	0
2.2 Are there mechanisms for court action regarding the final decision (ie appeals)	0.5*	0	0
2.3 Is there provision for third party judicial review (ie broad 'standing' rights)?	0	1	0
2.4 Is there provision for third party appeals?	0.5	0	0
2.5 If provisions for court action/appeals are present, are there clear guidelines available about when the action is appropriate and the process involved?	0	n/a	n/a

*Not on decisions made by the Governor in EIA, only on decisions by the SAPC

Under the Planning Act 1982 a restricted form of judicial review could be triggered by local councils or the Planning Commission with provisions for civil enforcement proceedings (Section 36) in the event of a breach of compliance to the Act. A full grade was given because the provision appeared non-restrictive: '*Where a person contravenes or fails to comply with a provision of this Act, the Commission or a council may apply to a District Court for an order.*' (Section 36[1]). The Development Act had similar provisions, and it was noted in guidelines, that the failure of a Crown agency to comply with Ministerial approval could lead to court action (DHUD 1997a). This contrasts with earlier propositions that the Crown should be immune to such proceedings.

Despite the provisions for judicial review, these could not be instigated by third parties under the Planning Act (evaluation criterion 2.3), and unlike the Commonwealth government which had the *Administrative Decisions (Judicial Review) Act 1977*,⁹ there has been no similar legislation in South Australia. There may have been indirect provisions for a third party review of non-compliance via the Ombudsman's office, but the actual viability or practice of this does not appear to have been documented. Under the Development Act, however, there were broad standing rights for judicial review, and under Section 85(1) '*Any person may apply to the Court*

⁹However, these Commonwealth Acts have rarely if at all been triggered for EIA given the lack of jurisdiction over the EIA legislation (eg Hazell and Whyte 1985; ARC 1994).

for an order to remedy or restrain a breach of this Act or the repealed Act (whether or not any right of that person has been or may be infringed by or as a consequence of that breach'). The court was established under the *Environment, Resources and Development Court Act 1993*. According to Harvey (1995), however, the EIS process has never been directly challenged, although there have been court cases on related matters.

Appeals based on the merits of a decision were also possible under the Planning Act (Division IV), and the Planning Appeal Tribunal was able to overturn or reverse substantive decisions (Section 54).¹⁰ However, decisions on Crown developments under this earlier Act were not binding anyway, so appeals were not relevant, and under the subsequent Development Act 1993, there were no appeals against Ministerial decisions on Crown proposals. Judicial control and appeals have therefore not had a major influence on the impact of, and effectiveness of, EIA in South Australia, nor have they been a major player in triggering organisational change in Transport SA and ETSA (as was the case in the United States). These mechanisms are also unlikely to be significant in the future with the recent addition of Section (48E) to the Development Act Amendment entitled '*Protection from Proceedings*'. This section goes so far as to eliminate any possibility for proceedings against procedural compliance or the merits of a decision by stating that:

'No proceeding for judicial review or for a declaration, injunction, writ, order or other remedy may be brought to challenge or question-

- (1) a decision or determination of the Governor, the Minister or the Major Developments Panel under this Division; or
- (b) proceedings or procedures under this Division; or
- (c) an act, omission, matter or thing incidental or relating to the operation of this Division.

As noted earlier, if an EIS was called on a Crown development, the discretionary Crown process no longer applied and this 'protection from proceedings' came into play.

¹⁰Before going to full appeal, the process involved a 'conference of the parties' and if the issues were resolved, then full proceedings could be avoided (Section 27). Of particular interest is that appeals were available to third parties under Section 53 of the Planning Act which stated that, '*Where notice of an application has been given...any person who desires to do so may, in accordance with the regulations, make representations to the relevant planning authority in relation to the granting or refusal of the application*' (evaluation criterion 2.5). Bates (1992) holds that these statutory provisions bestowed individuals making representations with a 'special interest' in the proposal, and hence, standing to appeal. Fookes (1987a) similarly notes that individuals who had formally objected to the proposed action could appear before the Planning Commission. However, the subtleties in wording indicated that these rights for third party appeal were restricted, by only being available to those persons entitled to be given 'notice' of a development's authorisation. Third parties who were entitled to make an appeal were also not guaranteed access to a full hearing beyond the initial conference of parties (Hodgson 1996). The decision to proceed was at the discretion of the tribunal, and decisions by the Supreme Court and the MEP later restricted the continuance to a full hearing because it was believed that '*most appeals do not involve a matter of public importance*' (Hodgson 1996). Only 20% of third party appeals in 1985 went beyond the conference phase (Hodgson 1996), and there have apparently been no appeals for the EIA level of assessment. Appeals were also restricted in that they could not be instigated against decisions made by the Governor, which is a significant limitation given that the Governor was often the decision maker in EIA under Section 50-51 of the Planning Act, and for EIA under the Development Act (refer Harvey and Ferguson 1994; Harvey 1995). According to Hodgson (1996), the rights of third party appeals have increasingly been constrained since their introduction.

It has been argued that the South Australian government in the 1990s has had a '*paranoid attitude to development*', with a belief that the State is seen as a '*problem state for development*' in part because of a complex legal system and a '*meddling community*' (Parnell 1996; Kennedy 1995). Kennedy (1995) is cynical about the government's approach to fast-tracking which aims to overcome a '*development vacuum*' that stemmed from '*development debacles*' by the previous Labor Bannon government in the 1980s. Apparently, the Bannon government had been heavily influenced by a small group of '*rich, noisy and articulate Liberals*' triggered by the NIMBY (not in my backyard) syndrome, which effectively resulted in lost development opportunities which carried through until the late 1990s (Kennedy 1995). This 'development vacuum' and associated attitude is clearly reflected in the broad protection mechanism of Section 48E which affords the government significant discretion and flexibility when implementing the EIA process. According to one government employee, the government has been keen to get any development going - the 'cranes on the horizon' scenario (Interview 70 1999).

Not surprisingly, the 'protection from proceedings' mechanism, which is highly rare and unusual in legislation (Hansard 3 July 1996: p1834), has caused some controversy given that, even if the government 'blatantly disregards' the law, they cannot be challenged by the community (Parnell 1996). The reasons for this unusual protection mechanism is unclear given that Government decisions on major projects have rarely been challenged anyway (Hansard 3 July 1996: p1834; Parnell 1996). It appears to have been a precautionary approach because appeals can result in substantial delays on projects to the extent that a window of opportunity is lost and the proposal becomes economically nonviable (Interview 73 1999). According to a government Minister:

[the Bill] ...will undoubtedly be of tremendous benefit to development in South Australia and one about which developers and investors will say, "Right; South Australia is a place where we can now look seriously at investment and development, because the processes now in place will give us a degree of certainty. At least we will now know quickly whether or not we will be able to proceed with a development. Also, they will know, particularly in the case of major developments, that, once the decision is made, the decision itself will not be subject to appeal, and this therefore gives them a considerable degree of certainty' (Hansard 1 August 1996: p2262).

The original intentions of EIA appeared to be becoming defunct in the midst of promoting development. The EIA process in this respect can technically be used to promote development via a fast-track approval process (eg triggered as a project of major 'economic' significance under the existing criteria for triggering EIA). The traditional proponent view that EIA is a costly hurdle, may be a thing of the past in South Australia because it is now possible that small developments, which previously may not have constituted 'major' development, can trigger the EIA process at the lowest level of assessment (DR) to take advantage of these protection from proceedings (Parnell 1996). Although it is too soon to evaluate practice in this respect, there

have been indications of trends in this direction. For example, the recent and major proposal to construct Pelican Point Power Station avoided the formal EIA process altogether, but it was originally noted by Liberal Premier Olsen (in a document leaked to the opposition) that '*[g]iven the size and importance of the project, the major project provisions of State legislation would appear to be applicable and could be used to fast track planning approvals if necessary*' (Hansard, Parliament of South Australia, 26 May 1999: p1396). 'Major projects' refers to the Section outlining the EIA process, although no reference was made to this point.

In another example, a television report in 1999 (Channel Nine News, 18 December 1999) revealed that a private developer had requested the government to declare their project, which involved the construction of lighting towers at Adelaide oval, a major development in order to avoid legal action which had been threatened by community members. If granted, the influence of community members would be restricted to formal public submissions on the environmental assessment document. It was also interesting that the media report on this project, although referring to the 'major development' provision under the Development Act, failed to mention that it was in fact the trigger for the EIA process, which tends to highlight the changing focus of this Section of the Act. In other words, the 'Major Projects' section is increasingly being equated to a fast-track process rather than an EIA process.

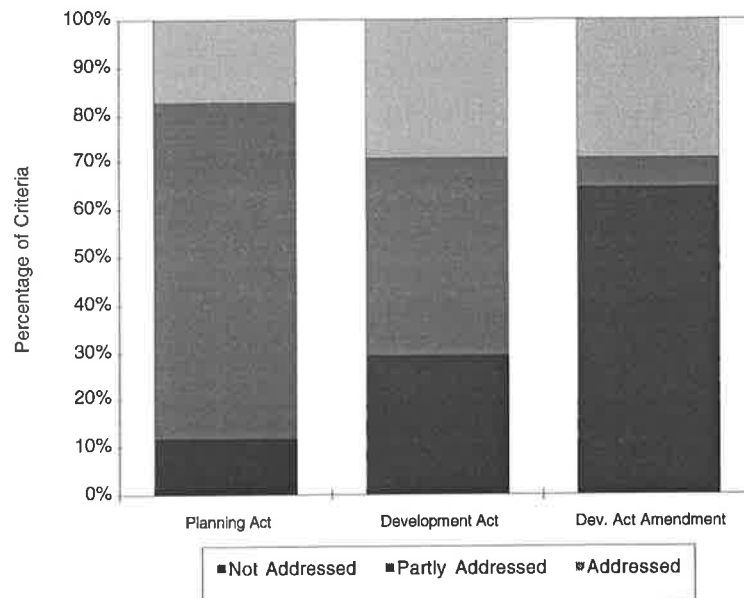
5.2.3 Procedural Control

The 'procedural control' evaluation dimension focuses on the presence of detailed procedures for EIA (in law and/or guidelines), and on the proponent's role in the process via the EIS (whereas other factors in the process are addressed in separate dimensions such as public control or evaluative control). Performance in procedural control is illustrated in Figure (5.7) and Table (5.5) which indicates that the number of criteria 'fully addressed' was low for all of the Acts, but that performance was better overall under the Planning Act which had the least number of criteria 'not addressed' (11% compared to 29% for the Development Act and 64% for the Development Act Amendment).

Consistent strengths in this dimension included: clear procedural steps for EIA outlined in law; statutory contents outlined for the EIS; statutory requirement for scoping and project-specific guidelines (except under the Planning Act); statutory requirements to consider direct effects; and statutory requirement for mitigation measures to be outlined. South Australia, unlike other States such as Victoria,¹¹ has relatively detailed EIA procedures outlined in legislation which means that they are mandatory, enforceable (except for the protection from proceedings under the Development Act Amendment), and thus provide increased certainty to developers and the public alike (criterion 3.1). The only exception in South Australia was the earlier Planning Act

¹¹Victoria's procedural detail is outlined in non-statutory guidelines and the Act itself is very short.

where procedural detail in the legislation was less than that evident in the more recent Development Act and its Amendment, and there was a greater reliance on non-statutory guidelines (eg the government's Assessment Report had no statutory basis, hence the grade of 0.5).



**Figure 5.7: Performance in Procedural Control
(with a focus on EIS content)**

The EIS content requirements, although required in law, also provided minimal detail and this did not change under subsequent Acts. Appendix (7) summarises the content requirements for EISs under each of the Acts. Nonetheless, the statutory procedural steps and EIS content requirements have also been supplemented with very detailed non-statutory guidelines and/or procedural manuals, particularly for the Planning Act.¹² Scoping of issues for the EIS content was also a legal strength under both the Development Act and its Amendment (criterion 3.3), and although there was no explicit and statutory requirement for scoping under the Planning Act, there was statutory provision for the Minister to require additional information (hence the grade of 0.5). Fookes (1987) also noted that scoping occurred in practice.

¹²For example, the Procedures Manual (DEP 1987) for the Planning Act, the 'Generic Guidelines for EISs' outlined by the DEP which appear to have been active for both the Planning Act and the Development Act, and the 'Guide to the Assessment of Major Developments or Projects' (DHUD 1997b) for the Development Act Amendment.

Table 5.5: Performance in Procedural Control
(0=not addressed; 0.5=partly addressed; 1=fully addressed)

3. PROCEDURAL CONTROL	Pl.Act	Dev. Act	Dev. Act Amend.
3.1 Are clear steps of the EIA procedure outlined in legislation (or less mandatory guidelines)?	0.5	1	1
3.2 Are there prescribed generic contents for the EIS?	1	1	1
3.3 Must scoping occur resulting in project-specific guidelines?	0.5	1	1
3.4 Must the proponent outline the need for the proposal?	0.5	0.5	0
3.5 Must means of financing the project be detailed or guaranteed?	0.5	0.5	0
3.6 Must the existing environment be described?	0.5	0.5	0.5
3.7 Must the proponent consider alternative actions in the EIA process?	0.5	0.5	0
3.8 Must the proponent outline the direct effects of the action?	1	1	1
3.9 Must the proponent consider cumulative effects?	0.5	0	0
3.10 Must the proponent consider the irreversible nature of impacts?	0.5	0	0
3.11 Must the proponent consider indirect effects?	0.5	0.5	0
3.12 Must the proponent evaluate the relative 'significance' of impacts?	0	0	0
3.13 Must the proponent describe any public involvement in draft EIS preparation (or equivalent)?	0.5	0.5	0
3.14 Must the proponent outline mitigation and management measures?	1	1	1
3.15 Must the proponent define the effectiveness of any mitigation or management measures (<i>ie</i> note residual impacts)?	0.5	0	0
3.16 Must the proponent stipulate monitoring measures, and details of implementation and contingencies?	0.5	0.5	0

Performance tended to fluctuate between the Acts for the remaining criteria, and most were 'partially addressed' under the Planning Act because the requirements were outlined in the Procedural Manual and/or the generic contents for the EIS rather than in law. There were, however, no requirements either in the law or in procedures which required proponents to consider the significance of impacts (criterion 3.12). Moreover, in practice, proponent treatment of many of the guideline requirements have been inadequate in practice, partly because proponents have aimed to present the proposal in the 'most favourable light' (Fookes 1987a: p207). Performance in procedural requirements was similar under the Development Act, but there was also no requirement for the proponent to consider cumulative effects (criterion 3.9), the irreversible nature of impacts (criterion 3.10), or the effectiveness of mitigation measures. By contrast, the Development Act Amendment addressed very few of the EIS-related criteria in

the *system-evaluation framework*, despite the presence of detailed guidelines on the EIA process. Issues not addressed included explicit requirements for the proponent to outline:

- proposal need;
- costs and financing of the project;
- alternative actions;
- cumulative effects;
- the irreversible nature of impacts;
- indirect effects;
- the relative significance of impacts;
- a description of public involvement during draft EIS preparation;
- effectiveness of mitigation; and
- monitoring measures.

This poor performance is interesting given that in the other controls (such as public control, legislative control, evaluative control), performance has tended to improve under the most recent Development Act Amendment. The omissions of these requirements does not, however, mean that the criteria were not required in practice, and in fact, many of these aspects are explicit requirements for the Major Developments Panel to consider when determining the level of assessment (refer also evaluative control), and are also probably required in the project-specific guidelines (*ie* the scoping stage). Thus, this performance, rather than indicating weaknesses in procedural control, only means that the requirements are not transparently outlined in general guidelines or in law. This is not accounted for in the evaluation framework because project-specific guideline requirements are not evaluated (only generic guidelines).

5.2.4 Public-Agency Control

The provisions for public involvement in South Australia's EIA system have been frequently criticised, particularly in terms of the lack of follow-through on public submissions made on draft EISs and at the final decision stage (*eg* Hazell and Whyte 1985; Hook 1986; Fookes 1987a; Miller 1988; Parkin and Patience 1992). Parkin and Patience (1992) in particular note that the final decision-making stage is 'shrouded in secrecy' and it has been rare for the rationale for decisions to be made public, whilst Fookes (1987) criticised the process for only allowing one opportunity for formal public input via comments on the draft EIS. Similarly, Fowler has stated:

'...public comment would seem to be a formality in relation to review of the draft EIS. The real emphasis is placed upon the examination of the EIS by the Department of Environment and Planning... This means that review is essentially a closed, bureaucratic process, rather than a public, open procedure' (1983 in Hazell and Whyte 1985: p69).

The process of public involvement has improved slightly over time (refer Figure 5.8 and Table (5.6), but there are still limitations under the most recent Act. In particular, only 50% of criteria were 'fully addressed' under both the Development Act and its Amendment compared to 25% under the Planning Act. Nonetheless, the visible and formal improvements to public control contrast with experiences in other Australian States such as Victoria, where public involvement opportunities have been reduced in the planning and EIA system. Conacher and Conacher (2000) ask 'is public participation being dismantled?', and note that the '*general effect* [in Victoria for instance] *has been a dilution or neutralising of the Acts' powers as development and planning proposals are increasingly removed from public scrutiny, judicial review or merits appeal*' (Conacher and Conacher 2000: p285). While public participation mechanisms have been improved at the surface level in South Australia, there are some significant limitations which are noted below.

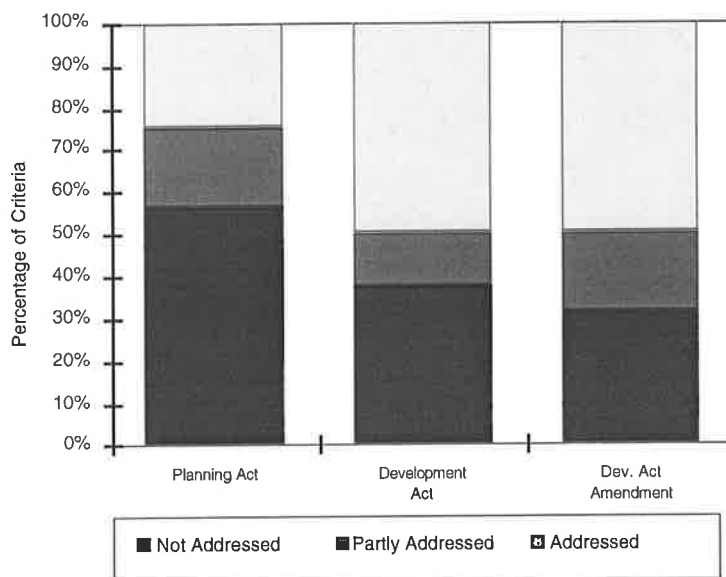


Figure 5.8: Performance in Public-Agency Control

Table 5.6: Performance in Public-Agency Control
(0=not addressed; 0.5=partly addressed; 1=fully addressed)

4. PUBLIC AND AGENCY CONTROL	Pl.Act	Dev. Act	Dev. Act Amend.
4.1 Are the requirements for public involvement transparent and certain?	1	1	1
Are there mechanisms for public and government input into:			
4.2 referring proposals for the Minister to consider in triggering the EIA process?	0	0	0
4.3 determining the levels of assessment?	0	0	1
4.4 the scoping process when formulating guidelines (or equivalent)?	0	1	1
4.5 during draft EIS preparation (or equivalent)?	0.5	0.5	0
4.6 upon release of the draft EIS (or equivalent)?	1	1	1
4.7 public meeting/hearing?	0	0.5	0.5
4.8 the Government Assessment Report (where prepared)?	0	0	0
4.9 Is there provision for the proponent to respond to public and government comments?	1	1	0.5
4.10 Are there provisions for the public to comment on the proponent's response if it is inadequate or misinterprets public submissions?	0	0	0
Is there a requirement for the following documents to be published?			
4.11 Guidelines for EIA process (or equivalent)?	0	1	1
4.12 Draft EIS (or equivalent)	0.5	1	1
4.13 Final EIS (where relevant)?	1	1	1
4.14 Government Assessment Report (or equivalent)?	0.5	1	1
4.15 Decision (including a justification of the decision and how the EIA influenced it relative to other factors)?	0	0	0.5
4.16 Monitoring and compliance reports (where prepared)?	0	0	0

Under all of the Acts, the provisions for public input have been transparent, certain and the time-frames explicitly noted, albeit with limited periods for review in some cases. There was, however, less certainty during the early years of the Planning Act, where for instance, the proponent's response to public submissions on a draft EIS was discretionary, but following the 1985 amendments to the Planning Act, the proponent's response became mandatory. There were also a number of other similarities (both strengths and weaknesses) under all of the Acts and EIA guidelines/procedures as follows:

Strengths:

- there have been implicit requirements in guidelines for public involvement *during* EIS preparation to be instigated by the proponent for both the Planning Act and the Development

Act. The guidelines which implicitly required this did not appear to remain applicable to the later Development Act Amendment (criterion 4.5);

- the draft EIS has always been publicly available, with formal provisions for public input via written submissions. However, guidelines (DEP 1986; 1987) under the Planning Act specified that parts of the draft EIS could remain confidential to protect the interests of the proponent (hence the grade of 0.5). This may have also been the case for the subsequent Acts, but it was not explicitly noted (hence the grade of 1) (evaluation criteria 4.6; 4.12);
- there has always been provision for publication of the final EIS, except prior to the 1985 amendments (*ie* the proponent's response to the public submissions) (criterion 4.13);
- there has always been provision for publication of the government's Assessment Report, although under the Planning Act this report lacked legislative status (hence the grade of 0.5) (criterion 4.14);

Weaknesses:

- there have been no provisions for third parties to refer proposals for consideration by the Minister in triggering the EIA process (criterion 4.2);
- there have been no opportunities for the public to comment on the proponent response to their submissions (particularly if the proponent's response was inadequate or has misinterpreted public comments) (criterion 4.10);
- there have been no opportunities for public input into the government's Assessment Report (criterion 4.8);
- there have been no requirements for the decision-maker to justify their decision to the public; and
- there have been no provisions for public access to monitoring reports (where prepared) (criterion 4.16).

However, the amendment of the Development Act aimed to establish increased safeguards and representation of the public in the development process (Hansard 1 August 1996: p2262). These public and agency involvement improvements included:

- new mechanisms allowing public input into determining the level of assessment under the Development Act Amendment (criterion 4.3);
- requirements for referral of proposals of environmental significance to the EPA;
- formalised public input via submissions into the scoping process under both the Development Act and its Amendment (criterion 4.4);
- the formalisation of the public meeting under law in the Development Act Amendment (for the PER and EIS) where previously they had been informal (criterion 4.7); and
- the requirement for the decision to be published in the Government Gazette under the Development Act Amendment (criterion 4.15).

Despite the improvements under the Development Act Amendment, some were not graded at the full score because they did not cover all levels of assessment. The formalisation of the public meeting for instance, only applied to the PER and EIS and not the Development Report (DR) level of assessment, and a proponent response to public submissions was also only required for the PER and EIS. There have also been criticisms of the inadequate period for comment in South Australia (Interview 60 1999).

In light of these limitations, it is interesting to compare the consultation provisions for the lowest DR level of assessment in EIA with normal planning approval processes (*ie* those that do not trigger the formal EIA process under the 'major development' Division), because it appears that for some types of less significant developments, there have actually been greater opportunities for public input. Under the Development Act's normal development control processes there were three categories of development, each with different public input requirements (category 1 had minimal requirements). These are summarised in Table (5.7) and compared with the DR process.

Table 5.7: Comparison of consultation rights for normal planning processes with the DR level of assessment

NORMAL PLANNING (CATEGORY 2 & 3)	EIA PROCESS (DR LEVEL)
For Category 2 type developments, the public which are adjacent owners or occupiers to a proposed action must be notified of a proposed action undergoing the approval process. This direct notification is also the case for Category 3 developments, but in addition, the general public must also be notified (Section 38[4;5])	These categories do not appear to apply in the EIA process and it appears that notification is usually via the general media rather than direct notification to adjacent owner-occupiers
Any persons notified of the proposed action have ten days to make a submission (Regulation 35)	This is compared to 15 days for the Development Report under the EIA process
There is also provision for the proponent of the proposed development to respond to the public submissions for category 2 and 3 developments (Section 38[8])	The proponent response for the DR in the EIA process is not mandatory, unlike for the EIS and PER levels
Individuals making a submission also have the opportunity to make a representation at a hearing on the proposed action (Section 38[10]) (this is discretionary for Category 2 developments, but a mandatory right for Category 3 developments)	Again, there is no such right at the DR level of assessment in the EIA process. However, at the higher PER and EIS levels, those people who made a written submission are notified of public meetings;
Individuals who made representations at a hearing for category 3 developments also have the right to appeal the decision (Section 38[12]).	As noted earlier, there are no appeal rights under the EIA process
Any person who made a representation are also directly notified of the final decision (Section 38[12])	This is not the case in the EIA process and the decision is only published in the Government Gazette

The distinction between normal planning processes (and what Harvey 1995 would term as 'minor' EIA) and major EIA at the DR level is somewhat ambiguous in terms of consultation rights. There are differences, of course, which distinguish the DR from the normal planning process,¹³ but one may still wonder whether or not the DR in the EIA process is in fact a fast-track mechanism (as suggested earlier under judicial control), given the lack of mandatory public meeting, lack of mandatory proponent response to submissions, and lack of follow-through and appeal rights, all of which are available to normal planning processes (for certain types of development).

5.2.5 Evaluative Control

Performance in Evaluative control is illustrated in Figure (5.9) and Table (5.8) which indicates a slight improvement in the Development Act Amendment relative to the previous two Acts. Under the Planning Act, 40% of criteria were 'fully addressed' compared to 60% under the Development Act, and 66% under the Development Act Amendment.

Triggering EIA

Criteria 5.1-5.3 refer to the screening and triggering process in EIA (*ie* the decision about when it is appropriate to apply the EIA process to a proposed action) which has been a weakness in the EIA system. In some jurisdictions such as New South Wales in Australia and in Thailand, the decision to apply the EIA process is clearcut with a list of projects which automatically trigger the EIA process (*eg* refer Tongcumpou and Harvey 1994) (criterion 5.1), whereas jurisdictions such as Canada have a list of projects that are '*likely to have significant adverse environmental effects*' (Gibson 1993: p16). In South Australia, the criteria to guide the triggering process have been highly ambiguous and discretionary. Under the Planning Act, the decision to trigger EIA could be made where the Minister for Environment and Planning or the Governor believed that the proposal was '*of major social, economic or environmental importance*' (Section 49[1] and Section 50). Similar criteria were also present in the subsequent Acts (although the Governor declaration was later removed).

With such broad terminology the decision to trigger EIA has been a subjective one, but thirteen non-statutory criteria to guide this decision were outlined in the Planning Act's Procedures Manual (DEP 1987) (hence the grade of 0.5). These criteria are summarised in Appendix (8), and related to the way in which the proposed action affected communities, ecosystems,

¹³The DR has greater transparency and a greater amount of information required (*ie* formal public input into the scoping process, the more explicit and extensive referral mechanisms to the EPA [and other bodies], the more comprehensive requirements for the DR's contents [relative to a Statement of Effects], the government Assessment Report, and the Governor as decision-making authority).

cumulative effects, and the long-term effects on the environment among others. Statutory criteria for triggering EIA were also outlined in Regulations for the Development Act and its Amendment, and were increasingly detailed and focused on issues of 'significance' relative to previous Acts (hence the grade of 1) (refer Appendix 8). They were based predominantly on criteria prepared by the Australian and New Zealand Environment and Conservation Council in 1993 and updated in 1996 (ANZECC 1996).

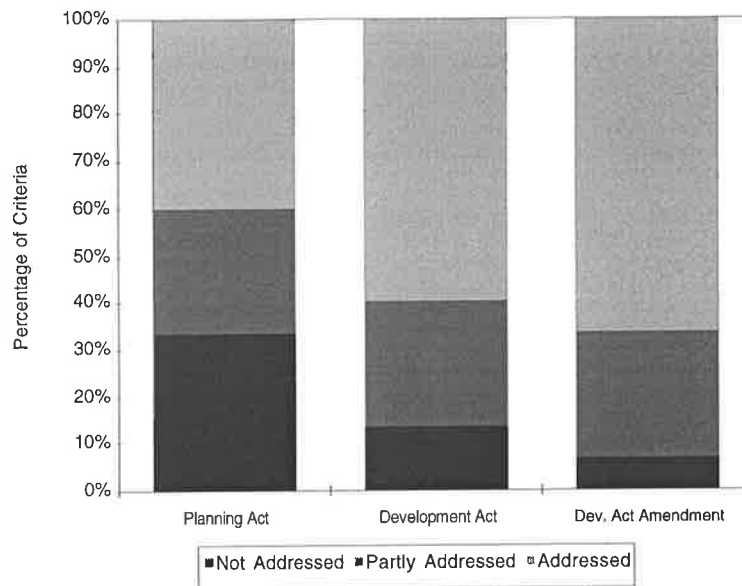


Figure 5.9: Performance in Evaluative Control

The decision to trigger EIA has also not been within the realms of an 'independent' authority, thus opening it up to further political manipulation (criterion 5.3). This did improve slightly with the creation of the Major Developments (MDP) Panel which was responsible for determining the level of assessment (with public input), but it was still the responsibility of the Minister (in the planning portfolio) to trigger the EIA section in the first place. Nonetheless, given the potential for the DR (the lowest level of assessment) to be used as a fast-track mechanism, it is a strength of the EIA system that the level of assessment is determined by an independent authority. The DR was triggered, for instance, if a proposal involved only minor issues which were generally considered manageable, were well understood, and were of only local or limited public interest; whereas the EIS was triggered if a proposal involved major impacts, loss of economic opportunities, less certainty, lack of existing control by legislation, and a need for extensive public involvement. However, given the lack of judicial review

provisions, decisions to require (or not to require) an EIS could not be challenged (DHUD 1997a).

Table 5.8: Performance in Evaluative Control
(0=not addressed; 0.5=partly addressed; 1=fully addressed)

5. EVALUATIVE CONTROL	Pl.Act	Dev. Act	Dev. Act Amend.
5.1 Is there a list of actions which automatically trigger the EIA process?	0	0	0
5.2 Are there clear criteria for determining the need for EIA (if the decision is discretionary)?	0.5	1	1
5.3 Is the triggering process controlled by an independent authority?	0	0	0.5
5.4 Is there an explicit mechanism which postpones the decision until the EIA process has been completed (unless criterion 5.5 applies)?	1	1	1
5.5 Is there provision for an early refusal so that the EIA process is not undertaken unnecessarily?	0	1	1
5.6 Is there provision for a reviewing unit and/or Minister to request further Information and/or amendment of the EIS?	1	1	1
5.7 Are there mechanisms which enable a reviewing unit and/or Minister to prevent the use of inadequate EISs in the final decision?	1	0.5	0.5
5.8 If EISs are centrally reviewed, is there a clear outline of the criteria to be considered in the evaluation of the EIS quality?	0.5	1	1
5.9 Is there provision for the reviewing unit to make recommendations to the decision-maker regarding the decision and conditions?	0.5	1	1
5.10 Is there clear guidance on the factors to be considered in the final decision which identifies priority areas and outlines impact acceptability?	0	0.5	0.5
5.11 Must the findings of the EIA be central considerations in the final decision?	0.5	0.5	0.5
5.12 Can the final decision involve refusal and the attachment of conditions on the proposed action?	1	1	1
5.13 For private sector proposals, is the final decision resulting from the EIA process made externally and is it binding on the proponent (or advisory)?	1	1	1
5.14 For public sector proposals (ie crown development), is the final decision made externally and is it binding on the proponent (or advisory)?	0	0.5	1
5.15 Can decisions and conditions be formally enforced by penalties/sanctions if the proponent fails to comply?	1	1	1

EIA could also be avoided by enacting special legislation such as the *Golden Grove (Indenture ratification) Act 1984* which exempted decision-making from the EIA process (Bates 1986; Fookes 1986). According to Bates (1986: p190) 'it can be said that in South Australia, the indenture technique has become a virtual tradition with respect to the undertaking of major

development...'. It is unclear why this special legislation has been necessary given that the triggering process for EIA was highly discretionary anyway, and there have been examples of projects which have escaped the EIA 'net' without such special legislation (*eg* the Pelican Point Power Station noted earlier).

It is also somewhat strange that the Development Act does in fact list activities which are considered to be of 'environmental significance' or of 'major environmental significance' (Schedules 21 and 22), yet these lists of significant projects do not automatically trigger the EIA process (they only require that the EIS be referred to the EPA and have consideration for the Environment Protection Act). This is despite the fact that the EIA process is reserved for projects of environmental significance (and economic and social significance). Again, however, the decision rested with the Minister who only had to be 'of the opinion' that an activity was of 'major environmental importance', and this opinion may differ to the statutory list of environmentally significant projects.

Enforcing EIS Quality

Criteria 5.6-5.8 relate to the process of reviewing and enforcing EIS quality. There has been no explicit statutory mechanism for review of EIS quality, but it has been implied by statutory provisions for the Minister to request further information and for the proponent to amend the draft EIS (criterion 5.6), and this has been undertaken in practice (*eg* DEP 1987). Criteria for reviewing the quality of EISs (criterion 5.8) have not been described as such, but were indirectly present under each of the Acts via the statutory mechanisms outlining the contents of EISs, the non-statutory and generic EIS contents for the Planning Act and Development Act, and the criteria outlined in project-specific guidelines. Although there may be criteria to review an EIS and provisions to request further information, mechanisms to enforce the improvements to EIS quality are sometimes lacking in EIA (*eg* refer Wood 1995). In South Australia's case, however, there have been a number of mechanisms to enforce compliance, but usually via more indirect avenues rather than explicit statements in law. For instance:

- under the Planning Act, the EIA process was not complete until the EIS was 'officially recognised' (and hence a decision could not be made). Thus, the Minister in making this decision could hold out until the proponent complied with requests for improvements in the EIS. Section 49(3) stated: '*The Minister shall ... determine what (if any) amendments should be made to the environmental impact statement and, **after** those amendments have been made, signify by notice to the proponent that the statement is officially recognised*' (highlight added). This official recognition mechanism was removed under later Acts;
- under the Development Act and its Amendment, a decision could not be made by law until an Assessment Report had been prepared including the recommendations outlined by the

Minister and/or reviewing unit (criterion 5.9). Thus, the Minister and/or administering authority could delay the production of this Assessment Report until the proponent had complied with requests for further information and improvements to EIS quality;

- under all of the Acts, EIS quality could also be indirectly enforced by the Minister by delaying mandatory public advertisements which notify the public of the EIS's availability and which invite the public to comment (for example, Section 49[2] under the Planning Act; Section 46[6] under the Development Act) (this was also a check noted by Wood 1995 in stopping EISs from being prematurely released).

It should, however, be noted that the EIA Branch could not in practice prevent the release of an inadequate EIS (Interview 59 1999), but the influence of the EIA Branch on EIS quality was considered 'reasonable', and most proponents have been responsive and adopted their advice despite some opposition to it (Interview 59 1999; Interview 60 1999).

Decision-Making

The remaining criteria in evaluative control relate to decision-making. Performance which was consistent and positive in all of the Acts was:

- the postponement of a decision until an EIS (or other level of assessment) had been prepared (criterion 5.4);¹⁴
- provisions for both refusal and the attachment of conditions to a final decision (criterion 5.12);
- mechanisms to formally enforce compliance to the decision (criterion 5.15). If a proponent failed to comply with the final decision under the Planning Act, a fine of \$10,000 could be applied (and an additional default penalty of \$1,000 for each day of non-compliance). This increased under the Development Act and its Amendment, and non-compliance involved Division 2 fines of a maximum of \$40,000 (plus the default penalty of \$1,000) or a maximum imprisonment of 10 years; and
- the external and binding nature of decisions for private development (criterion 5.13).

Under the Development Act Amendment, decisions on 'projects' (*ie* not defined as 'development') were advisory only. For public sector 'development' by Crown authorities (which was not exempt from the Act), the decision-making process changed so that it became

¹⁴For instance, under the Planning Act 1982 'No decision shall be made...unless an environmental impact statement has been prepared and official recognition has been accorded to that environmental impact statement' (Section 51[3]). No such explicit mechanism was evident when the EIA process was triggered by the Minister, but it was implied given that the relevant planning authority shall have regard to an officially recognised EIS where prepared. This was also the case in subsequent Acts when the Governor must have regard to the EIS before making a decision.

external to, and binding on, crown authorities (pursuant to Section 49[16a]) (criterion 5.14) (hence the grade of 1). Under the Development Act, a decision by the Minister on Crown proposals appeared to be binding, but the Minister was not required to make a decision in all cases (only that the Minister 'may' make directions) (hence the grade of 0.5).

Usually, the advice outlined by the EIA Branch in an Assessment Report has been adopted in the government's decision on a proposal (Interview 59 1999; Interview 60 1999) (criterion 5.9). It was the view of one Minister that the EIA process was a '*scientific one...that had to be dealt with by the people with that expertise..*' and that this '*shouldn't be subject to political interference*' (Interview 71 1999). Thus, the EIA Branch could '*make or break a project*' (Interview 71 1999), but it was also noted by another Minister that environmental issues were not the only factor in the decision equation (Interview 73 1999). In fact, in all of the Acts the EIS (and related documents) were not required to be the central determinant in the final decision (hence a grade of 0.5) (criterion 5.11). Under the Planning Act, decision-makers 'shall' only have 'regard' to the EIS, and a similar approach was evident in the subsequent Acts. Nonetheless, as Wood (1995: p183) notes, the EIA process is there to 'constrain' and not to 'control discussions'.

There has also been a lack of clear statutory or non-statutory criteria which guide the decision process (criterion 5.10) which in turn relates to the lack of upfront objectives in the EIA system noted earlier. Under the Planning Act, the decision was guided by the EIS, but under the subsequent Development Act and its Amendment the factors to be considered in the final decision were expanded, and under the Amendment, the Governor had to regard:

- the Development Plan;
- the Building Rules;
- the Planning Strategy;
- the objectives, duties and policies under the Environment Protection Act 1993 (if the proposed action is defined as a 'prescribed activity of environmental significance');
- the EIS, PER or DR;
- the Assessment Report; and
- any other matter considered relevant by the Governor.

Yet there have been no attempts in either the legislation or in guidelines to prioritise the issues to be considered in decision-making, nor has there been any attempt to outline 'acceptability criteria' similar to those suggested by Sippe (1994). The 'acceptability' approach is, according to Sippe (1994: p7) '*a judgement made on the limits to the degree of change to the environment predicted to be induced by a proposal such that it does not change the value...ascribed to it by the community*'. This could include factors such as the manageability of impacts, levels of

uncertainty, and existing regulatory standards (*eg* noise thresholds). Sippe, who provides examples of acceptability criteria for groundwater pollution, further notes that the outline of acceptability criteria provides greater certainty to proponents and to the public alike about expectations in the EIA decision-making process, and they can thus tailor their responses to these upfront expectations. The system in South Australia could be improved by summarising existing standards (*eg* noise pollution, water pollution, air pollution) for the purposes of EIA in a 'one stop shop' guideline for each development or project.

5.2.6 Follow-Up Control

Follow-up in EIA through project and system monitoring is frequently a weakness in the process (*eg* refer Wood 1995), and South Australia's EIA system is no exception to this trend (*eg* Hook 1985; Fookes 1987a; Kinnaird 1989; Nixon 1998; Interview 60 1999). In the 1980s, the EIA Branch instigated a review of the monitoring process (criteria 6.2-6.4), and found it to be *ad hoc*, despite informal recommendations in the 1970s to improve the process (Tideman 1986). It was also noted:

'A significant criticism of many monitoring activities is that there is no mechanism for incorporating results of monitoring activities into the "collective knowledge" of the Assessments Branch. One of the important purposes of monitoring is to gain knowledge so that predictions of impacts can be more precise... Without a reporting and feedback system, monitoring is virtually wasted' (Tideman 1986: p15).

This weakness has been partly due to a lack of staff, financial resources and guidelines in the then DEP, and also due to a lack of legislative requirements for monitoring (Tideman 1986). Nonetheless, Figure (5.10) and Table (5.9) indicates that the follow-up process has improved under the latest Development Act Amendment.

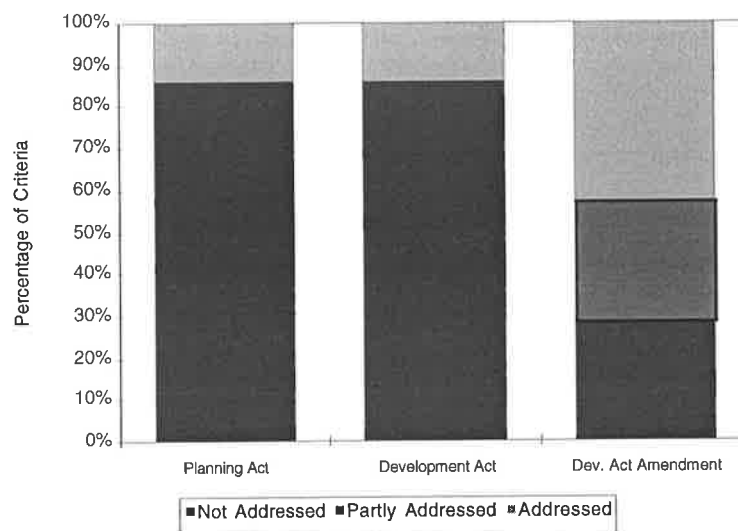


Figure 5.10: Performance in Follow-Up Control

Table 5.9: Performance in Follow-Up Control
(0=not addressed; 0.5=partly addressed; 1=fully addressed)

6. FOLLOW-UP CONTROL	Pl.Act	Dev. Act	Dev. Act Amend.
6.1 Are there mechanisms for EIA outcomes to be linked to construction with requirements for Environmental Management Plans (more detailed than mitigation outlined in EIS)?	0	0	0
6.2 Are there mechanisms which allow the government to request monitoring or auditing?	0	0	1
6.3 If monitoring provisions exist, are there provisions for monitoring to be conducted by a party external to the proponent?	0	0	1
6.4 Are there requirements for the proponent to submit regular monitoring and compliance reports?	0	0	0.5
6.5 Are there mechanisms for the government to impose contingency procedures on the proponent in the event of non-compliance?	1	1	1
6.6 Is there provision for the EIA system to be monitored and, if necessary, be amended to incorporate feedback from experience?	0	0	0
6.7 Is there a central database of all EIAs undertaken and decisions made?	0	0	0.5

Under both the Planning Act and Development Act, 85% of criteria were 'not addressed', which contrasts with the Development Act amendment where only 28% of criteria were 'not addressed' and 42% were 'fully addressed'. A strength under all of the Acts, however, was the explicit flexibility to vary at any time, the conditions that were attached to a decision (so long as the intention to vary or review conditions was noted at the time of the decision).

The primary improvements under the Development Act amendment were the explicit requirements for monitoring (Section 48C), although there was no standard requirement for proponents to submit regular monitoring reports (criterion 6.4). However, once monitoring is requested by the Minister (this is not required automatically and the Minister 'may' request that it occur), it is mandatory for the proponent to comply (including the submission of reports), and there are also provisions for external parties to conduct monitoring or audits (criterion 6.3). To date, there are still no explicit requirements for monitoring of the EIA system (although it occurs to a limited degree in practice) (criterion 6.6), and although a central database has been established on the internet (criterion 6.7) which lists EISs (and other levels) triggered, it is incomplete and lacks detail on the final decisions, monitoring reports, and lessons learned in the process.

5.3 SUMMARY & COMPARISON OF CONTROLS WITH EIA PRINCIPLES

In conclusion, the commitment to environmental protection and to EIA has gradually increased in South Australia since its recommendation in 1973, but changes to the EIA system have also reflected attempts by the government to increase State control over major developments, and to improve certainty for proponents so that development is encouraged (albeit in an 'environmentally-sound' manner). Overall improvements over time are indicated by the numbers of criteria at least 'partially addressed' in each Act:

- Planning Act: 61% at least partly addressed;
- Development Act: 67% at least partly addressed; and
- Development Act Amendment: 67% at least partly addressed;

and by the numbers of criteria 'fully addressed' in each Act:

- Planning Act: 26% fully addressed;
- Development Act: 44% fully addressed; and
- Development Act Amendment: 48% fully addressed.

Figure (5.11) summarises and compares the trends in each of the controls within the EIA system, and illustrates the percentage of criteria at least 'partially addressed' for the Planning Act, Development Act and its Amendment. In summary, performance has improved over time in terms of legislative control, public-agency control, evaluative control and follow-up control in particular, but has declined in terms of judicial control and procedural control. The key strengths in terms of controls under the most recent Amendment Act include legislative control and evaluative control, and the strong performance in this latter highlights the significant level of State government control over the EIA process in South Australia. This high level of government control over EIA is also reflected in the principles of EIA which were noted in Chapter Four and which are illustrated in Figure (5.12).

Despite evidence of the potential to fast-track EIA and to encourage development in the State, the indications are in this evaluation, that principles of accountability have in fact been improved in some areas (once EIA has been triggered). According to one government Minister, the attitudes of government towards the environment have actually improved over previous years in line with increasing public expectations (Interview 73 1999). The most striking of these improvements in terms of EIA principles was the increase in EIA's 'verifiability' (*ie* ability to measure performance for individual proposals and for the EIA system in general) which is consistent with follow-up control (although this lacked public accountability).

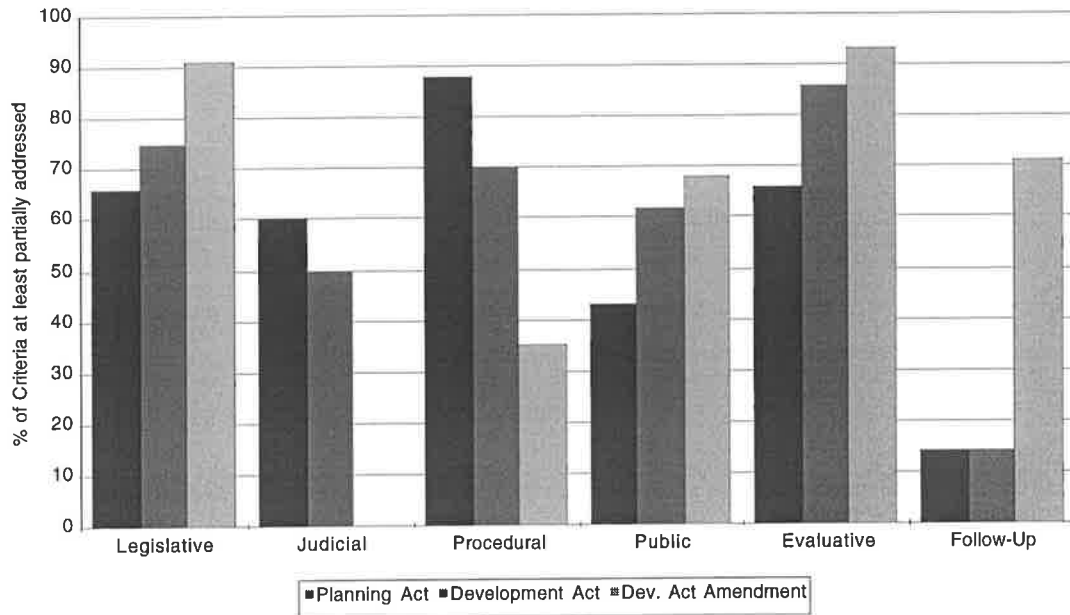


Figure 5.11: Performance in Controls in EIA
(percentage of criteria at least partially addressed)

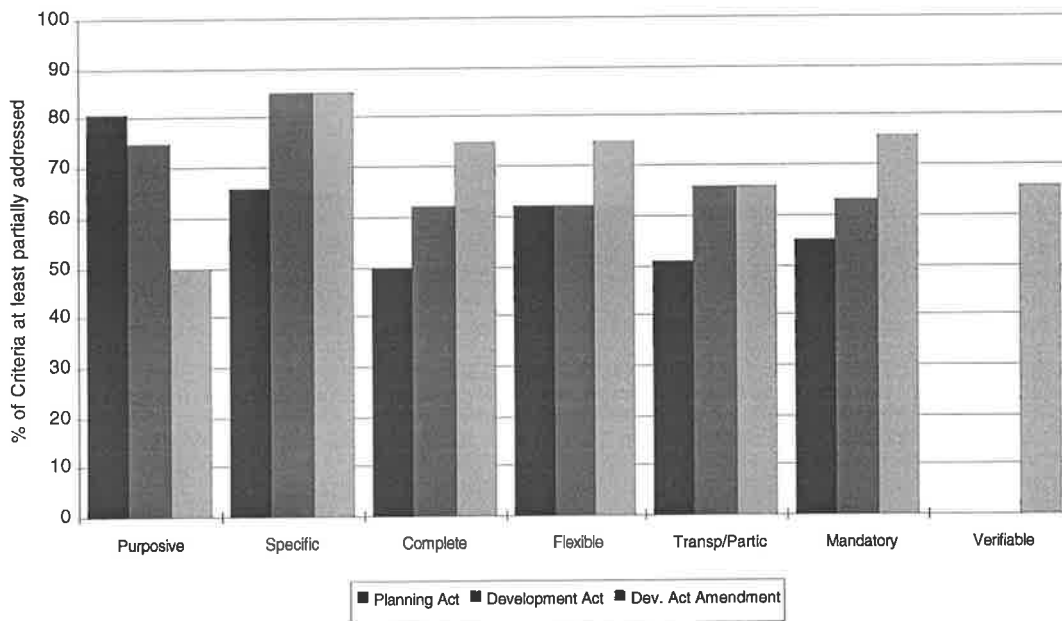


Figure 5.12: Performance in Principles EIA
(percentage of criteria at least partially addressed)

The most striking decline was evident in terms of principles of purposiveness, and this decline predominantly relates to the lack of generic, upfront and transparent requirements for EIS content noted earlier in procedural control (although many of the criteria may be met for particular proposals in the project-specific guidelines). However, this reduction in EIA's

purposiveness may also reflect the changing emphasis of the 'major projects' section from a focus on EIA to an emphasis on fast-track mechanisms.

The principles of completeness and mandatory-accountable nature of the process have also improved substantially since the Planning Act, which is consistent with the improvements in legislative-administrative and evaluative controls. Government control over the process has also been enhanced by the increases in principles of flexibility, which gives the government some discretion in applying the process and in making the final decision. Flexibility is important in that unforeseen options are not closed off (*eg* if relying solely on an list which automatically triggers EIA), but it may also be a negative in that EIA will not always be applied where appropriate. Moon (1998: p39) argues that the '*...capacity for political manipulation to facilitate particular outcomes*' is more significant than the actual requirement itself. This is an important point in the context of South Australia given that there is significant potential for political discretion at the screening, triggering and decision stages. It is perhaps for this reason that accountability mechanisms such as public involvement have been improved. That is, from a cynical point of view, there is no real threat to decision-makers in government as a result of better public participation mechanisms, given the ability to avoid the EIA process in the first place, or to fast-track it at the lowest level of assessment.

Yet overall, with the strengths in legislative, evaluative, procedural controls and in principles of specificity under all of the Acts (albeit to varying degrees), the potential for EIA effectiveness is increased under all of the Acts (and hence organisational change). In other words, it is usually a combination of controls in operation which improves effectiveness, rather than one operating alone (Ortolano *et al* 1987). It should, however, be remembered that the initial requirement for EIA in South Australia was a non-statutory requirement with limited policy resources for EIA's administration which may reduce the potential for compliance. The actual response to this informal EIA requirement and the level of compliance demonstrated by the two case study organisations is evaluated in Chapters Seven, Eight, and Nine. Firstly, however, the next Chapter introduces the organisations in terms of their missions, and the social, political and economic context to their evolution.

Chapter Six

THE EVOLUTION OF TRANSPORT SA & ETSA

'Tradition can represent principles that have stood the test of time and doctrines that have been passed on from generation to generation. Although some traditions ...have stood the test of time, they are not always appropriate for dealing with new challenges ... However, in rejecting or questioning certain traditions...there is always the danger of throwing out the baby with the bathwater....' (Papadikis 1996: p5).

6.0 INTRODUCTION

Understanding change in organisations is not simply a matter of examining organisational behaviour immediately before and/or after the EIA requirement, nor is it a matter of examining EIA in isolation from other change requirements placed upon the organisations. Change is an evolutionary and dynamic process which stems from, and builds upon, experiences in the early parts of this century, and the value of the historical context is strongly supported by Greiner (1972), Taylor and Bogdan (1998) and Brunsson and Olsen (1998). It has been argued that *'knowledge of the history of an organization is often required if we are to understand even its most recent reforms'* (Brunsson and Olsen 1998: p13), and that *'...the future of an organization may be less determined by outside forces than it is by the organization's history'* (Greiner 1972: p297). This latter statement holds strong elements of truth, but this Chapter demonstrates that both the organisation's internal history and external forces, such as the political and social context, are closely intertwined.

As in Mazmanian and Nienaber's (1979) research on EIA and organisational change, this Chapter provides the basis for a better understanding in subsequent chapters of when, how and why Transport SA and ETSA responded to EIA and other environmental requirements. In addressing research objective (5), topics addressed include the creation of the organisations, their key purpose, the organisational culture in the two decades prior to the introduction of the EIA requirement, the changing levels of construction activity, and the social and political factors which have shaped their development. The implications of this evolution for EIA are discussed

in subsequent Chapters, and summarised in Chapter Ten. Given that there is limited information on the organisations, this Chapter by necessity relies heavily on a small range of sources, and in particular, synthesises Donovan's (1991) comprehensive account of the Highways Department and Linn's (1996) extensive account of ETSA. It is acknowledged that there are gaps in the information, and that history can be interpreted in many different ways. However, useful insight is also gained from annual reports and histories by Mudge (1973), Stretton (1975; 1989), Kerr and Kerr (1979), Zeicman (1979), Patrickson *et al* (1995), Radbone (1992), Charles and Rosser (1998), and others. Each organisation is treated separately in the following description so that a more complete picture can be gained. In subsequent chapters, the structure becomes issue-based rather than organisational-based.

6.1 TRANSPORT SA

6.1.1 Roads & State Government Control in the 1920s-1940s

Like the provision of water (Hammerton 1986) and other essential services, the development of roads has played a crucial role in South Australia's history:

'Roads are fundamental to the social and economic life of any community and are among the first public utilities to be built, and those to receive the most constant attention... The construction of its first roads, however rough, was one of the first and most important engineering tasks to be undertaken in any colony and was particularly important in South Australia where an inland site was chosen for the capital. Just as the development of a network of roads was fundamental to the early economic development of South Australia, so the focus of the network on Adelaide served to ensure its dominant position in the new State' (Donovan 1991: p1).

Control of the road network during the nineteenth century resided primarily with local councils, and the evolution of greater State¹ government responsibility for roads evolved gradually in response to sharp increases in the numbers of motor vehicle registered (Donovan 1991; Radbone 1992). Those with expertise in road construction at the State level were initially housed in the Roads and Bridges Department, followed by the Local Government Department which signalled one of the precursors of today's transport authority: Transport SA.

It was in 1926-1927 that the most fundamental changes to road administration and construction were made at the State level. First, the *Highways Road Act 1926* was enacted in response to increasing community demands for motor vehicle accessibility; and second, the Local Government Department was renamed the Department of Highways and Local Government in 1927 (Mudge 1973; Donovan 1991). The Act in particular marked a significant turning point because it gave the Commissioner of Highways substantial autonomy from government in order to construct roads. As stated by the then Premier and Treasurer, the Highways Bill:

¹ South Australia was proclaimed as a State in 1901 under the Australian Constitution.

'establish[es] a new system of road administration in South Australia, and a new method of road finance...The main objects... are to provide for continuity of policy in road construction and maintenance, and to put the person or body charged with the task of administering the funds...in a position where **he [sic] will be freed as far as possible from external influence and control, which would be likely to hamper him in carrying through a comprehensive and protracted policy of road construction.** The general scheme adopted...[involves] the creation of a Commissioner of Highways and of a main roads fund... solely under the control of the Commissioner, and must be expended by him on the construction and maintenance of roads' (cited in Donovan 1991: p40; highlight added).

This legislated freedom from 'hampering' and independence from political control was believed to be unique in the public service (Donovan 1991). Traditionally, government organisations have been viewed as neutral implementors of government policy, but such an assumption is mistaken given that, although government may make policy decisions, government organisations also participate by offering information and evaluations of various policy options (Wiltshire 1975; Doyle and McEachern 1998). Ministers who are in transient roles are dependent on departments and advice from the 'experts', primarily because of their large knowledge base, their monopoly of information, and the fact that public servants are (or at least were) permanent (Wiltshire 1975). Wilenski argues that the myth of bureaucrats and government organisations as simple administrators allows them to '*engage in politics and policy-making without being held accountable politically for the outcomes of their actions*' (cited in Thompson 1983: p59).

In this context, the early and autonomous years of the Department² were full of optimism and progress and signalled the beginnings of a tight-knit 'expert' road-building culture. However, as a result of the 1930s economic depression, progress declined and attempts were made to reduce the Highway Commissioner's (Fleming) autonomy by Ministers who were uncomfortable with the power afforded to him under the Act (Donovan 1991).³ These political assaults on the Department had minimal impact on daily operations as the economy began to recover in 1934 and national support and funding increased for road construction (Donovan 1991). The Department's primary mission of road construction was reinforced by the production of faster and more reliable cars which in turn influenced a '*revolution in public attitudes to land travel by creating new expectations in the minds of travellers and encouraging more long distance - even interstate - road travel*' (Donovan 1991: p64). With the advent of World War II, attempts to reconstruct South Australia's road network were once again

²Responsibility for roads still remained with local authorities, but the Highways Act enabled the Commissioner, following notice to the councils, to undertake a broad range of road construction and maintenance activities (Highways and Local Government Department 1956-57; Highways 1980).

³The aim was to redirect needed revenue from the main roads fund into the State government's general revenue (Donovan 1991). Although this failed, it was assented to for a period of two years in 1930 (Donovan 1991). In 1933, the Commissioner's control was further truncated with an amendment to the Highways Act which required Ministerial approval for all major new works (Donovan 1991).

postponed and although road activities continued, they were focused solely on the war effort and the road network fell into a state of disrepair (Donovan 1991).

6.1.2 Organisational Legitimacy: The Era of Freeway Design (1950s-1960s)

The years after World War II were evidently the most exciting and the most productive in the department's history, and have been described as the '*age of innocence*' (1950s) and the '*halcyon*' years (1960s) ('*happy and prosperous*'; Turner 1987) (Donovan 1991). Although the autonomy of the new Commissioner (Richmond) was further reduced and the position became subject to Ministerial control,⁴ the upsurge in road construction, upgrades and widening reinforced the department's public legitimacy. Several factors contributed to this enhanced activity including those which *triggered* construction such as community demands for the convenience of access, increasing numbers of motor vehicles registered (Figure 6.1), Premier Playford's industrialisation process (refer Appendix 5); and those which *facilitated* construction including increased staff numbers, better funding (refer Figure 6.2), and improved technology and knowledge. Each of these factors are summarised in Table (6.1). Premier Playford's industrialisation policy was particularly significant:

'With the support of Playford, the 1960s were perhaps the most optimistic and dynamic decade in the history of the Highways Department when traffic engineers could dream grandiose dreams with a fair expectation that they might be realised. This was the era of freeway design and construction when few dared question the scale of the projects or the need to acquire property so that they might be built' (Donovan 1996: p208).

To facilitate this era of freeways '*...precious villages, precious trees and precious old oligarches [were] trampled impartially if they [got] in the way of the lowest-cost routes*' (Stretton 1989; Donovan 1991: p93). The intense activity, combined with a shortage of professional staff, resulted in more work being contracted out than had previously been undertaken, which was consistent with government policies of the time (Donovan 1991). There was more than enough work for the Department, and it was during this time that much of South Australia's road infrastructure was established.

⁴ Despite Premier Playford's support for road construction, he reduced the powers of the Commissioner in an attempt to reduce bureaucratic red tape in the industrialisation process (Donovan 1991). In 1953, an amendment was passed which required a schedule of works produced each year to be approved by the Minister, and in 1958 the Highways Commissioner became subject to the control of a Minister (Highways 1980; Donovan 1991). It had little impact however, and was viewed as 'window dressing' (Donovan 1991: p99).

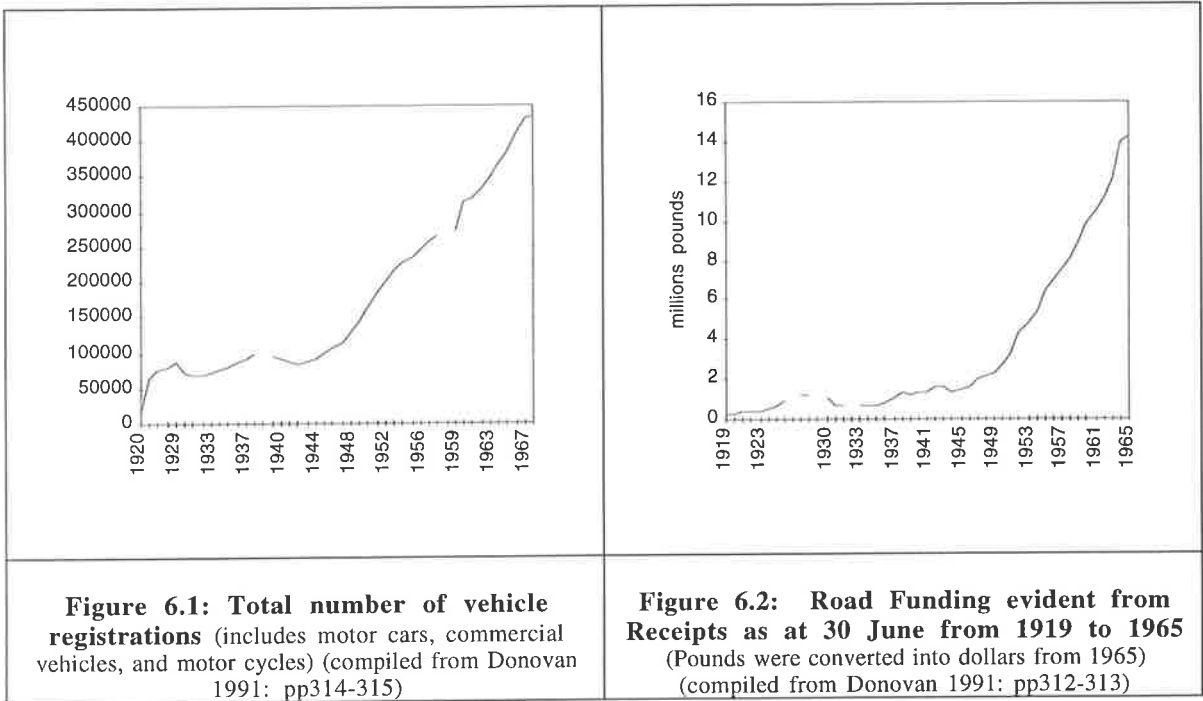


Table 6.1: Factors influencing increased road construction in the 1950s and 1960s (compiled from Donovan 1991; 1996; Highways and Local government 1958-59; 1965-66)

	FACTOR	EXPLANATION
Triggers	Increases in motor vehicles registered (refer Figure 6.1)	Increases were partly due to the cessation of fuel rationing in February 1950, and resulted in greater safety and congestion issues which required mitigation.
	Increasing community demands for better roads	Relates to increases in motor vehicle registrations. <i>'Australia is a country that lives by its roads more than any other form of transport'</i> (cited in Donovan 1991: p94).
	Playford's industrialisation policy	Policy strongly advocated new road infrastructure to attract new industries to the State.
Facilitators	Increases in human resources	Returned servicemen from the war replenished staff shortages (although shortages continued throughout this period).
	Increases in financial resources (refer Figure 6.2)	Monies previously used in the war effort were redirected to the road network. Overall revenue also increased within the context of another post-war economic boom which lasted for nearly two decades.
	Improvements in technology	Larger and more complex machinery facilitated renewed activity. Highways Commissioner Richmond (1958-1966) in particular was associated with policies to modernise road construction methods and increase mechanisation.
	Knowledge	Transfer of knowledge following visits overseas by Commissioners and other staff. American experience was a strong influence on the freeway concept.

Coinciding with this renewed and virtually *ad hoc* activity, attempts were made in the late 1950s to undertake forward planning with the creation of a Planning Section in 1958 (Donovan 1991). The Planning Engineer had broad-ranging responsibilities such as the identification of locations for major rural roads; identification of future routes for the network in urban areas; liaison with the Town Planner and planning for future traffic requirements; determination of future road policies; and investigation of special projects (Highways and Local Government 1958-59; Donovan 1991). This group was later restructured in 1964 into three groups comprising the Advance Planning Section, the Planning Coordination Section, and the Project Planning Section. This latter section, which is now the Planning Investigations Section, is responsible for conducting internal processes of EIA for large road projects, and is referred to further in Chapter Seven.

6.1.3 The Organisational Culture In The 1950-1960s

The culture of the Department and its early emphasis on construction has been described by some as a 'cowboy' culture (*eg* refer DoT April 1997). Ellyard (1998) has described cowboy cultures of the 1950s (although not referring to the Highways Department in particular), as focused on, *inter alia*, independence as opposed to interdependence, humanity against nature, unsustainable production and consumption, and conflict resolution through confrontation rather than negotiation. Some of these features were apparent in the Highways Department which was dominated by the 'product', conflict, and a technical, hands-on construction ethic as illustrated in the annual reports during the 1950s and 1960s. Engineers were given 'free rein', and it was generally believed that '*experts with access to sufficient funds could provide answers to any dilemma*' (Donovan 1991: p125). One employee noted that while '*...all government agencies knew these exciting days, we were looked upon with a degree of jealousy, as a millionaire organisation...Those privileged to work in the organisation through that period savoured engineering challenges and opportunities*' (in Donovan 1991: p126). Similarly, one past construction engineer recollected:

'Nobody knew about the costing system for our expenditure... There was always plenty,...[and we] didn't have to worry much about budgets because the main issue was building roads...it was pretty exciting and it was...an era when the people in this organisation had...hands on opportunity to learn...their profession...as far as highway engineering is concerned. ...you had a lot of exposure, you...gained a lot of experience very quickly and you were allowed to make mistakes...it was an environment where you...got a lot of experience very very quickly and a lot of independence and a lot of autonomy and a lot of authority.

It was...just pragmatically building things, getting things out. There was no report writing. There was no reviewing of what we did...We did whatever we just had to do to actually deliver...so for certain sorts of people like me that was wonderful' (Interview 63 1999).

Being encouraged by the Highways Commissioner of the time, construction engineers also controlled mini-departments which had '*enormous ...autonomy, sovereignty*' (Interview 63 1999). It was a time of 'fiefdoms', with evidence of '*enormous cultural tension*' between

different groups, and the Commissioner's philosophy of '*let the underlings war*' tended to reinforce his position of power (Interview 63 1999). Conflict was overt throughout the organisation, particularly between the dominant construction and planning areas, and it was observed that '*the notion of collaboration and co-operation...was just foreign, totally foreign*' (Interview 63 1999). Obviously, this lack of cooperation is not conducive for linking planning requirements with construction outcomes (and in later years, the EIA process). This is further addressed in terms of EIA in Chapter Eight.

During this time, engineering and technical challenges were at the forefront and decision-making rarely considered social or environmental concerns (Shepherd 1980; Donovan 1991). Community consultation was rarely undertaken, and the general attitude was that engineers were there to '*build the black stuff ... and nothing else mattered*' (Interview 64 1999), or in other words, '*...lets just bowl it over and do it*' (Interview 45 1999). One previous construction engineer noted:

'There's been ...a history of being completely environmentally insensitive, just ignorance...being resistant...and I was part of, and I don't mind, I do mind admitting it actually, but I have to admit it, part of an organisation where environmental protection...wasn't important' (Interview 63 1999).

'When I was building the road from just north of Horn....there's a lot of creeks across that road and many of them have ...these beautiful river red gums that follow the creek, ...magnificent specimens and we...didn't look at those with any notion of what a magnificent specimen of a tree it was....and we ...went through knocking down these trees, and I mean some of them were 9-10 foot in diameter, they were huge, and we would blow them up, ...and push them out of the way and without a second thought' (Interview 63 1999).

In defending the Department against criticism, the then Minister of Transport (Fargo) described the engineer in charge of the above-noted project as an '*avid conservationist*', but it was noted by one employee that: '*Of course, all my colleagues thought that was hilariously funny...If it moves, shoot it; if it stands still, chop it down. That was one of the early sayings*' (Interview 63 1999).

Environmental damage was also encouraged by some members of the community. The removal of trees in rural areas for instance, was sometimes promoted by farmers to facilitate the fencing of properties (Donovan 1991). It appeared that many people within and outside the department, were concerned more with progress and the convenience that roads provided rather than their broader environmental implications. Donovan (1991) observed that although concern was sometimes raised '*bemoaning the loss of particular trees*,' the '*community seemed happy to pay the price demanded for the new roads*' (Donovan 1991: p170). Where public criticism did occur, it had minimal effect at the time because the government was not as transparent or as receptive as it was in the later 1970s (Interview 63 1999; refer also Appendix 5). The idea of progress within both the community and the department, soon changed however.

6.1.4 From Community Convenience to Community Concern (Late 1960s, early 1970s)

The 1960s were progressive times, but the Department's unfettered approach to road construction began to be scrutinised by the community in the latter part of the decade, which was a reflection of the wider community interest in environmental factors noted in Appendix (5). According to O'Neil:

'...many South Australians had become cynical about the benefits of bigger and better roads and more conscious of the social and environmental costs. No longer did many of them consider the removal of road-side trees and buildings as a reasonable price for what was called progress' (O'Neil 1996: p212).

This change in attitudes towards road construction was partly influenced by experiences overseas, particularly given that a 'freeway revolt' was experienced at a similar time in the United States (Shepherd 1980), and Donovan (1991) notes that the American lifestyle had a significant influence on South Australians. Two significant events also marked the beginnings of arduous times for the Department including the MATS plan (Metropolitan Adelaide Transport Strategy), and the Montacute Road saga. In this latter event, the Department was taken by surprise by public outcry regarding the proposed destruction of 130 gum trees to widen the road in 1966. Public opposition to this project was well organised⁵ with a 'save the trees campaign', and a petition with 1,400 signatures (Donovan 1991). This campaign was relatively unsuccessful, but because of departmental reappraisal of the situation, 40 trees were saved and longer term policy reforms were made (refer Chapter Seven) (Donovan 1991).

The MATS plan saga with a focus on freeways was substantially more controversial for the Department. The American freeway was believed to be the solution to increasing traffic congestion, and it was a concept originally supported by much of the community (Donovan 1991). Yet it was also a concept that eventually resulted in significant public objection. The MATS plan, which was prepared between the early to late 1960s, was the most comprehensive study in transport planning that had ever been undertaken in South Australia, and was the largest public works programme proposed in the State's history (Stretton 1970; Zeicman 1979; Donovan 1991). It also became a 'political football' (Donovan 1991). Parkin and Pugh stated that this plan:

'...assumed a continuation - a glorification - of an automobile-oriented metropolis and the demise of public transportation. It plotted a network of huge expressways, knotted into clover-leaf interchanges and overpasses, converging on the central city where multi-storey car parks were needed to handle the influx. The plan implied the demolition of swathes of residential neighborhoods, the bisection of established communities and school catchment areas, the

⁵ Opposition was probably exacerbated because of earlier actions by ETSA who, despite public protest, destroyed significant red and blue gums to construct a transmission line in the same area (Donovan 1991).

resumption of parkland and the likely imposition of further congestion and pollution' (Parkin and Pugh 1981: p93).

It was proposed to spend A\$544 million dollars (1967/68 prices) over a twenty year period, incorporating \$436.5 million for road works and \$107.5 million for public transport (Zeicman 1979). It had also been estimated that thousands of residential and business properties were to be acquired for the proposed freeway at Noarlunga (Donovan 1991). Not surprisingly, there was a '*storm of protest and concern*' following the release of the plan (Zeicman 1979; Donovan 1991: p182). Zeicman (1979) cites one of Adelaide's newspapers - 'The Advertiser' (October 1968):

'The sound waves arising from the proposals, which are estimated to affect directly 2,500 properties and 5,000 more indirectly are loud and continuing... The resultant public clamour is deeper in intensity than the reaction to any other report in the State's history' (Miles in Zeicman 1979: p127).

Two thousand inquiries were made to the Highways and Local Government department, a 'Citizens Action Committee Against MATS' was created, there was a petition with 5,679 signatures in response to the proposed Noarlunga freeway, and hundreds of objections were raised at public meetings (Shepherd 1980; Parkin and Pugh 1981; Donovan 1991). An additional newspaper article in 'The Advertiser' illustrated the increasing isolation of the government's Highways and Local Government Department:

'The Highways Department, which as a body of public servants has shown unprecedented public support for a plan which the Government will not admit officially to having accepted even in principle, stands in increasing isolation... The Adelaide of MATS is a highway engineer's Adelaide' (Advertiser 1969, cited in Donovan 1991: p184).

The MATS plan caused such a furore that the government was virtually brought down, and the opposition parties' commitment not to pursue MATS probably worked in favour of their return to government in 1970 (Whitelock 1977; Donovan 1991). In hindsight, public opposition to the MATS plan may have been lessened if there had been adequate and early public consultation. Such an approach was not adopted because, with 'honourable intentions', the Department believed it knew best, that this was the way it had always been done (Donovan 1991). This tends to reflect the cultural concept of 'groupthink' referred to in Chapter Three. Donovan claims that '*...except for the removal of roadside trees - [the Department] had received nothing but praise, with all South Australians taking pride and pleasure in the new roads and bridges being built*' (Donovan 1991: p187). In such a context, it is no wonder that the department reacted in surprise. Donovan provides an excellent summary of the effects that the MATS plan had on the Department at this time:

'The fate of the MATS plan was significant in the history of the Department and the community. As far as the Department was concerned it represented the first significant occasion when the government rejected the strong recommendation of the Commissioner of

Highways. It also marked the new political reality in the push for governments and parliament to take increased responsibility for Departments.

In addition, the public reaction to the plan marked a maturation of public attitudes towards the community and the environment. During the boom period of the 1950s, South Australians had generally equated an increasing standard of living with physical development, regardless of the cost to the environment and...quality of life. Henceforth the Department was forced to take increasing note of community attitudes to new developments, with all the frustrations that this implied. Many older officers found the lesson a hard one to learn, but they had no option' (Donovan 1991: p193).

Under the guidance of Highways Commissioner Johinkes, the emphasis began to turn towards improved transport planning rather than quantity of road construction (Donovan 1991), which is more consistent with principles of EIA (see also Chapter Ten). The end of the Playford government and the delay of the MATS plan signalled the end of the 'heady days' for project engineers (Donovan 1996: p212). Nonetheless, the Department's road construction identity was further reinforced when the Department was renamed the Highways Department (Donovan 1991).

6.1.5 Declining Legitimacy: Government Intervention in the 1970s

As the 1970s progressed, the Department continued to experience an unstable environment, and a senior employee within the Department described this period as the most turbulent in the history of the Department, and observed similar trends in Europe, the United Kingdom and the United States (McInnes in Donovan 1991: p194). McInnes stated that:

'Issues that were once, at best 'of fringe concern' were now critical - [they] could bring us unhealthy media cover, [and] could stop projects in their tracks. And most of these issues were now being presented in a highly professional articulate fashion' (cited in Donovan 1991: p194).

Change and expansion was also occurring on many fronts in the public sector, not just in the Highways Department nor in the environmental arena. This was the period of 'political transformation' described in Appendix (5), which was characterised by government intervention, orderly planning, and accountability. Despite its independence (albeit now truncated), the Department had no choice but to respond to this changing environment in order to remain legitimate in the public and the government's eyes. The Department was also required to respond to major government inquiries into the efficiency and effectiveness of its operations such as the Corbett Committee inquiry initiated in 1975 under the Dunstan Government. A key issue emerging from this inquiry was the freedom of departmental matters from political control. It was stated for instance:

'when Ministers are unable to examine departmental matters in detail and have to rely on what their officials tell them, then there is every danger of bureaucracy in the worst sense. Besides, there is always the danger that the permanent officials in a department will develop a strong departmental line of policy, which they then try to foist on Ministers of whatever political persuasion, sticking to it through thick and thin, by every means short of open defiance of the Minister's explicit orders' (Corbett Committee 1975: p11).

The government also indirectly weakened the Department's construction and unique advisory role in four ways:

- first, because of the end of the post-war boom, less money was available for new road construction, and this, combined with increasing construction costs, resulted in an overall decline in national and arterial road construction (with the exception of two peaks in 1976 and 1977);
- second, following the government's outsourcing policy to facilitate free enterprise in 1968, greater use of private contractors further reduced the department's workload (Donovan 1991).⁶ Thus, more attention was directed towards managing the existing road network via traffic management and road maintenance (eg Highways 1975-1976; Donovan 1991);
- third, in 1972 the position of Director-General of Transport was created, followed by the creation of the State Transport Authority in 1973, and the Department of Transport in 1974 (Corbett Committee 1975; Donovan 1991). The Department of Transport's role was to oversee and coordinate all modes of transport (eg Highways Department, Road Traffic Authority and State Transport Authority), and to provide independent policy and funding advice to the Minister for Transport (Donovan 1991). Thus, the Highways Department's advisory role was no longer unique as it became subordinate to another Department's policies, and this may have caused some disquiet; and
- finally, together with the Commonwealth government, the State government (under Premier Dunstan's leadership) was the first in South Australia to expend huge amounts of resources on public transport as a public service rather than as a business enterprise (Radbone 1992), which is probably a result of the MATS plan controversy. The Highways Department was involved in establishing bus routes (replacing tramways), yet because this mode of transport was not a key function of the Department, the government's emphasis indirectly challenged and focused attention away from the traditional car and road construction ethic that had dominated the Highways Department for so many years.

Progress and 'free rein' began to be a thing of the past, but the organisation continued to maintain its public legitimacy nevertheless, as demands for road construction and improvements continued to exceed Departmental capacities (refer Highways 1970-71; 1972-73; 1976-77; 1977-78; 1978-79; 1979-80). It should also be noted that the establishment of efficient public transport was inhibited due to a high dependency on car transport in the State which was 10% above the national average⁷ (Radbone 1992).

⁶While this initially had little impact (*ie* 60% funding was provided by the Commonwealth), the policy was later adopted by the Commonwealth government resulting in a much greater effect (Donovan 1991).

⁷This high car dependency was due in part to large residential blocks, an affluent population, orderly streets, easy access to the city, large areas traversed and a small population which made public transport less viable (Radbone 1992).

6.1.6 Increasing Accountability & Economic Rationalism: The 1980s

The notion of accountability and efficiency originally embodied by the government in the 1970s became more pronounced from the mid 1980s onwards⁸ and affected all government departments and corporations (including ETSA) (eg refer Radbone 1988). This was due in part to the emergence in the 1980s of two of the most significant economic recessions since the 1930's depression (Scott 1992). As noted in Chapter Five, the South Australian government thus again focused on economic management and on enticing new industries to the State under Premier Bannon's leadership (Donovan 1991; Patience 1992). The government's role of 'provider and protector of quality of life' was reduced, with smaller governments, decreasing intervention and increasing deregulation (Radbone 1992a; Jaensch 1992). The philosophies of economic rationalism and managerialism were believed to counteract the problems of bureaucracy (and the power of public servants), and greater emphasis was placed on the policy of outsourcing work to private contractors (Donovan 1991; Highways 1980-81; Radbone 1992; Patience 1992). This was in essence, a form of privatisation, and formed the beginnings of commercialisation and entrepreneurialism in the public sector which was carried through into the 1990s.

Environmental issues also 're-emerged' as an important factor in the organisation's history during the 1980s, reflecting what Elkington (1998) terms the 'second wave' of interest. Environmental issues were 'big news', conflict-ridden, and constantly rated in the highest three concerns held by Australians (Munchenberg 1999). Pakulski *et al* (1998: p1) suggest that '*Australia was widely regarded as a globally significant hotbed of environmental consciousness and activism in the 1980s*'. Environmental initiatives abounded in both the national and international arenas such as the World Conservation Strategy in 1980, the National Conservation Strategy for Australia in 1983, and the reinforcement of concepts such as 'sustainable development' at the World Commission on Environment and Development conference in 1987.

The commitment to public transport begun by Premier Dunstan also continued under Premier Bannon who aimed to '*move people rather than vehicles*' (Radbone 1992: p197). Large road projects became politically unpalatable (Radbone 1992), and construction work was curtailed

⁸For instance, another Inquiry into efficiency and effectiveness was undertaken by the Public Accounts Committee in 1981-1983 under the Tonkin government (Donovan 1991). While several issues were raised, the most crucial again related to the accountability of the Commissioner, and the inability of the State government to influence the allocation of Commonwealth funding (Donovan 1991). Because the Commissioner only released information to the parliament as a 'matter of courtesy' rather than as a legislative requirement, the committee made an 'urgent' recommendation to reform the Highways Act (Donovan 1991). To date, the new legislation has not been enacted.

under both the Tonkin and Bannon governments in order to reduce costs. Overall, it was noted by a former Minister during the 1980s that:

'We had our priorities in other directions. We wanted where we could to try to encourage public transport. We ...felt that the more you build roads, the more you're giving into the motor vehicle...one of my big victories was... having the north-south freeway downgraded' (Interview 71 1999).

Evidently this attitude caused some disquiet for middle management in the Highways Department (Interview 71 1999). However, rather than being restricted to South Australia, this decline in road construction appeared to be a trend among developed countries in the late 1980s (with the exception of Japan and some countries in southern Europe) (OECD 1988). The reasons behind this included general cuts in public spending and increased use of the private sector; growing expense of road construction with increased land and labour costs due to higher energy costs and inflation; difficulties in establishing right of way for new roads given urban development; and increased political concern about the social and environmental impacts of road construction (OECD 1988: p32).

From a Construction to Management-Service Culture

The government's new approach to management, and the decisions to discard road construction plans, had a major impact on the Department because it once again undermined their traditional independence from government (Donovan 1991). Essentially the department was gradually being transformed from a construction culture into a maintenance-oriented and project management culture as the road network began to age and more outsourcing to the private sector was undertaken (Donovan 1991; Radbone 1992).⁹ The first explicit Department objective was formalised in 1980-81, which stated that the '*...key objective of the Department is to ensure the provision of the State's road system which provides a level of service consistent with community requirements as expressed through the political process*' (Highways 1980-81: p4d). An increasing managerial push was also evident when the Advance Planning section undertook the first strategic planning endeavours in 1984 with the development of a ten year corporate plan (Donovan 1991; Interview 63 1999). This was in response to a request by government for all departments to prepare corporate plans for the first time (Radbone 1988). Because this planning tended to impact on the fundamental identity of the organisation, opposition emerged which is consistent with the 'age-resistance' theory of organisations defined in Chapter Two. According to one employee, the first Corporate Plan was about:

'challenging the status quo in terms of the existing arrangements and cultures and the old...history of the organisation. It was the start of the big change process because basically nothing had changed up until that time... the Commissioner at the time was keen to do something. The organisation wasn't, and although we did a lot of really good work which was

⁹The ratio of departmental construction to contract construction in 1979-1980 was 63:37, whilst in 1982-1983 the department's role decreased with a ratio of 26:74 (Donovan 1991).

the basis for things that came later, it was never implemented at the time. [There] was just too much resistance to change' (Interview 63 1999).

More fundamental changes were made to the Highways Department in 1989, when the other transport authority in South Australia (Department of Transport) was disbanded and its Motor Registration and Road Safety Divisions were transferred to the Highways Department (Donovan 1991). This effectively moved the Highways Department into a '*customer-oriented, service agency*' (Radbone 1992: p198). It also resulted in the abolition of the Highways Department when it was renamed the Department of Road Transport (Donovan 1991; DRT 1989-90). According to Radbone (1992), this signalled more than just a change of name. It was stated in the 1989-90 Annual Report (DRT 1989-90: pvi) that road construction was no longer its sole responsibility, and that 'effective management' required greater priority in maximising performance to the community and the economy, on co-ordinating transport with land use planning and development, and with a focus on other modes of transport (also cited in Radbone 1992). Once again, Donovan provides an excellent summary of the effects of these changes:

'Many of the older Highway people who remembered the heady post war period and the high regard in which the Department had always been held mourned the loss of its identity. While most were not concerned about the additional functions of the Department they resented the new name and felt deeply the loss of the Department's simple but striking logo, the red triangle with the white 'H', which the Department had continued to use despite the government's efforts to eliminate the practice of departments having individual logoes. Many had long lamented the passing of the more simple conventions and work practices of earlier times and were a little fearful of the increasing need for higher qualifications and an apparent dominance of the bureaucracy. For them the new name and the loss of the logo made the break with the past complete and they cynically referred to the new Department's initials as standing for the 'Department of Red Tape' (Donovan 1991: p295).

6.1.7 Survival in the 1990s: Service Providers and Contracting Out

The Department continued to undergo change after change requirement in the 1990s, and this was in part reflected by three name changes. In 1993, the Department was named the Road Transport Agency (RTA) within a new Department of Transport in 1993, and in 1994, the RTA became known as the Department of Transport. The Department of Transport subsequently became Transport SA in October 1997, which had an increasing multimodal transport focus, and was integrated into the larger Department of Transport, Urban Planning and the Arts¹⁰ (Payze 1997). Where once the department's annual reports focused on the techniques of road

¹⁰This seems a logical progression given that the links between urban development, planning and transport have become increasingly important since the 1960s (refer annual reports). Interestingly, however, 'Planning SA' (responsible for administering the EIA process) is also part of this superdepartment and under the same Minister. One may wonder then, whether there will be a conflict of interest in these circumstances. Will it be in the interests of the Minister to trigger the EIA process (as required by her planning portfolio) if it will provide a hurdle for a major construction project (in her transport portfolio)? While this may be purely conjectural given that formal EIA processes are rarely required for transport projects anyway, it does raise some interesting questions about the amalgamation of particular sectors in government.

and bridge construction, they were now structured around road, air, rail, marine, freight and cycling transport modes (DoT 1995; DTUPA 1997-98). Because the new multi-modal approach required a blending of separate organisational cultures (eg Marine and Harbours), it was no longer possible to identify 'one' history of the department (TSA 1997). While this may eventually result in the dilution of the road culture, this has not yet occurred given that the road culture still continues to dominate to this day (Interview 68 1999).

The 1990s were also another significant era of environmental issues (*ie* the 'third' wave as defined by Elkington 1998), with the launch of several more strategic policies such as Australia's 'Ecologically Sustainable Development' strategy (Commonwealth of Australia 1992), the creation of national biodiversity strategies, the Intergovernmental Agreement on the Environment in 1992, the development of national policies on EIA (eg ANZECC 1991), and the creation of the State Greenhouse Strategy in 1991 and the broad planning reviews noted in Chapter Five with the introduction of more strategic planning and new legislation such as the *Environment Protection Act 1993* (see also Chapter Seven). The nature of community pressures had also changed. Although the level of concern about environment in community was still relatively high in the 1990s, Pakulski *et al* (1998) argue that the sense of urgency had declined with less involvement in environmental activism. Munchenberg (1999: p6) similarly suggests that '*the environment no longer seems to catch the public's imagination as once it did. Environmental concerns take a back seat to economic issues, such as taxation reform.*' Apparently, the more confrontational approach of the 1980s declined when the novelty of direct action and media reports of public protest had worn off (Munchenberg 1999). At the same time, however, this did not indicate that environmental issues were declining in importance overall, and Munchenberg claims that the environment was actually having a much greater influence on decision-making in the 1990s compared to ten years ago via a process of mainstreaming (Munchenberg 1999). This is further discussed in Chapter Seven.

The New Government Management Framework

Both Transport and ETSA were also dramatically affected in the 1990s by the new 'Government Management Framework' (GMF) (Department Premier and Cabinet 1999) which aimed to reflect the new National Competition Policy (see below). It has been argued in more recent times and in many jurisdictions, that the separation of government and private sector organisations is becoming meaningless (Pitt and Smith 1981; Hall and Quinn 1983; Heffron 1989). In this context, private sector concepts were (and are) being increasingly transferred to the public sector in several countries (eg in New Zealand, the United Kingdom, the United States and Australia).¹¹ This is because of a perception that public administration is too

¹¹The Australian text '*Entrepreneurial Management in the Public Sector*' (Wanna, Forster and Graham 1996) is a useful collection of articles which discuss government and organisational trends in this area.

complex, rigid, inefficient, and fails to respond to customer needs (Brunsson and Olsen 1998; Edosomwan 1996). The changes have been characterised by both the transfer of private sector principles into public sector operation (such as managerialism, corporatisation), and the transfer of public sector activities to the private sector (*eg* by contracting out public works to private organisations, or by full privatisation).

In addition to reforms in the 1970s which opened up government agencies to public scrutiny and greater government control, many of the changes in South Australia's government sector stemmed from the 1980s ideology of economic managerialism¹² which transformed 'public administrators' to 'public managers'; which emphasised economic factors; and which simultaneously provided both political freedom and constraint to departmental or agency operations (*eg* refer Yeatman 1990; Hughes 1998). The stereotype of the private entrepreneur has often been associated with profit or personal gain,¹³ and is a concept which invokes discomfort within many public servants (Coaldrake 1996). Yet recent attempts have been made to redefine the concept in the public sector context (*eg* Graham and Harker 1996). No longer is profit or personal gain the predominant view; rather it is about '*opportunity recognition and implementation*' (Kao 1991: pv).

At a broader level, the changes to the public sector in Australia culminated in 1995 when Australia's eight governments¹⁴ agreed to the *National Competition Policy* reform framework which extends the concept of competition to the public sector (NCC 1999). This competition policy established '*competitive neutrality*' by aiming to reduce the '*unfair advantages*' which government sectors had over the private sector in providing infrastructure and other services to the public (NCC 1999: p4). Public sectors were viewed by some as '*monopolisers*' of services, despite the fact that they have traditionally (or theoretically) served the public interest. The aim was to facilitate a more strategic approach by creating more proactive policy frameworks, overseeing, regulating and monitoring private sector activities, and by emphasising *results-based* systems (achieving what we need) rather than the traditional measures of *inputs* (what resources used and how) and *outputs* (level of activity produced)¹⁵

¹²Public sector accountability became more pronounced in the 1970s, and in the 1980s economic managerialism began to be the focus (Kao 1991). The US text by Osborne and Gaebler (1992) '*Reinventing Government: How the entrepreneurial spirit is transforming the public sector*' also appears to have had a major influence on this trend. All in all, it appears to be a 'logical' progression from past events. Government frameworks in the 1990s can also be linked to the industrial revolution early last century and the advent of *lasses fairz* economics and ethics (*eg* refer Lansbury and Gilmour 1977). In other words, minimal government intervention in the provision of services or products.

¹³ For example, in the 1980s of economic managerialism, entrepreneurs were often associated with '*high-profile business people who built their names on highly leveraged empires. Entrepreneurship became synonymous with dubious practices, unwarranted risk and irresponsible behaviour*' (Coaldrake 1996: p66).

¹⁴This comprises the Commonwealth government, the State governments (New South Wales, South Australia, Queensland, Victoria, Western Australia), and the Territory governments (Australian Capital Territory, Northern Territory).

¹⁵Charles and Rosser (1998) refer to this traditional approach as 'bean counting' and compliance-oriented rather than outcome based.

(Charles and Rosser 1998). Theoretically this was believed to be one way of overcoming the procedural mentality of means-based decision-making in bureaucracy, which transferred to the EIA context.

Asset Managers and the FOPP Model

Within this context, the focus within Transport SA turned towards 'asset management', and while still in the role of project managers, road construction and maintenance became, or is becoming, less important (DoT 1995). This changing role was reflected in part by internal restructuring to reflect the State government's 'Funder-Owner-Purchaser-Provider' Model (FOPP). The FOPP model, while not forced upon agencies, was a key component of the Government's reform package (Interview 69 1999), and essentially created a division of public operations into a hierarchy between 'policy-purchasers' and 'operational-providers' of services (FOPP 1997). Definitions of funders, purchasers, providers, clients and related terminology are summarised in Appendix (9). It was argued by government that the separation of functions between purchasers and providers introduced a more independent watchdog role over operations. In other words, '*...referees shouldn't be players as well*' (FOPP 1997: p2). This approach was believed to inhibit the potential for 'producer/policy capture' which may have previously been the case in the past Highways Department with its strong emphasis on road construction. The process of 'capture' has been defined as:

'when operational interests [*eg* road planning, design, construction] within government dominate the decision making process, with the result that policy options with adverse consequences for existing government providers may not be given adequate weight...

In terms of the risk of policy capture, if operational interests and perspectives control or dominate government decision making, then those interests will pose a high risk to the development of the full range of policy advice options. This is because "operations" may:

- consider that the development of policy options which involve using means of service delivery other than themselves will damage their interest;
- genuinely be unable to see the advantages of other options;
- generally believe that they are doing well and prefer options which strengthen, not weaken, their functioning;
- be reluctant to change because of the costs of disruption and a preference for stability' FOPP (1997: p8).

Although there are similar trends around Australia and in 'Queensland Transport' (Skerman and Walker 1996), little has been publicly documented on the FOPP (or 'purchaser-provider') model in Transport SA. What was apparent, however, was the creation of an internal trading environment in Transport SA with the establishment of business units which become 'service providers' (*eg* planning or design staff) to 'clients-customers' (*eg* strategic staff or Ministers) based upon 'service agreements' (similar to those in Queensland) (refer also Skerman and Walker 1996). These service agreements are an internal and less formal version of the external contracting process (refer FOPP 1997), and internal service providers such as road planners must be able to compete with the private sector in providing the same services. Yet equality or

'neutrality' of competition is difficult given that the Department's and the government priorities in the late 1990s were to outsource much of this work, and to become a 'purchaser' of services as opposed to a 'provider' (DoT 1995; 1996).

Despite fighting an apparently losing battle in light of these outsourcing policies, in a new world of competition, these internal business units must be viable, and they must '*strive to gain contracts*' (Skerman and Walker 1996: p103). There is new motivation to '*produce leaner, customer-focused businesses with a concern for driving down costs to produce a favourable bottom-line limit*' (Skerman and Walker 1996: p103). Thus, the viability of maintaining internal and public sector service providers is no longer a certainty. Permanency is no longer assured in the public sector, and groups of public servants within Transport SA are now required to continuously defend their existence using new and unfamiliar skills, and to this extent, survival for particular units is becoming paramount. Unlike the 1950s and 1960s, the role of road designers and planners is no longer unique, and elements of the department's long-standing culture may gradually be eroded by the increasing use of private consultants, and the imposition of private sector ethics and skills.

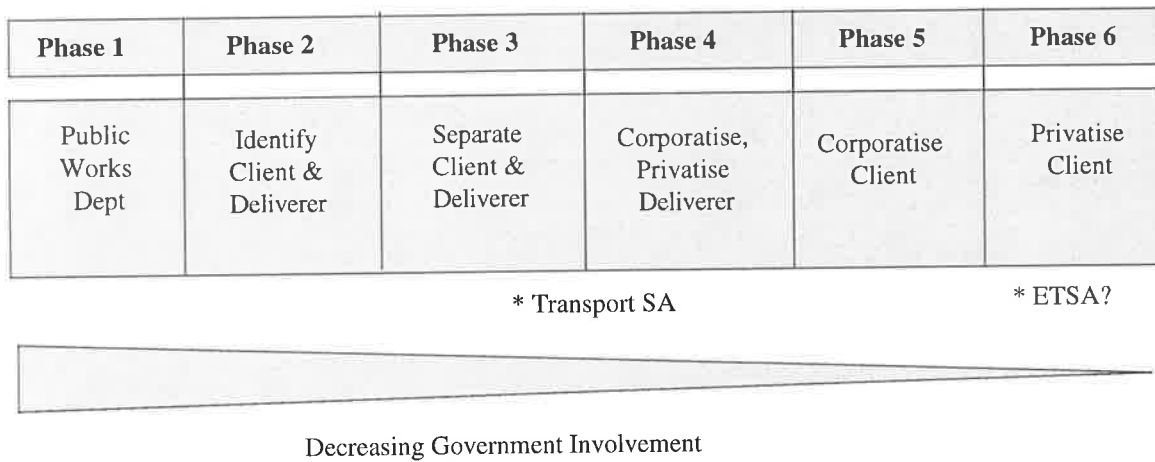
The focus on competition is having longer term and broader implications for the survival of transport organisations in Australia. The most notable feature, according to Charles and Rosser (1998), is the declining role of central government agencies in road construction. It is predicted by Charles and Rosser that there will be multiple rather than single agency responsibilities, increased community involvement, and outcome-based contracts. They have also provided a good illustration of the declining phases of government involvement in road agencies throughout Australia (Figure 6.3) (the approximate locations of Transport SA and ETSA within these phases is also illustrated).

The 'Main Roads' Department in Western Australia has partially completed Phase (3) ('separation of the client and deliverer'). This also appears to be the case for Transport SA (refer Figure 6.3) as it further establishes the purchaser-provider model and focuses increasingly on the privatisation of the delivery process of functions such as road planning, design, and construction. Already, staff numbers have declined substantially which is becoming consistent with Stage Four of the reform process (refer Figure 6.4). ETSA, which is discussed later, is at a much later stage with full privatisation.

At the time of this research, Transport SA was still in a transition stage¹⁶, but this will not be long-term as the new approach becomes more entrenched, as 'competitive neutrality' in government begins to operate in full force, and as older staff make way for the new. Clearly

¹⁶The National Competition policy reforms were proposed to be phased in slowly in order to allow time for preparation and adjustment (Samuel 1999: p6).

this is a substantial change from the earlier days of extensive and progressive road construction, 'free rein', and internally-based focus and control within the Department. Already, large planning and design jobs such as the Southern Expressway or the Adelaide-Crafers Highway (refer Chapter Nine) are now a 'once in a lifetime opportunity' for internal service providers. Although construction is still important because of the high numbers of motor vehicles, congestion and deteriorating roads, it was estimated by one employee that in the 1960s the Department was constructing nearly 600 kilometres of roads per year, whereas in the 1990s, they'd be 'lucky' to build 60 kilometres (Interview 63 1999). The construction culture is declining, and survival is becoming an issue to many employees in the twenty first century. The future holds nothing but uncertainty. The implications for EIA and environmental management of some of these changes are noted in Chapter Eight and Ten.



Key

PHASE	CHARACTERISTICS
1	Public Works - traditional construction and maintenance 'public works' organisation - large government workforce
2	Identify Client and Deliverer - more emphasis on efficient service delivery and start of contracting out work - medium sized, semi-autonomous
3	Separate Client and Deliverer - increasing emphasis on policy and efficiency, provider role being corporatised, establishment of separate funding board
4	Corporatise Deliverer - corporatisation, through to privatisation, of the delivery role - small agency with more autonomy
5	Corporatise Client - corporatisation of the client organisation, with client road manager becoming formal owner of the road asset - very small regulatory and policy body
6	Privatiser Client - privatisation of the road network - occurring as toll roads, with a concession to maintain and operate for long periods of time or establishment of government owned 'road companies'

Figure 6.3: Declining government involvement in road construction (Dunlop 1996 in Charles and Rosser 1998)

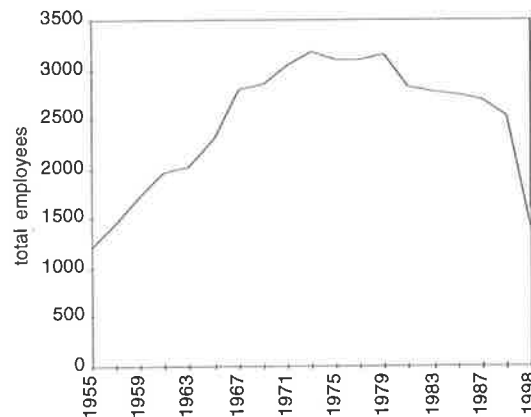


Figure 6.4: Total Employees within the Highways Department

(renamed Department Road Transport, Department of Transport, Transport SA) (compiled from Highways and Local Government Annual Reports 1926-1969; Highways 1969-1989; Department of Road Transport 1989-1994, DTUPA 1997/1998; and Donovan 1991: pp97; 127; 255; 271)

6.2 THE ELECTRICITY TRUST OF SOUTH AUSTRALIA (ETSA)

6.2.1 The Beginnings: Private Control & Increasing Legitimacy

Like roads, electricity gradually became one of the essential services to Australia in the twentieth century following the first experimental introduction of electric lighting in 1867 (Aesche 1971). However, unlike roads which were provided by governments, electricity was initially produced and supplied by private companies (primarily the Adelaide Electric Supply Company: AESCo).¹⁷ The social acceptance of electricity was also slower to develop than road construction, due in part to economic constraints in the late 1880s, together with competition from gas energy which initially provided most of the lighting in Adelaide (Aesche 1971; Kerr and Kerr 1979). Community acceptance of electricity grew by 1922 (66% of metropolitan residences had electricity supplied) (Aesche 1971), but like the Highways department, construction activities were constrained by World War I, the 1930's economic depression, and World War II due to shortages of labour, a diversion of efforts supplying munitions factories, high taxes, and shortage of a coal to fuel power stations (Linn 1996). Yet at the same time, the consumption of electricity continued to grow.

¹⁷The first legislation to allow for the distribution of electricity in South Australia was enacted in 1882 (ETSA no date). Subsequently, legislation in 1897 permitted the South Australian Electric Light and Motive Power Company Limited to generate and supply electricity, and the company was later replaced in 1904 by the Adelaide Electric Supply Company Ltd (AESCo) (ETSA 1956) (other regional electric supply companies were also formed later).

Triggers for the increasing demands for electricity, particularly during the post war period, were similar to those which triggered road construction, and included high prosperity, increasing population, and the modernisation and growth of industry in line with Playford's industrialisation policy (Kerr and Kerr 1979). Increased demand from the residential front was also substantial because, like road access, electricity and the use of household appliances dramatically changed people's lives (*ie* it was labour and time saving, people became more nocturnal, leisure hours increased, and it facilitated new forms of entertainment and levels of awareness via radios and television) (Aesche 1971; Linn 1996). Aesche argues that the improved living standards associated with electricity were substantial:

'Electrical appliances have not only altered the complexion of the home, but have altered the course and tasks performed by the householders and have generally given all sections of the community some degree of benefit in "improved living standards" and at the same time have helped to create the demand/supply/demand triangle' (Aesche 1971: p46).

Rural areas were slower to follow metropolitan trends, and many individuals appeared to be indifferent to the benefits of electricity which was viewed as a city amenity (Aesche 1971). Rural supply was also generally not available given that transmission lines over such long distances for small numbers of customers was not economically viable (Aesche 1971; Kerr and Kerr 1979). AESCo aimed to eventually expand into rural areas, but it was only after 1946 with the creation of ETSA (see below) that all rural areas were to be connected (Aesche 1971). During World War II, the attitudes of rural communities gradually changed due to improved incomes and a need for more mechanistic aids given the lack of human labour at the time (Aesche 1971). Electricity was no longer considered an amenity, but as an essential service to which rural communities had a right (Aesche 1971).

6.2.2 The Nationalisation of Electricity in the 'Public Interest': 1946

With increased community and industrial demand the legitimacy of the electricity supply organisation was reinforced. However, as was the case for the Highways Department, AESCo's independence from government and status as a private authority was challenged in the 1940s, and in 1943, an Act was passed by government to establish a State electricity commission which was required to investigate improvements to the efficiency and effectiveness of supply to this increasing demand (Kerr and Kerr 1979). This effectively transferred part of the organisation's role away from the electricity supply companies, and signalled the beginnings of greater government intervention into private operations. Intervention went further in the late 1940s when AESCo was nationalised in 1946 following a controversial Royal Commission inquiry (*ie* it become a government-owned organisation) (Kerr and Kerr 1979).

Although no major complaint could be found against the Company, the idea of reduced tariffs and the concept of 'public interest' became important factors in the final decision (Kerr and Kerr

1979). AESCo did not appear to fully operate in the public interest given its reluctance to connect all rural districts unless it was considered profitable (Kerr and Kerr 1979). Moreover, due to economic and technical issues, AESCo did not show signs of support for the government's strong push to use lower quality brown coal at Leigh Creek in South Australia (at the time the majority of coal to fuel power stations in South Australia was imported from interstate which was causing economic problems) (Kerr and Kerr 1979; Muirden 1986; Klaasen 1996). It was argued at the Royal Commission that to maintain public interest, private 'monopolistic undertakings' should be controlled by the State (Kerr and Kerr 1979: p95). It is interesting that this earlier view totally contrasts with the views in the 1990s noted above where State 'monopolisers' should be avoided. It was also concluded that:

'The possibility of unnecessary political interference [into a private company's operations] would be removed if the undertaking is vested in a public utility Trust "clothed" with the power of Government, but possessing all the flexibility and initiative of private enterprise' (Royal Commission in Kerr and Kerr 1979: p96).

Thus, the electricity supply company became a quasi-government entity in 1946 and was named the 'Electricity Trust of South Australia' (ETSA). Like the Highways Act 1926 which gave the Highways Department autonomy from political manipulation, ETSA too was effectively removed from political control (Kerr and Kerr 1979, and there was little government intervention up until the 1970s. As noted by Kellow in the broader Australian context:

'electricity supply was largely seen as a technical matter to which politicians had little to contribute... Often this technical independence was manifested in the establishment of independent electricity commissions from which political controls were largely removed. Often, however, the independence was simply *de facto* with the utilities existing as government department subject to ministerial responsibility but enjoying considerable freedom because of the lack of technical expertise on the part of the political masters' (Kellow 1996: p13).

ETSA was like a commercial enterprise in that it was responsible for its own administration and raising of finances, and it was not to be managed with a 'public service mentality' (Linn 1996). However, its overall aim was also not to profit, but to serve the community, and ETSA was required to make contributions to State revenue (ETSA Annual Report 1969, p16; Kerr and Kerr 1979).¹⁸ The inclusion of 'Trust' in the name was a deliberate attempt to portray ETSA, like the existing Housing Trust, as a trustee for the people (Kerr and Kerr 1979). The creation of ETSA, in addition to new technologies, also facilitated the expansion of electricity to rural areas with government subsidies under the *Electricity (Country Areas) Subsidy Act 1962-65* (ETSA annual report 1967). These changes were also of benefit to Playford's industrialisation process, and it was stated by Premier Playford at the 1959 election that '*industry in South Australia has at no time been hampered by want of power*' (Muirden 1986: p281). According to Dunstan (1998), the establishment of ETSA was one of Playford's great achievements.

¹⁸Unlike the then Highways Department which earned no revenue from road construction, ETSA was able to generate substantial revenue from the supply of electricity.

Increasing Construction Activity in the 1950s & 1960s

The 1950s and early 1960s were good times for ETSA, and like Donovan (1991) in his description of the Highways Department during the 1950s, Linn (1996) also described this period for ETSA as the 'halcyon' years. With increasing demand for electricity, rural people in particular '*greeted the coming of electricity with open arms*' (Linn 1996: p82). From 1946 to the 1970s, electricity generation capacity increased substantially and new substations and power stations were constructed in addition to the expansion of transmission lines (eg from 1,146 miles to 22,926 miles of transmission lines by the 1970s) (Kerr and Kerr 1979).¹⁹ Most residences had the basic electrical appliances by the 1950s, and by 1953, 80% of all dwellings in South Australia had electricity (Aesche 1971).

In order to cater for such intensive activity, and given that planning was required years in advance, a separate Planning Department was created in the 1950s which was separate to the Design Department. This planning department was responsible for all planning of power stations and transmission developments until the time of approval, whereas design addressed projects which had been approved from detailed design until final completion (ETSA 1956). The creation of this planning department was a similar initiative to the then Highway Department's creation of an advanced planning section in the 1950s. There was however, less reference to planning in ETSA's Annual Reports when compared to the Highways Department, and ETSA reports were focused more on generation capacity, consumers, Leigh Creek coals, alternative fuels, and undergrounding to improve aesthetics.

6.2.3 Organisational Culture in the 1950s-1960s

Like Highways, ETSA became a large organisation in the 1950s with up to 5,000 employees, but the transfer from a private to a public entity had little effect on ETSA employees (Linn 1996). ETSA was also dominated by engineers (Linn 1996), and the legitimacy of the organisation and strong technical/expert culture was reinforced by the increasing demand for electricity and construction activities. According to one employee, it was easy in the 1960s to put in power lines because there were few impediments during the Playford era (Interview 1 1997). As for Highways, environmental issues were not significant during this time (Interview 1 1997; Interview 2 1999), and more important factors included siting, costs, landowner cooperation and engineering factors (Interview 1 1997). Despite the introduction of forward planning initiatives, the culture was predominantly based on a 'trail blazing' and a 'pioneering spirit' (Linn 1996) as electricity was expanded into difficult rural areas. A cowboy type culture

¹⁹Prior to 1946, only small transmission lines of 33kV were constructed, but later, larger lines were used including 66kV, 132kV and 275kV (275kV lines were introduced in the early 1960s). Examples of planning for the latter two are examined in the project case studies (Volume II of this thesis), and referred to in Chapter Nine.

similar to that evident in Highways emerges in the following account of the construction process of a transmission line:

'In those swamps was the filthiest job you'd ever get in your life. Of course all of the vehicles were always getting bogged. We had to put a pipe down ... and get down inside and dig the stuff out....strangely enough we did that in the middle of winter. And next thing we know, we'd get down in the country where the rock is and we'd be blasting rock and cutting trees - but that's in the middle of summer - but it was a good life' (Linn 1996:p84).

Construction of large power stations also claimed substantial attention and they were constructed in coastal, swampy and mangrove land which required massive reclamation works. Environmental factors did not come into these decisions except in terms of the constraints the environment placed on the logistics of construction and efficiency of operations (Interview 3 1999). Like Highways, this construction culture and the pride taken in the technical development of electricity supply was reflected in Annual Reports, with numerous photographs of construction sites and technical discussions of power stations and transmission lines.

From its earlier and smaller days as a company, ETSA has been described as a united culture (which contrasts with the 'fiefdoms' in the Highways Department), and strongly reliant on team work and camaraderie well into the 1970s (Linn 1996). Although this overall loyalty to the organisation was also evident in Highways, the conflict between groups within Highways (ie 'let the underlings war') did not appear evident in ETSA (or at least was not recorded in the histories). There also appeared to be a greater focus in ETSA on serving the community rather than the single-minded pursuit of engineering feats.²⁰ Linn (1996: p74) noted that great pride was evident, and that those within the organisation:

'were forever reminded of [their] role to serve the community...It was always a team response...Team spirit was, and hopefully is, an outstanding characteristic of ETSA. This came through from the Company days and was clearly the envy of Government Departments who did not command the same respect of their employees...ETSA was a more efficient utility because of its self-contained family method of operating' (Linn 1996: p74).

'Always the intensely loyal servant of his [sic] employers, he never forgot that he was, in the highest sense, a servant also of the public, and he was one of the earliest to see that the best interests of his employers were closely bound with true and honest service to the public' (Linn 1996: p76).

This culture is likely to have been passed on as generations of the same families worked within the organisation for long periods of time (Kerr and Kerr 1979).

²⁰But it should be noted that Highways also believed that they were providing what the community wanted, hence their shock at the first signs of public protests against their actions in the 1960s.

6.2.4 Community Concern & Government Intervention (Mid 1960s to the 1980s)

ETSA's pride in 'serving the community' was severely shaken during the mid 1960s, which is a similar time frame to the Highways department with the shock of the MATS plan. Linn (1996) notes that for the first time electricity expansion began to be questioned:

'some were beginning to call the placement of ETSA's transmission lines 'destruction and despoliation of our landscape for the sake of so-called State development and progress'. Especially was there criticism against the proposed route of a powerline along the Little Para River Valley. These aesthetes who raised the alarm ... saw only a lack of concern for the natural world. To them, ETSA was merely a 'plethora of pylons, poles and wires ... a prime contributor to the visual chaos which [was] engulfing our rural and urban areas'. They believed that the whole lacked co-ordination and planning - not in an engineering, but in a landscape-architectural sense' ... Signs were that public enthusiasm over the wonder of electricity, and their gratitude for it, had either passed, or the matter was simply taken for granted. Public protest against the Little Para Valley transmission line was vociferous' (Linn 1996: p129-130).

No longer was the community greeting electricity supply 'with open arms' in the rural areas, and this came as a shock to ETSA given its traditional emphasis on service to the public as the basis of its existence (Linn 1996). The community's awareness of the power of protest was increasing, and local councils also began to challenge ETSA's operations on environmental terms (Linn 1996). It was ironic however, that demands for electricity consumption continued to grow (and supply was taken for granted), despite the fact that they were the very cause of the community criticisms of ETSA and projects such as the Little Para Valley Line (Linn 1996).

These social concerns, combined with declining infrastructure construction, financial losses in 1972, the search for alternative fuels, concerns about the security of gas supply (Linn 1972), and changing government approaches in the 1970s, began to impact on the organisation. Broader planning initiatives were instigated by the Dunstan government with the creation in 1977 of the State Energy Research Advisory Council to investigate longer-term energy and to improve self-sufficiency, and the creation of the South Australian Energy Council in 1978 to develop energy policy and conservation strategies (O'Neil 1992). This too was consistent with the Dunstan's government broader policies such as public transport which went beyond the focus and incremental construction of road assets. ETSA's construction role (*eg* of transmission lines) also declined in the 1970s (refer Figure 6.5) which was due in part to reductions in population and industry growth, and given that the 'rural electrification programme' had nearly been completed (ETSA Annual Report 1974; Patrickson *et al* 1995). By the late 1970s, 98% of the State had been supplied with electricity (Linn 1996), which again is a similar time scale to the Highway Department's completion of its primary infrastructure in the 1970s.

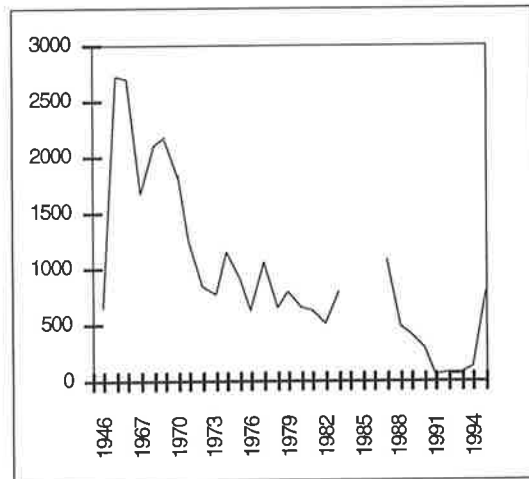


Figure 6.5: Rates of Transmission Line construction (miles/kilometres) (voltages above 11kV, and only includes overhead lines from 1988 onwards; prior to this it is unknown if undergrounding was included in statistics) (there may be some inaccuracies due to some change to, and discrepancies in, reporting of line length, in addition to transfer from miles to kilometres in 1974) (compiled from ETSA Annual Reports 1946-1996)

The increasing government intervention was maintained by the subsequent Bannon government which aimed to attain much greater accountability from ETSA (Linn 1996). This period, as was the case for the Highways Department, was a time of substantial change. According to Linn, a severe storm which damaged transmission lines in 1979:

'mirrored the hardships that were to be experienced by the Trust throughout the late 1970s and 1980s. For nearly a decade, the fortunes of the organisation had been altering from those expansive years of rapid growth and extension of the supply system when there had been stability of leadership and little, if any Government interference...It was as if ETSA, during those tentative days, had become a boat - sound and strong in the making - liable to be buffeted to and fro by every wind of public perception and political pressure, and edged ever nearer to the rocks; its crew stood steadfast in face of trouble' (Linn 1996: p181-182).

As for other government organisations, the economic rationalism ideology of the 1980s and commercialisation of the public sector impacted on ETSA (O'Neil 1992), and the organisation's construction and technical culture was gradually transformed from a engineering-based construction culture into a commercial, managerial and maintenance culture which focused on the shareholder and the customer. Overall pressures on ETSA and electricity industry during the 1980s included:

- a decline in economic activity in addition to increases in costs for electricity generation;
- a need to evaluate electricity against alternative fuels on an economic basis due to increased production costs;
- anger and hostility from the public about large bushfires caused by electricity distribution lines during early 1980s (eg 1983 'Ash Wednesday'). The organisation which was previously viewed as insular, was now opened up to consumer opinion;

- the application of tighter accountability criteria in the public sector due to increased scrutiny from government (which was also evident for the then Highways Department);
- the importance of establishing interconnections between the eastern States to exchange electricity and offset reductions in the State's production of electricity (Patrickson *et al* 1995).

Premier Bannon's government also saw a downgrade of the minerals and energy portfolio, which was a similar trend to the downgrades in road construction under the same government in the early 1980s (Patrickson *et al* 1995). Just as the then Highways Department lost its traditional legitimacy based on its construction role, and began to lose its unique autonomy and independence from political control, so too did ETSA when its Act was modified in 1987 to bring the organisation directly under Ministerial control (Patrickson *et al* 1995; Linn 1996) (*ie* the Minister for Mines and Energy).

As for the Highways Department, the actual implementation of change in the early 1980s was initially slow. ETSA was not ready to change (Patrickson *et al* 1995), but by 1986-87 there was increasing emphasis in the Annual Reports on customer service and public relations (ETSA Annual Report 1986; 1987). The gradual changes to ETSA's culture were also reflected in the organisation's first attempts at corporate planning at a similar time frame to Highways, and in 1985, the first corporate vision was included in the Annual Reports. At this time, 'public interest' was still a driving force and the '*...purpose of the Electricity Trust [was] to provide electricity and associated services in a manner and at a price consistent with the best interests of the general public*' (ETSA 1985: p1).

6.2.5 Survival in the 1990s: Corporatisation & Privatisation

Change in the 1990s was coming from all fronts, sometimes conflicting, and it was noted by ETSA's Chairman:

'One of the pressures on ETSA now is [the]...past degree of insulation from change is no longer permissible, practical or just, and the call to greater accountability is coming concurrently from all parties of the community including government, business and academic analysis. Other pressures on ETSA which are, in part, a consequence of this call to greater accountability, are expectations of an increasing return on the State's investment in ETSA, reducing tariffs, increasing the productivity of capital and labour, a greater concern for the environment and better service to customers' (ETSA 1990: p4).

Despite the mainstreaming of environmental issues and reduced sense of community urgency noted earlier, ETSA perceived that the community had higher levels of awareness and expectations which continued to place pressures on government and private sector operations (Interview 8 1999; Elkington 1998). It was noted for instance that '*[c]ommunity attitudes towards overhead systems are changing markedly. This is due to increasing urbanisation, more*

environmental awareness and an increased desire, generated by mass media, for more public participation in such matters' (ESAA 1990: p1).

Corporatisation

As for the then Department of Road Transport, ETSA did not escape the era of commercialisation when it became apparent that the traditional engineering focus was no longer appropriate for the increasing national and competitive market emphasis on electricity supply (Linn 1996). There were also moves towards creating a National Electricity Market (NEM) which established a common electricity pool to promote competition between the eastern States in Australia (ETSA no date; Auditor General 1996). No longer were consumers to be forced to consume electricity from their own jurisdiction, and plans were to provide greater choice about the costs of supply (it has also been reported in the media that consumers may choose an electricity supply authority based on its environmental record, but the actual details or outcomes of this are yet unclear).

As a result of these influences, ETSA was corporatised in July 1995 pursuant to the *Electricity Corporations Act 1994* (ETSA Annual Report 1997). The *Public Corporations Act 1993* which prepared the way for this corporatisation, states that a public corporation '*is an instrumentality of the Crown*' and is subject to control and direction by its Minister within the scope of the corporation's incorporating Act (Section 6). A public corporation must also undertake its commercial operations in a manner consistent with '*prudent commercial principles, and use its best endeavours to achieve a level of profit consistent with its functions*' (section 11). Thus, the focus had now turned towards profit as the main driver rather than 'public interest', and in this sense, differed to Transport SA given Transport SA's lack of revenue-generating ability (although efficiency did become more important at this time). The increasing profit emphasis in ETSA Corporation is reflected in Figure (6.6) which illustrates increased levels of retained profits for the organisation, and this growth was also consistent with the year of 1997-98 which showed the first signs of growth in State's economy in many sectors (ETSA Annual Report 1998). The problem was that '*...[p]ursuing profits became more important than serving the community*' (Radbone 1992: p110).

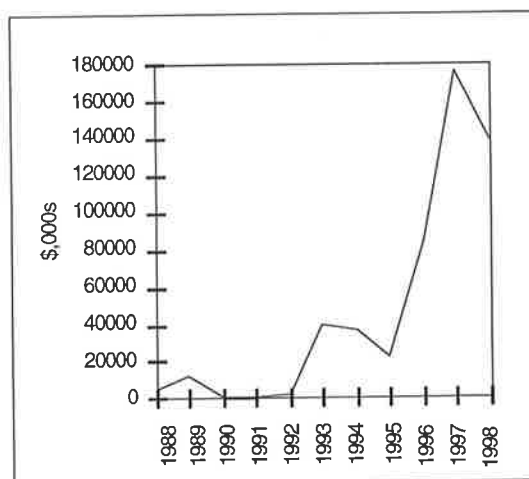


Figure 6.6: Retained profits from 1988 to 1998 in ETSA (Annual reports 1997; 1998)

Another impact on the organisation's culture was the fragmentation of the organisation to prepare it for competition and to reduce the monopolistic nature of the industry in the State. ETSA was initially divided into four subsidiary organisations comprising: ETSA Power Corporation (distribution and retail); ETSA Transmission Corporation (large transmission lines);²¹ ETSA Energy Corporation; and ETSA Generation Corporation²² (gas purchasing/sales, renewable energy) (ETSA 1996; ETSA 1997). ETSA Corporation retained overall decision-making control, but the subsidiaries were to deal with each other as if they were separate and external organisations, and each subsidiary corporation had its own board from June 1997 (Auditor General 1997).

By 1997, ETSA was the largest South Australian government business in revenue and profit, in addition to being among the top two companies in the State in terms of net profit (ETSA 1997). The change in management approach and profit base is clearly reflected in the 1997 Vision and Values outlined in the annual report: '*By 2001 we will maximise our shareholder value as a national leader in terms of competitiveness and profitability in our electricity and energy businesses*' (ETSA 1997). This contrasted with the 1985 vision which focused on 'public interest'. In a similar manner to Transport SA, a new internal accounting system was developed, and each division was treated as separate business units to establish an internal

²¹ETSA Transmission Corporation separated from the ETSA group as a completely independent entity in 1998 (Auditor General 1998). Because the focus of the project case studies is on transmission development, the focus of later Chapters is on ETSA Transmission Corporation (later renamed Electranet SA). This subsidiary manages the transmission network and comprises two business units: Transmission Network which develops and maintains high voltage transmission lines (the focus of this research), and System Control which monitors and controls the switching services for transmission and distribution (ETSA Annual Report 1997). Similar to the whole of ETSA Corporation, the key focus of ETSA Transmission in 1997-98 was to '*maximise[e] the profitability of the network business*' (ETSA Annual Report 1997: p11).

²²ETSA Generation was separated by legislation in 1996 from ETSA Corporation, and in 1997 became a separate corporate entity known as 'Optima Energy' (ETSA Annual Report 1997).

trading environment, and to assess areas which would be more profitable by subcontracting activities out to the private sector (Patrickson *et al* 1995).

In order to cut costs, improve efficiency and facilitate competition in the National Electricity Market (Coorey 1998), the organisation was also downsized with reductions from nearly 6,000 staff in 1988 to under 2,000 in 1998 (refer Figure 6.7). This downsizing was consistent with job cuts in Transport and across the entire public sector at the time (Murphy 1998). It also had a major impact on the organisation's culture, and Linn observed that:

'Few employees understood the enormous change in direction their organisation had undergone....To staff, ETSA had moved from being seen as a fundamentally secure working environment to one of uncertainty; many were perplexed' (Linn 1996: p219).

As a result of these changes, the engineering culture which was traditionally a powerful base in the organisation was eroded as staff and operations were redeployed between the new generating functions, and the focus turned to customer services (Patrickson *et al* 1995). This also had implications for the level of motivation and camaraderie within the organisation which in turn had implications for achieving environmental management outcomes, but this is discussed in Chapter Eight.

Privatisation

All of these changes were, however, merely a transition, and the most drastic changes to occur to the organisation since its nationalisation in 1946 occurred in February 1998 when the government announced its intention to return electricity generation and distribution to the private sector via a process of privatisation (or at least via long-term lease given that legislation failed to be passed for full sale). This signals phase (6) of the reform model presented earlier in Figure (6.3). Similar trends in privatisation were occurring around the world, but the view of government was that privatisation was necessary to avoid severe competition penalties of up to \$1 billion which may have been incurred due to failure to comply with Australia's national competition policy which was noted earlier (Abraham 1998). The rationale of privatisation was to also reduce substantial State debts incurred in the 1980s under the Labour Bannon Government.

These decisions were obviously a complete turn around from the government policies of the 1940s which suggested that monopolies should be within State control to maintain public interest. However, the argument that public interest was best serviced by public control of these assets did not appear to play a significant role in the privatisation debate which is significant in light of past Premier Dunstan's argument that:

'if you privatise public undertakings, you remove the imperative that they should pursue social ends. What you get is that the whole motive of the executives of privatised services is to

maximise the return to shareholders to keep them happy and to maximise the salaries of executives and directors...and therefore they will set out to minimise costs - labour, materials, supplies and maintenance' (Dunstan 1998: p14).

This also has cost implications for environmental management, and the privatisation process was affecting the approach to environmental management in ETSA in the late 1990s (see Chapters Seven and Ten). The privatisation process caused significant controversy between government parties and in the community, and was the subject of a plethora of newspaper articles (eg as illustrated in 1998 Media Monitoring Reports by ETSA's Public Relations Department). Despite failing to pass legislation for the sale of ETSA and its subsidiaries, a long-term leasing process was initiated in 1999, and like Transport SA, the future holds much uncertainty for employees in the twenty first century, particularly given that very few new projects are constructed today.

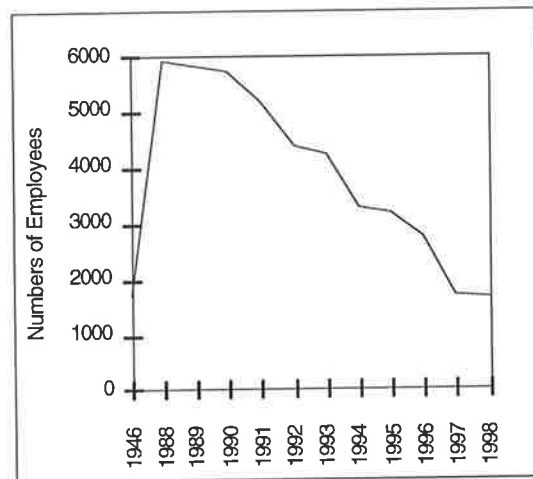


Figure 6.7: Employee numbers in ETSA from 1946 to 1998
(Annual reports 1946-1998; note absence of figures from 1947 to 1987; Linn 1996)

6.3 SUMMARY

'The history of the state public service is one of long periods of neglect by politicians and the community, punctuated by occasional brief periods of interest and reform' (Radbone and Robbins 1986). In summary, both organisations:

- were dominated by engineering 'experts' (technocracies);
- experienced increased post-war funding and community and industrial demands for the luxury and convenience of road access and electricity supply during the 1950s;
- experienced exciting and 'grandiose' times of engineering and construction during the 1950s, and did not consider environmental issues in the delivery of their missions;

- had substantial autonomy from government intervention in the early-mid part of the twentieth century;
- had high public visibility and experienced changing community expectations with a transformation from community convenience to community concern from the mid 1960s onwards, and a greater focus on the social and environmental impacts of their construction activities;
- experienced increasing government intervention in the 1970s with greater coordination and planning reforms, and a reduction in the importance of the road and energy portfolios;
- experienced a reduction in resources compared to the 'millionaire' days of the 1950s in Transport, and in the 1980s and 1990s resources were scarce within an ailing economic climate;
- underwent a gradual transformation from construction-oriented cultures to maintenance, managerial-oriented culture in the 1980s;
- underwent a form of privatisation with increased contracting out of construction work to the private sector in Transport, and the leasing process of ETSA Corporation in the late 1990s (*ie* Transport in particular was becoming a 'watchdog' or regulator of the private sector rather than an operational organisation); and
- are experiencing substantial uncertainty about the future, with a focus on survival in the twenty-first century.

The way in which both Transport and ETSA responded to increasing community and government intervention, particularly the EIA requirement, is addressed in Chapters Seven, Eight and Nine. Also addressed are the implications of change in broader areas of the organisations which were identified in this Chapter, and how they relate to, and influenced the organisations' response to EIA and the implementation of EIA in practice.

PART III:

THE EMPIRICAL RESEARCH
& INTERPRETATION:
CCP FRAMEWORK & DISCUSSION

Chapter Seven

**THE ORGANISATIONAL
CAPABILITY FOR EIA****7.0 INTRODUCTION**

As demonstrated in Chapter Six, the organisations studied in this research are no strangers to change. Indications about both Transport's¹ and ETSA's often reluctant and gradual responses to government efficiency bids have been noted, but the important question is: how did they respond to community pressures and to the EIA requirement in particular? Did they establish the rhetoric and capability to support the EIA policy requirement? If so, was this change immediate or delayed? There have as yet, been no answers to these questions in South Australia. In addressing research objective (6), this Chapter explores the responses to EIA and to community demands, and how and to what degree, the organisations developed the capability to implement EIA (*ie* the first component of the CCP framework defined in Chapter Four). It is the visible and official component of the response represented in the organisational iceberg originally referred to in Chapter Two, with a focus on the organisational level of adaptation as opposed to the individual level (although there is overlap) (refer also to the distinction made by Hellriegel and Slocum 1976: p368).

The specific evaluation criteria are reiterated at the beginning of each major section in this Chapter encapsulating environmental goals and procedures (Section 7.1); staff and structures (Section 7.2); and knowledge and resources (Section 7.3), whilst the actual results are summarised at the end of this Chapter. Given that EIA was not the only driver for change, other environmental procedures and systems are also addressed. These procedures are not analysed in depth, but they do provide the broader context for EIA and change, and are also

¹Because there were several name changes for the original Highways organisation, the department is referred to simply as 'Transport' to minimise confusion (although this should not be confused with the Department of Transport created in the 1970s when Highways was still a separate body). Similarly, although the focus is on 'Electranet SA', it is simply referred to as ETSA given that this was the original name of the organisation when the research commenced.

important in that they tend to reinforce the legitimacy and power of the EIA process as a decision-making and compliance tool.

7.1 ENVIRONMENTAL GOALS & PROCEDURES

DIMENSION 1.1: GOALS AND PROCEDURES	
1.1.1	Has the organisation developed environmentally-related goals and/or values in its corporate mission statement?
1.1.2	Have internal EIA procedures been developed by the organisation?
1.1.3	Do these procedures (where they exist) rate at least satisfactory according to the system-evaluation framework?
1.1.4	Has the organisation developed broader environmental procedures, management systems, and/or guidelines which may inform the EIA process and provide upfront expectations about the goals to be achieved in EIA?

7.1.1 Policies of Aesthetics: The 'First Wave' (1960s)

Because of the demonstrated power of the community in the late 1960s (which has sometimes been described as the 'first wave' of environmentalism: Elkington 1998), both organisations reacted to the immediate public concerns, and endeavoured to gain community support with enhanced public relations (Linn 1996; Interview 9 1999; Interview 30 1999). In Transport it was recognised by one employee that if '*..we [didn't] do something a bit more visionary and [a] bit more progressively, we [were] just going to have a fight with all these people*' (Interview 63 1999). It was also recognised by ETSA that community support was necessary to avoid any problems in the future (Interview 9 1997). The initial response to environmental issues by both organisations in the 1960s was limited because much of the community tended to focus on trees and aesthetic problems (*ie* the 'green' issues). From 1967 onwards, reference was frequently made in ETSA's annual reports to the aims of undergrounding power lines. Amenity issues were also important in Transport, although in this case, the public focus was on tree removals. In response to the Montacute Road saga noted in Chapter Six, for instance, Transport outlined its policy on tree removal practices in the 1965-1966 annual report:

'The policy of the Department is to preserve trees on road reserves wherever possible and to remove only those necessary to provide a satisfactory level of service to the community. Investigations are always made into alternative proposals and consideration is given to possible disruption to adjacent property owners. Efforts are made to retain a reasonable balance between the functional requirements and the aesthetics of each proposal' (Highways and Local Government 1965-66: p18).

Transport's subsequent 1966-67 annual report reiterated its policy of vegetation removal, albeit again referring primarily to maintaining the '*beauty of roads*' (Highways and Local Government 1966-67: p22). The first obvious reference to public relations was also made, with commitments to inform the public of proposed major works (Highways and Local Government 1966-67: p7). Similar attempts were made by ETSA in the 1960s to enhance public relations and image (Linn 1996), although the approach in both organisations appeared to be about 'informing' rather than 'consulting' at this time.

7.1.2 The Development of EIA Procedures (1970s & 1980s)

No broader environmental policies or goals were developed for quite some time (refer section 7.1.3), but further procedural changes were made by Transport in particular, in response to the government's 1974 EIA requirement. Initially, there was evidence of resistance from government agencies when they were notified of the EIA requirement, because it was a new and imposed requirement, and because there was a belief by many agencies that EIA would veto everything else in decision-making, and would prevent them from doing their legitimate work (Interview 70 1999). Nonetheless, both Transport and ETSA had pre-empted the EIA requirement² and commenced informal discussions with the then Department of Environment and Conservation (DEC) almost immediately.

Transport

In 1974, the Director of Environment and Conservation requested the Transport organisation to cooperate in the development of EIA procedures (Highways 1973-74; Shepherd 1980). According to a past employee of the then DEC, Transport was responsive and was the 'exemplar' of how an agency took on board EIA procedures in South Australia (Interview 70 1999). However, the process was a gradual one (Interview 70 1999), and Transport was initially concerned about the potentially heavy workload if the EIA requirement was interpreted literally (Shepherd 1980).³ Transport nonetheless developed preliminary EIA procedures in 1974 which required their Project Planning Section (which was noted in Chapter Six) to submit Notices of Intent to the DEC, and to complete 'Departmental Appraisal of Environmental Factors' (DAEF) forms for major projects (Shepherd 1980). Several of these forms were prepared and forwarded to the DEC during 1974 and 1975, although the exact numbers are unknown (Highways 1974-75). In 1975 and 1976, Transport demonstrated initiative by

²ETSA in particular had forewarning about EIA processes from experience in the United States (Interview 6 1999), and in addition to community pressures, ETSA's emerging environmental awareness and action during the 1960s and 1970s was strongly influenced by this overseas knowledge (Interview 6 1999; Interview 9 1997).

³In other words, a Notice of Intent (NOI) was required for all projects funded by the Commonwealth or State to determine the need for an Environmental Impact Statement, and this encapsulated most of Highway's projects (Shepherd 1980).

conducting further investigations into environmental issues, public attitudes and financial considerations which impacted on proposed works (Highways 1975-76).

The department was eventually given more control over their EIA process, and new procedures were developed in 1977 which involved more internal assessment, although with input from the Department of the Environment (DoE) (replaced DEC in 1975) for major projects (Shepherd 1980).⁴ In the broader context, several other government agencies in Australia were also pushing for similar self-regulatory approaches in the early years of EIA (*ie* the right to conduct their own assessments rather than it being undertaken by a separate environment department) (Porter 1985), but Transport's position appeared relatively unique (see also Chapter Ten). Although the Commonwealth and South Australia's EIA process could still apply, it gradually became the exception rather than the rule for Transport's EIAs to go to the DoE for assessment (Interview 70 1999). The most recent EIA procedure is described and evaluated later in Section (7.1.6).

ETSA

In contrast to Transport, ETSA did not develop internal EIA procedures nor did they self-regulate, and the organisation relied on guidance from interstate, the DoE, and the Commonwealth EIA process (Interview 1 1997; Interview 4 1999).⁵ The close liaison and rapport with the DoE was a significant factor in facilitating EIA practice,⁶ and it was considered by one ETSA officer that '*...if we discuss contentious issues before decisions are made and agree on such matters the support of the Department of Environment will be readily forthcoming.*'⁷ The major concerns of ETSA appeared to be about the timescales involved in the process, and the imposition of inflexible requirements.⁸ ETSA nonetheless began to demonstrate initiative in community consultation with the Northern Power station EIS, which was the first EIS under State requirements to be required by the then Department of Environment in 1974 (refer also Section 7.2.1). This initiative was not a consistent practice in ETSA's decision-making processes at this time (Hazell and Whyte 1985), but like Transport, ETSA was at the forefront of agencies in their response to the EIA requirement. It has been noted by a party external to the organisation that '*ETSA ...prided themselves on leading the pack...showing the others how it could be done*' (Interview 71 1999).

⁴Their development may have also been influenced by guides produced by the ad hoc Environmental Committee created by the 'National Association of Australian State Road Authorities' (NAASRA 1976; 1978).

⁵Hidden Footnote (refer Chapter Four; Section 4.4.2 for explanation of Hidden Footnotes).

⁶Hidden Footnote

⁷Hidden Footnote

⁸Hidden Footnote

The introduction of the EIA requirement under the Planning Act in 1982 had a greater impact on ETSA than the earlier Cabinet requirement, and raised the awareness of senior people within the organisation about considering environmental issues (Interview 1 1997). The potential for EISs to be called under legislation indicated to ETSA that for the first time in their history, there was formal government control over the environmental aspects of their actions.⁹ Prior to this, there was a perception that compliance to the EIA process was based on ETSA's 'good will' rather than due to any obligation to government (Interview 1 1997). As for Transport's Act, the *Electricity Trust of South Australia Act 1946* had given ETSA considerable discretion to serve the '*best interests of the general public*' and they were thus not bound to do as recommended by Ministers of Environment or Planning (Section 15 of the Act; refer also Goodall 1982: p3). With the exception of potential delays associated with EIA, ETSA did not appear overly concerned about the requirement itself and this may have been due to the non-binding nature of Ministerial directions for Crown approvals (refer Chapter Five). That is, it did not constitute a major threat to normal operations.

On a more informal level, policies to conduct EIA and public consultation were also adopted by ETSA. Smaller projects which did not trigger the formal EIS process were assessed for their environmental impacts through consultation with the DoE, and 'Environmental Summaries' were sometimes prepared by ETSA. There were, however, no comprehensive procedures to guide this process; there were minimal checks or environmental clearance of the projects; and the assessments were not always publicly released (Interview 3 1999; Interview 4 1999; Interview 6 1999). According to one employee it was '*...up to the professionalism of the individual doing the job*' (Interview 3 1999), which in turn relates to the concept of 'professional' control noted in Chapter Two.

Unlike Transport, the absence of internal assessment procedures and self-regulation in EIA was a deliberate attempt by ETSA to portray an image of credibility to the public: that is, the reliance on the DoE to externally assess ETSA's projects promoted the image of independence in decision-making (Interview 4 1999; Interview 6, 1999). ETSA was also a quasi-government entity which may explain the lack of documented procedures. In other words, full Ministerial control over Transport had occurred at a much earlier date (1950s) than was the case for ETSA (1980s), and the semi-autonomous nature of ETSA, which was still at 'arms length' from government, meant that there was less need to develop extensive procedures to demonstrate accountability to government (Interview 4 1999; Interview 70 1999). This changed in the 1990s however, as is discussed later in Section (7.1.6).

⁹Hidden Footnote

7.1.3 Expanding Environmental Goals: The 'Second Wave' (1980s-1990)

It was not until the mid 1980s that broader environmental goals were created (evaluation criterion 1.1.1) which is indicative of increasing and more pervasive change. The creation of these goals was not a direct response to the EIA requirement, but was in part a response to the 'second wave' of environmentalism and the first attempts at corporate planning noted in Chapter Six. ETSA was the first to explicitly outline an environmental goal in 1985, whilst Transport followed soon after with their first environmental goal in the 1987 annual report. This was also around the same time that both organisations were preparing their first EISs under the Planning Act (refer Chapter Nine). The environmental goals comprised the third organisational objective in both organisations:

ETSA

To adopt and comply with appropriate environmental protection standards consistent with maintaining a balance between economy and the protection of the environment throughout the planning, design, construction and operational phases of all the Trust's activities (ETSA 1985).

Transport

To utilise traffic management techniques to regulate the use of the road system consistent with the need for increased safety and efficient flow of traffic, safe movement of pedestrians, **protection of the environmental quality of local areas, minimisation of pollution and fuel consumption and minimisation of the impact on adjacent land use**' (Highways 1986-87:p4; highlight added).

At an earlier time than Transport, a separate section on the 'environment' was also included for the first time in ETSA's 1986 annual reports which highlighted its increasing importance within the organisation (although this section comprised only one paragraph). However, amenity and 'green' issues continued to be the main focus, particularly in terms of landscaping in Transport in response to community expectations (Klunder 1989). The most visible idea of environmental responsibility demonstrated that trees still tended to equate with the 'environment', and even the public relations section in Transport became involved in such things as community tree planting ceremonies (Highways 1982-83). Issues associated with the greenhouse effect were also becoming pronounced in ETSA in line with national and international trends.¹⁰

The role of landscaping in Transport gradually began to expand beyond its aesthetic role in the late 1980s to acknowledge the complexity of the ecological environment and the potential for ecological rebuilding (Highways 1988-89). Transport's environmental goal also increased in status when it became a separate objective (albeit a nebulous one): that is, to '*[h]ave a sensitive regard for the environment*' (Highways 1988-89: p5), and the first explicit section on 'environment' as opposed to 'landscaping' was also contained within Transport's 1990 annual report. This was partly in response to the newly enacted *Aboriginal Heritage Act 1988*, and

¹⁰Hidden Footnote

increasingly significant community interest in environmental issues (DRT 1989-90: p19). The Aboriginal Heritage Act appeared to have a major impact on Transport, because the time required and uncertainties of heritage site identification, left proponents open to significant controversy and to financial penalties if non-compliant. This Act was originally believed to have little consequence, but a media article reported its power to '*stop development in its tracks*' (Kriven 1990: p21).

Changes to environmental goals in ETSA, particularly during the late 1980s, were more fundamental than in Transport, although there was still limited development of formal environmental procedures and the media image of the organisation was poor. It was recognised by ETSA in 1989 that the coordination of environmental protection activities needed to be improved from the previously reactive and fragmented stance, and this was due in part to the increasing complexity of environmental legislation, increasing issues of liability associated with bushfire risks and overhead lines, and increasing community and government pressures about greenhouse issues and the potential health effects of Electromagnetic Radiation Fields (EMF) (Gordon 1990; ETSA 1989; CCSD 1989). According to Linn, significant advances in environmental management were made within ETSA during the 1980s, which demonstrated a '*new awareness and public responsibility*' (Linn 1996: p223).

To translate this new attitude into practice, ETSA created a task force in 1989 to establish an environmental performance reporting system, and to assess public perceptions of ETSA's environmental management record (Ainslie and Clarke 1992; Ainslie 1994). A formal environmental policy was developed (refer Table 7.1) based on extensive consultation with external and internal groups, which was approved by ETSA's Board in 1991.¹¹ This policy aimed to satisfy legal requirements, to enhance the organisation's public reputation, and to provide a framework for understanding the environmental issues which affected the organisation, particularly greenhouse and the EMF issue (Gordon 1990). The notion of going 'beyond compliance' received greater weight within ETSA in the late 1980s and early 1990s which is an earlier time frame than Transport. This changed emphasis was predominantly initiated for pragmatic and self-interest reasons, but this is not surprising given an organisation's propensity to survive in the increasingly changing world which was illustrated in Chapter Six. Changing from reaction to action, ETSA argued, would facilitate greater control of the issues and the debates, and would help to reduce the poor community image of ETSA.¹² For instance:

'beyond basic compliance, plans developed and actions taken with a more general awareness of Government and public environmental expectations of environmental sensitivity could have benefits to operations. Conversely, real or perceived inattention to environmental aspects of

¹¹Hidden Footnote

¹²Hidden Footnote

development or operations had the potential to result in project delays and external pressures for control and regulation which could add significant costs' (Ainslie 1994: p3).

In this respect, it appears that self-regulation was becoming increasingly important to ETSA as its autonomy was gradually encroached upon by government in the late 1980s (refer Chapter Six). Nonetheless, ETSA's approach to environmental management continued to be *ad hoc* up until 1993, despite ETSA's attempts to improve coordination and control (Interview 1 1997).

Table 7.1: ETSA's Environmental Policy
(updated version ETSA 1997c: p3)

ETSA Will:
<ul style="list-style-type: none"> • produce, distribute and promote the use of electricity and other products in manners consistent with the principles of sustainable development, integrating environmental and economic considerations. • To comply with all legislative requirements, license conditions and agreements, and cooperate with relevant authorities in the development of practical guidelines based on the principles of sustainable development. • integrate Environmental Management Systems with its existing business systems. • establish, measure and analyse standards of environmental performance. • recognise the biodiversity of areas under its operational control, and avoid unnecessary disturbance to cultural and natural sites of significance. • respond openly and constructively to the reasonable expectations of the community on environmental matters. • promote an attitude of care and responsibility and a sense of stewardship for the environment, by employees. • promote research into environmental issues that results in a sound basis for improving environmental performance and planning for the future. • inform agents, advisors, contractors and consultants of this Environmental Policy.

7.1.4 Compliance and 'Mainstreaming': The 'Third Wave' (1990s)

The approach to EIA and environmental management in both organisations changed dramatically in the mid 1990s, and the most significant procedural and policy changes (evaluation criterion 1.1.4) were made since the EIA requirement in the 1970s, and the first attempts at corporate planning in the 1980s. According to some, a paradigm shift in responsiveness occurred during the 1990s, which was characterised by the routinisation and internalisation of environmental issues into mainstream operations in both government and industry sectors (Shrivastava and Scott 1992; Pakulski *et al* 1998; Elkington 1998; Munchenberg 1999). Changes in this era were a reflection of what Elkington (1998) termed the 'third wave' of environmentalism (refer Chapter Six), or what Shrivastava and Scott (1992) defined as the entry into an

'environmentalist' epoch. Many organisations believed that it was 'good business' to adopt environmental management practices (Doyle 1998), and as noted by the previous Director of the Australian Conservation Foundation (Philip Toyne):

'Gone are the days of the pitched battles over the icon sites of the natural environment, the high profile green leaders, the frequent meetings with Prime Ministers and the huge mass of community support behind the views of the environment organisations.

We now see in its place the mainstreaming of environment, usually under the banner of sustainable development, with many of the bitter opponents of the earlier environmentalism proclaiming their deep commitment to the 'triple bottom line' of environment protection, economic profitability and social responsibility (cited in Munchenberg 1999: p8).

Elkington (1998: p59) argues that the '*...environmental and sustainability agendas had not so much disappeared as been professionalized*' (Elkington 1998: p59), and this was reflected by ETSA's new belief that where '*... environmental concern was once the province of a few "greenies", it is now (or should be) the preserve of virtually every manager*' (ETSA 1990b). In other words, the idea of 'professional control' was becoming more important, and this was evident in the development of codes of practices and environmental principles and ethics for engineers by the Australian Institution of Engineers which were sponsored by both Transport and ETSA, among other agencies (IEA 1992).

The Impact of the Environment Protection Act 1993

Within this mainstreaming process, national principles of ecologically sustainable development released in 1992 (Commonwealth of Australia 1992), and greenhouse strategies were having an increasing impact (ETSA 1993-1994 Environment Report), but the most significant impact on both of the organisations resulted from the enactment of the *Environment Protection Act 1993* which became operational in 1995. This also had implications for EIA given the explicit cross-references between the Development Act and the Environment Protection Act (EPAct) (refer Chapter Five). Essentially the EPAct bound the Crown (including Transport and ETSA), amalgamated several previous acts (*eg* noise control and clean air), and established the Environment Protection Authority (ETSA 1997c). Legally binding environmental policies were developed (*eg* marine, air quality), and new financial penalties for non-compliance were created of up to one million dollars (ETSA 1997c). This was substantially higher than the non-compliance penalties of \$40,000 for EIA under the Development Act, thereby increasing the stakes for proponents of development and major projects (including ETSA and Transport). The Act was also significant in that it introduced a 'duty of care' not to harm the environment, and introduced the potential for criminal liability on employees, contractors and agents of the Crown (Cole 1997; ETSA 1997c).

Given that 'due diligence' or 'duty of care' (*ie* 'taking reasonable care in one's activities') could be used as a defense in the event of prosecution, there was clear incentive for both organisations to establish more explicit systems of compliance (Cole 1997; ETSA 1997c). Essentially a carrot was being provided with greater self-regulation, but with a secondary stick (*ie* threat of prosecution and financial penalties) if this did not occur. The impact of the EPAct was remembered by one employee in ETSA:

'Once the Environment Protection Act [came in], it crystalised a lot more people into, oh hell we've got to do something,...and particularly the Board,...[and] also the way we moved towards a more commercially focused organisation as a Corporation. The Boards, ...[wanted] to know that they had everything covered so that they weren't exposed. So environment became much more of a prominent issue in demonstrating that we had systems in place' (Interview 2 1999).

Two employees within ETSA also noted the greater significance of the EPAct as a more recent driver of change when compared to the EIA requirement (Interview 1 1997; Interview 9 1997).

Environmental Management Systems

Shortly after the EPAct became operational, the environmental goal changed within Transport, and increased in its status from having a '*sensitive regard to...*' towards becoming '*a transport system in harmony with the environment*' (DoT 1995; DoT 1996; highlight added);¹³ whilst ETSA's environmental policy was revised in 1994 to reflect the EPAct (ETSA 1993-1994 Environment Report). The approach to environmental management in Transport also expanded to encapsulate maintenance activities,¹⁴ and 'brown' issues (*eg* air and noise pollution) as opposed to the past focus on 'green' issues (TSA 1998),¹⁵ and both organisations developed an Environmental Management System (EMS) based on the AS/NZ ISO 14001 Standard (although ETSA's was originally based on the BS 7750).

The approach adopted to the EMSs was quite different in each organisation. In ETSA, an integrated approach was developed for ETSA Transmission's draft EMS (now Electranet) (refer Figure 7.1), where policies, environmental issues, implementation and review factors were linked into one overall document. The focus tended to be on operational and maintenance factors rather than new projects, with extensive reviews and audits of existing operations (*eg* refer Butler 1996). By 1993, approximately 200 audits of substations, coalfields, power stations and workshops had been undertaken (Interview 1 1997), although these did not appear to be directly

¹³ At one stage, the concept of ecologically sustainable development was introduced into the Department's values, but this was later removed, perhaps because it was too difficult to conceptualise and put into practice.

¹⁴ This is not surprising given the increasing emphasis on maintenance during this time, and given that much of the infrastructure had already been established as noted in Chapter Six.

¹⁵ Although the environment still appeared to be a lesser concern to other operational goals such as efficiency, accessibility and safety, more specific environmental objectives were established including minimising pollution (*eg* clean water, reduced road noise impacts), sustaining ecosystems (*eg* sustainable use of materials, sustainable management of soil resources, sustained ecosystems and biodiversity), conserving cultural heritage, and enhancing amenity (DoT 1995; Cole 1997).

linked to past EIS impact predictions (where relevant). This focus on existing operations is not surprising given that few new major projects were being developed at the time of this research (refer Chapter Six).

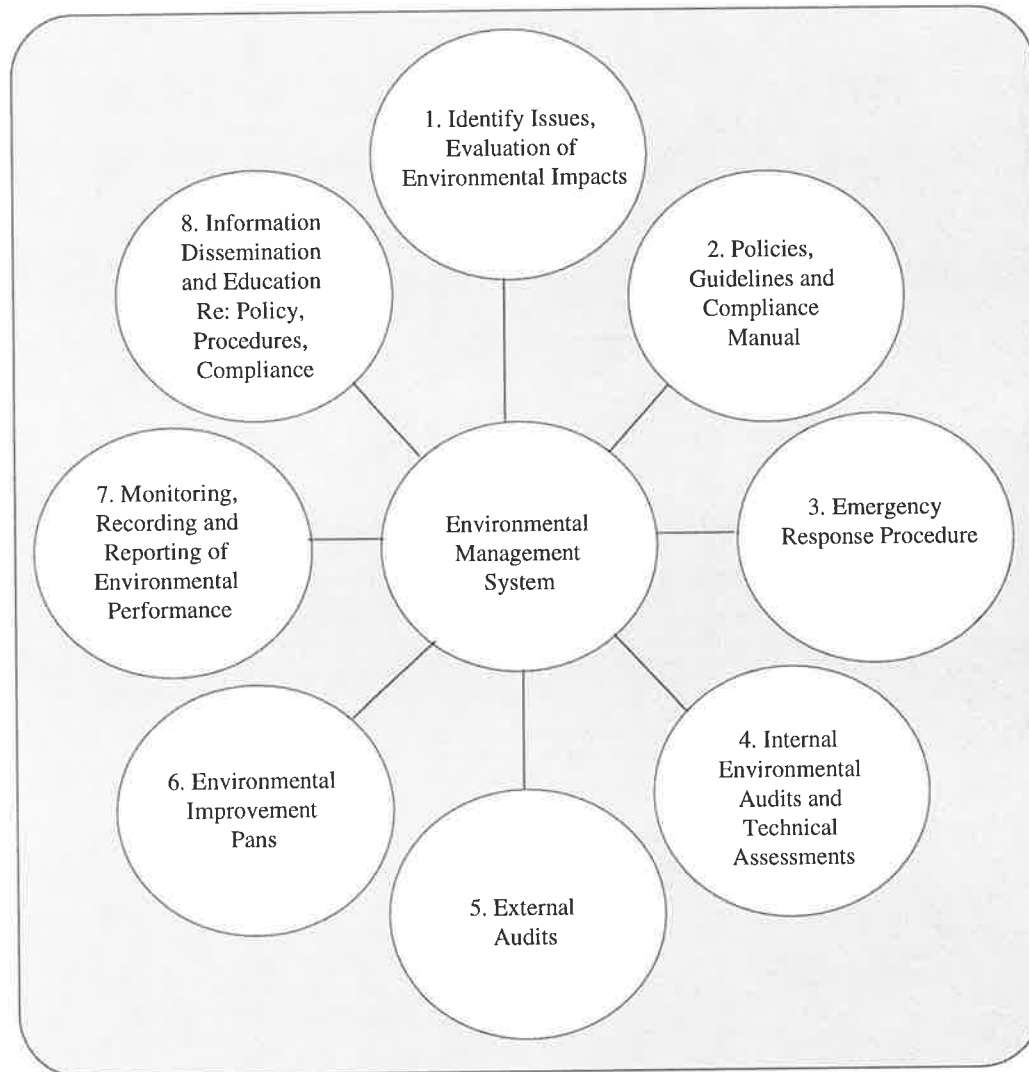


Figure 7.1: ETSA's Environmental Management System
(based on ISO 14000 Standards) (ETSA 1997e: p3)

In contrast, Transport's EMS (Figure 7.2) involved several different documents rather than one single document, and the focus was on the management of new projects in addition to maintenance activities. Auditing was also focused on the construction stage for new projects rather than existing operations given that Transport was still involved in more new projects than Electranet. Key documents in Transport's EMS for new projects comprised:

- *Environmental Code of Practice for Construction;*

- *Environmental Management Plans Guidelines* (EMPs) which required EMPs to be prepared for new projects for construction and operational phases, and which required contractors to ensure an adequate level of environmental training for their personnel (Cole 1997). Encapsulated within EMPs were Transport's environmental protection requirements which reflected the outcomes of the EIA process, legislation, standards, policies and guideline requirements, community consultation and the environmental clearance process (Cole 1997b) (more detail about EMPs is provided in Volume II of this thesis in the project case studies);
- *Environmental Management Implementation Plans (EMIPs) Guidelines* which required that contractors prepare an EMIP for the construction phase. The EMIP was essentially the contractor's response to the Departmental EMP requirements and a statement of how environmental protection would be achieved; and
- *Auditing Guidelines* which aimed to ensure that environmental conditions were met, and protection was achieved in practice by the conduct of audits on new projects.

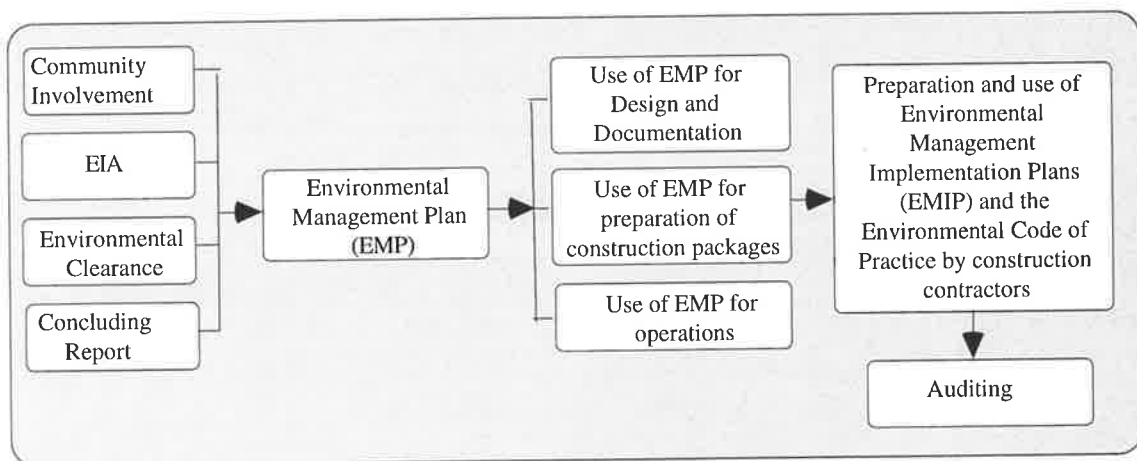


Figure 7.2: A component of Transport SA's Environmental Management System for construction projects (TSA November 1997a: p6)

At a later stage than Transport, ETSA also adopted EMPs for major new projects with significant environmental impact (but not EMIPs) (Interview 4 1999). Within both organisations, upfront expectations for all participants, from planning to design to construction, were also provided with the development of extensive guidelines (*eg* noise guidelines) which supported the EMS within Transport, and to a more limited extent, in ETSA. These guidelines, which are summarised in Appendix (10), in addition to EMS documents, tended to support and

increase the legitimacy of the EIA requirement, although this was not always intentional, but rather, was a by-product.

The inclusion of EMPS, EMIPs, and auditing was a particularly significant development in the context of EIA, particularly in Transport. First, the EMP guidelines in Transport outlined explicit objectives of the EIA process: that is, to '*ensur[e] all environmental impacts for a given project are considered, options reviewed and the "best" solution adopted, documented, implemented and monitored*' (TSA November 1997a: p8). Objectives of the planning and EIA process were also becoming more explicit in within Transport's project management guidelines,¹⁶ including links to ecologically sustainable development (ESD), and this represented a change from the traditional approach to project assessment and planning. For instance:

'In the past the Department's approach to projects exhibited a 'best possible' engineering result. The approach is now one which reflects the Corporate goals, project objectives, the stakeholder requirements, the impact it will have on the local community and community attitudes. This delicate act of matching the project outcomes with its "environment" reflects the current philosophy of the Department' (DoT March 1996: p4-8).

Second, the EIA process at the planning stage in Transport was strengthened by directly integrating EIA and planning outcomes with the later more detailed design stage (TSA November 1997a). In other words, the EMP, which was developed during the earlier planning and EIA process, was cross-referenced with the design process, thus providing clear and upfront information about the department's environmental expectations. Third, and most importantly, the EIA process was directly linked to the construction phase in both organisations. Previously in both organisations, environmental management at this stage was a significant area of weakness (refer also Chapter Eight and Nine), and rarely did the EIA outcomes or environmental conditions get followed through, which is also a frequent criticism in the EIA literature (refer Chapter Five). In both organisations, the choice of tenders for the construction stage of project development were also increasingly being based on environmental criteria and the past environmental performance of contractors, although this was still *ad hoc* at the time of this research.

An Increasing 'Customer' Consultation Approach

In line with the increasing 'customer' focus in both organisations evident in the 1990s (refer Chapter Six), Transport and ETSA were also endeavouring to become more open and consultative. ETSA created a quarterly and widely-distributed newsletter entitled 'ETSA

¹⁶For instance, projects must be consistent with government policy, satisfy the project objectives; satisfy community needs; are cost-effective; are within the defined cost parameters and give benefits exceeding costs; minimise environmental impact and promote ESD; and meet current technical standards (DoT March 1996: p4-4).

environment', and produced glossy and public corporate environmental reports (eg ETSA 1994). In ETSA's (Electranet SA) Business plan (1999), one aim was to '*be responsive and proactive*' in providing information to the community, consulting as early as possible, being sensitive and empathic, engendering community support, and aiming to minimise the impact of proposals (ETSA 1999). Transport similarly began to produce regular releases of community publications such as 'Streets Ahead' which was aimed at individuals affected by Transport decisions including the 'Better Roads' project. It was noted by the project manager of the Better Roads project, for instance, that one:

'of the most important messages for the community is that the drawing board is blank... and there is no doubt this approach seems a little unusual... In the past, TSA [Transport SA] would announce a road upgrade project and basically lay the plans on the table and say 'this is how we are going to do it' (TSA no date: p2).

However, the practice of providing a 'blank drawing board' was not a consistent one and it was found by the Department that the consultation process, although generally praised by external stakeholders, continued to be undertaken late in the process when significant decisions had already been made (PI 1998) (refer also Chapter Nine). It was also found to be focused on the project as opposed to the more strategic level of decision-making, and a need to improve this practice was identified and committed to by the Transport Department (PI 1998). Up until this point, transport policies were not always explicit, there was no central location where transport policy could be identified, and the process of policy development was *ad hoc* and not always accessible to the public (TPSG 1999). At the time of this research however, a policy development framework was being drafted including brief reference to the evaluation of economic, social and environmental costs/benefits of each policy option, and the input requirements for 'stakeholders'.

7.1.5 Environment Strategic Plans: From Compliance to 'Best Practice'?

Despite the increasing environmental procedures and systems in Transport, a review by the department in the late 1990s indicated that they were still reactive, that the environment was an 'add-on', and that the procedures overlapped, were incomplete and *ad hoc* (DoT April 1997a). As a result, one of the most significant policy documents to emerge, the Environment Strategic Plan, was endorsed by executive and the Minister for Transport. The broad aims of this Plan, which reflected a broadening role in environmental management, are outlined in Table (7.2). According to the Environmental Unit, this plan '*...is a significant commitment for the Agency...It will be the first time we will have had an all encompassing blueprint for the way we consider environmental issues in the future*' (TSA 1997d). It was also stated:

'Transport SA is obliged to meet a range of statutory and non-statutory obligations. To date, our baseline approach has been to comply with environmental legislation. We have

successfully done so, and have never been the subject of an environmentally related prosecution or notice.

The Environment Strategic Plan signals a major shift in our approach. For the first time, Transport SA is committed to going beyond compliance to strive for environmental excellence, to address the causes of environmental problems, not just the systems.

By this we mean that Transport SA will need to develop a culture with a stronger environmental skills and knowledge base, in which environmental considerations are integrated into all decision-making processes, staff are encouraged and rewarded for taking environmental initiatives and achieving high standards, and environmental expectations and achievements are communicated' (TSA June 1998: p8).

Table 7.2: Directions and Objectives of Transport SA's Environment Strategic Plan (TSA June 1998)

DIRECTION	OBJECTIVE
To sustain the natural environment	<ul style="list-style-type: none"> • to minimise harmful air emissions, both locally and globally • to protect and enhance biodiversity • to protect water quality • to reduce the consumption of resources • promoting good land management
To enhance the social and cultural environment of the community	<ul style="list-style-type: none"> • to reduce traffic noise • enhancing visual amenity • to respect and conserve cultural heritage
To be an environmentally responsible organisation	<ul style="list-style-type: none"> • to promote a corporate culture where commitment to leading environmental performance is demonstrated by the way business is done
To build relationships for the benefit of the environment	<ul style="list-style-type: none"> • to establish relationships with the community, stakeholders, customers and suppliers to achieve the environmental goals and objectives • to encourage an holistic approach to transport and the environment

At a later date than ETSA, Transport was finally aiming to go beyond compliance and to move towards more proactive and 'best practice' environmental management. From this point onwards it was intended to consider the environment on an 'equal footing' to other corporate goals such as accessibility, efficiency and safety (TSA June 1998). It was also intended to ensure change to the organisational culture, to ensure that the environment was 'mainstreamed' into operations, and to increase consistency of environmental values between internal and external groups (McGregor February 1997; TSA 1997d; TSA December 1997; Interview 11 1997). The Environment Strategic Plan also had implications for the EIA and project planning process in providing upfront expectations, and it was stated by the planning investigations section (*ie* those responsible for major EIA within Transport) that it *'is certain that the processes*

associated with the development of this Strategic Plan will identify major issues that this Section will need to respond to on projects' (PI 1998).

ETSA also developed an Environment Strategic Plan around a similar time frame to Transport in the late 1990s, but the approach was again very different. Rather than being a stand alone blueprint for environmental management, this plan was simply one component of the overall EMS. It was shorter, less detailed, and despite ETSA's earlier commitments to become more proactive, tended to be compliance-oriented. The Plan stated for instance:

'Sound environmental management will:

- provide protection to the organisation and its people from potential penalties and prosecution under the Environment Protection Act, Development Act and the numerous other Acts which impact on the ETSA Transmission business;
- ensure credibility of relationships with the community, the shareholder and the regulator with respect to any licence conditions, general environmental duty and other requirements (environmental audits, environmental improvement plans) which will:
 - meet the expectations of the community and (in future) direct customers;
 - minimise adverse regulator input to operation of current facilities, and ensure that we have a sound negotiation position with respect to licence conditions, and other operating requirements;
 - achieve development applications for new works, either on existing equipment or on new sites,
 - meeting increasingly stringent requirements of insurers and other financial institutions;
 - contribute to the good morale of the workforce;
 - reduce expenditure (through outcomes of energy/waste audits); and
 - properly protect the environment' (ETSA 1997e: p2).

The priorities in this context appear to be based on self-interest such as protection from liability, whilst the notion of 'environmental protection' was last on the list of aims. The importance of organisational compliance was also reflected in part by the creation of a Legal Compliance Committee to minimise the risks of staff being prosecuted (ETSA 1998). Environmental protection was still a significant part of business operations, but the restructuring and fragmentation of the organisation into subsidiaries in the late 1990s was having a substantial impact on ETSA's approach to environmental management, and the EMS became outdated and required redrafting (Interview 2 1999). One ETSA employee noted:

'its been decimated [the organisation]...everything's been put out...we would get so far in doing certain things and they'd be...stopped by the restructuring... We used to be, in the sense of the ...environmental management system, in the electricity industry..., we were certainly... the leaders in environmental management systems...and we developed...all of these things,...but when our major restructure occurred we just dropped behind the rest of them, and a lot of the stuff that they're doing now is...what we did back then' (Interview 2 1999).

Environmental protection was becoming integrated into 'risk management' rather than 'environmental management' as a separate entity (refer also Section 7.2.2). The fragmentation of ETSA also impacted on communication in the EIA process which is discussed in Chapter Eight.

7.1.6 Evaluation of Updated EIA Procedures

In this changing arena of environmental management, what happened to the EIA procedures? Despite ETSA's increasing attempts to retain control and achieve self-regulation in the early 1990s with the development of environmental policies, ETSA still relied on the legislative EIA process and had not developed internal EIA procedures. This began to change in the late 1990s as a result of the restructuring and leasing of the organisation. Much of the organisation's knowledge about electricity planning, engineering and EIA resided in the memories of individual staff members, and there was a real danger of losing this knowledge and experience with the major downsizing. This loss of corporate memory was acknowledged as a significant problem by an officer in the external EIA Branch, and according to one ETSA employee, *'we've gone from an organisation where, [it was] very stable, where people joined and they stayed, so the need to catch a lot of that intellectual property on paper hasn't had the same urgency as it does now'* (Interview 8 1999). Thus, procedures were being drafted in 1999 (Interview 4 1999; Interview 6 1999).

For the first time in 1997, reference to a checklist of possible impacts to consider in the EIA process was also prepared in ETSA (Electranet SA), although this was less detailed than Transport checklists. Issues expected to be addressed in the EIA process included visual impacts, effects on land use, vegetation, fauna, heritage issues, soil erosion, spread of pest plants and diseases, impacts of lines on television and radio reception, noise impacts, electromagnetic field issues, and fire risks (ETSA 1997e). Upfront expectations about the aims of EIA and project development were also defined:

'The most acceptable transmission development will be one that minimises the visual impact to landowners and the travelling public, reduces the need for vegetation clearing or trimming, has the least effect on land use and is of minimal cost, while satisfying all other environmental considerations' (ETSA 1997e: Section 1: p2).

While EIA procedures were yet to be drafted, the lack of procedures does not indicate a lack of organisational change. Rather as noted in earlier Chapters, it is the *outcomes* of decision-making which are more important in measuring change, and this further highlights the importance of using multiple indicators in the evaluation of organisational change in the EIA context.

In Transport, more recent EIA procedures and guidelines for minor and major levels of EIA were evident in a number of different areas within Transport including the Environmental Unit, the Road Design Section (*eg* DRT 1993),¹⁷ the Planning Investigations Section (*eg* DRT 1992-

¹⁷The coordination of minor level EIA resided with the Department's Road Design Section, the Regions, or the Minor Projects Section, and required only the completion of the Environmental Impact Assessment Report (EIAR) (including vegetation assessments), followed by clearance from the Senior Environmental Officer. The

1993), and the Projects Section (eg DoT March 1996). Key stages in the planning and EIA process for major projects, which were closely integrated, are illustrated in Figure (7.3) and comprised stages generally characteristic of EIA such as scoping, consideration and assessment of alternatives (in a Working Report), formal community consultation, modification of the proposal (in a Concluding Report), and formal environmental clearance. Although not represented in this diagram, the outcomes were then linked to construction by the EMPs and EMIPs noted earlier.

Transport acknowledged that the planning and EIA process was not linear in practice, and that because of community, political, and environmental factors, the process was iterative with a need for ongoing compromise and trade-offs (DoT March 1996; PI 1998). Specific requirements to be addressed within the EIA were guided by comprehensive checklists of substantive environmental factors in planning (refer Appendix 11), and by project management guidelines which went beyond procedural requirements of the State EIA system (under the Development Act Amendment), by requiring a description of the existing environment; an outline of the duration and significance of impacts, their manageability, resilience of the environment to cope with change; a review of confidence levels associated with predicted impacts; and an outline of the degree of community interest and concern (DoT March 1996).

The reference to environmental resilience was a strength in Transport's EIA process, in that it reflects the concept of 'carrying capacity' which, according to Noorbakhsh and Ranjan (1999) is one way of operationalising the concept of sustainable development into project planning practice. Whether or not this has been addressed in past EIA practice is briefly addressed in Volume II of this thesis (the project case studies: EIS quality). The more detailed design phase also had a number of hold-points and checklists to ensure that environmental factors such as local access, drainage, noise attenuation and landscape design were addressed in the design process (eg Road Design Quality Management Procedures 1997).

The role of formal environmental clearance in Transport was the responsibility of the internal Senior Environmental Officer (except where a formal EIS was required) (DoT March 1996). Environmental Clearance was based on the Concluding Report and was defined as '*confirmation that the Recommended Option has no environmental impact impediments prior to seeking Recommended Option approval*' (DRT 1992-1993). As part of this process, the Senior Environmental Officer was required to ensure that all relevant environmental issues had been identified and addressed; that all environmental conditions which require application to the project were identified, and that the Department responsible for planning and EIA (now DTUPA, Planning SA) was informed of the Recommended Option (DRT 1992-1993).

Road Design procedures were outdated at the time of this research given that they referred to the original Identification of Environmental Factors (IEF) form rather than the more recent EIAR.

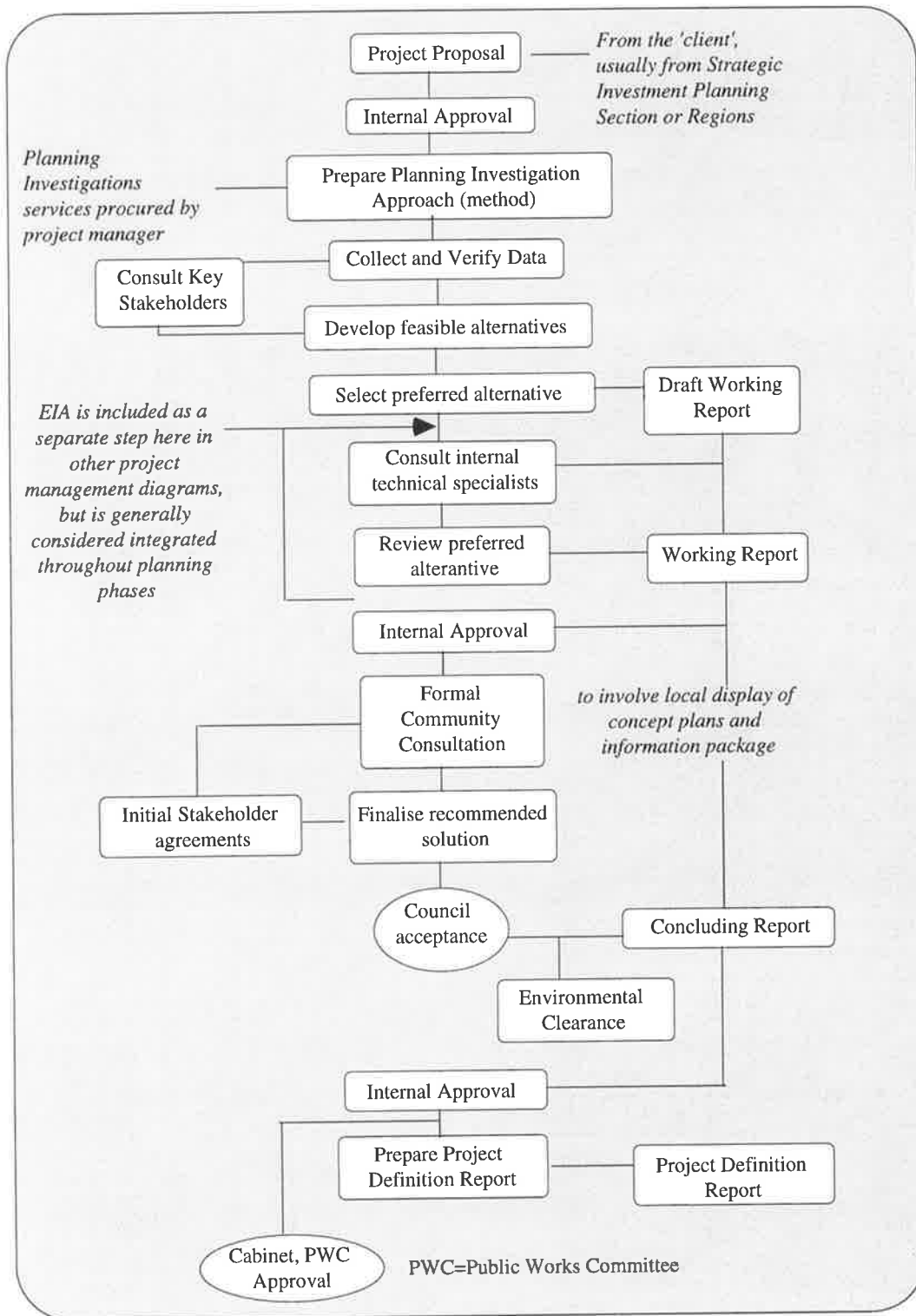


Figure 7.3: Planning Investigations Process in Transport SA including EIA
 (after Planning Investigations Section, Chart A,
 Department of Transport; after DoT March 1996: p4-6)

Final internal approval of the recommended option was generally given by the then Director of Planning within Transport in consultation with other Directors. Under the Highways Act, approvals for all road construction or reconstruction, and impacts on trees on any main road, must finally be obtained from the Minister responsible for the transport portfolio, but this could be in the form of a general standing approval (Section 29A). There were also requirements for external approvals by local councils and by the Parliamentary Public Works Committee, the latter of which reviewed projects greater than \$4 million (DoT March 1996). Thus, although the formal and external EIS process did not always apply, the requirement for approval by these bodies provided some degree of external accountability.

Transport's internal EIA process (current at the time of this research) was assessed using the *system-evaluation framework* defined in Chapter Four, and the results are summarised in Table (7.3) and Appendix (12).¹⁸ The *overall* performance in the EIA 'controls' was similar to performance under the Development Act and its Amendment, with 68% of criteria 'at least partially addressed' in Transport compared to 67% of criteria 'at least partially addressed' for each Act (and 61% for the Planning Act). With the exception of legislative-administrative control (66% at least partly addressed), strengths in Transport's control system were similar to those identified for the EIA legislative process including procedural control (87% at least partly addressed) (relative to the Planning Act in particular), and evaluative control (76% at least partly addressed), although performance was lower than the Development Act and its amendment. With the inclusion of EMPS, EMIPS and auditing procedures, follow-up control (85% at least partly addressed) was also relatively good (and better than the State EIA system), which is also consistent with strong performance in the principle of verifiability (83%). Principles of flexibility (85%), completeness (85%), specificity (76%) and purposiveness (75%) were also relatively good (for those criteria at least partially addressed).

Flexibility in particular is consistent with the limited mechanisms of external accountability in Transport's EIA process when compared to the legislative EIA process, which is not surprising given Transport's internally-based focus in EIA. This is also consistent with low performance in principles relating to accountability with 59% of criteria at least partially addressed (*ie* 'mandatory, enforceable, accountable principle').

¹⁸ It should be noted that because Transport's process is not legislatively based, some of the criteria will immediately be downgraded and cannot receive the score of 'fully addressed'. In other words, for comparative purposes, the evaluation of Transport's EIA system must be treated in the same manner as the legislative EIA process assessed in Chapter Five, and in this case, where criteria were outlined in guidelines (as opposed to legislation), a half score of 'partially addressed' was given. Thus, percentage of criteria which are 'fully addressed' in Transport's EIA system is very low or non-existent relative to the legislative EIA system. This does not mean to say however, that EIA in practice will be weaker under the Transport process simply because the requirements and details are not outlined in legislation (which tends to highlight a limitation in the evaluation framework).

Table 7.3: Summary of Performance in Transport SA's EIA procedures and comparison with the State legislative processes for EIA

Type of Control	TRANSPORT EIA*		STATE EIA SYSTEM			
	Criteria <i>At Least Partially Addressed</i>	Criteria <i>Fully Addressed</i>	Criteria <i>At Least Partially Addressed</i>		Criteria <i>Fully Addressed</i>	
<i>Legislative-Administrative</i>	66%	8%	Planning Act Dev. Act Amend.	66% 75% 91%	Planning Act Dev. Act Amend.	41% 50% 66%
<i>Judicial</i>	0%	0%	Planning Act Dev. Act Amend.	60% 50% 0%	Planning Act Dev. Act Amend.	20% 50% 0%
<i>Procedural</i>	87%	0%	Planning Act Dev. Act Amend.	88% 70% 35%	Planning Act Dev. Act Amend.	18% 31% 31%
<i>Public-Agency</i>	50%	0%	Planning Act Dev. Act Amend.	43% 62% 68%	Planning Act Dev. Act Amend.	18% 50% 50%
<i>Evaluative</i>	76%	7%	Planning Act Dev. Act Amend.	66% 86% 93%	Planning Act Dev. Act Amend.	40% 56% 66%
<i>Follow-Up</i>	85%	0%	Planning Act Dev. Act Amend.	14% 14% 71%	Planning Act Dev. Act Amend.	14% 14% 42%
<i>Overall</i>	68%	2%	Planning Act Dev. Act Amend.	61% 67% 67%	Planning Act Dev. Act Amend.	26% 44% 48%
Type of Principle	Criteria <i>At Least Partially Addressed</i>	Criteria <i>Fully Addressed</i>	Criteria <i>At Least Partially Addressed</i>		Criteria <i>Fully Addressed</i>	
<i>Purposive</i>	75%	0%	Planning Act Dev. Act Amend.	81% 75% 50%	Planning Act Dev. Act Amend.	18% 31% 31%
<i>Specific</i>	76%	0%	Planning Act Dev. Act Amend.	66% 85% 85%	Planning Act Dev. Act Amend.	26% 69% 76%
<i>Complete</i>	85%	0%	Planning Act Dev. Act Amend.	50% 62% 75%	Planning Act Dev. Act Amend.	12% 37% 50%
<i>Flexible</i>	85%	14%	Planning Act Dev. Act Amend.	62% 62% 75%	Planning Act Dev. Act Amend.	37% 62% 75%
<i>Transparent-Participatory</i>	55%	0%	Planning Act Dev. Act Amend.	51% 66% 66%	Planning Act Dev. Act Amend.	16% 50% 46%
<i>Mandatory, Enforceable, Accountable</i>	59%	2%	Planning Act Dev. Act Amend.	55% 63% 76%	Planning Act Dev. Act Amend.	39% 50% 57%
<i>Verifiable</i>	83%	0%	Planning Act Dev. Act Amend.	0% 0% 66%	Planning Act Dev. Act Amend.	0% 0% 33%

Although decisions were made externally in many cases (*ie* by Cabinet or the relevant Minister and advised by the Parliamentary Works Committee for major projects), there were no provisions for judicial review or appeal; there was a lack of independence of the coordinating-evaluating authority (despite strong evaluative control); and there was limited public-agency accountability in Transport's EIA system. The limited performance in public-agency control was surprising (particularly with only 50% of criteria partly addressed), given the department's increasing openness in planning and decision-making noted earlier. The primary weaknesses related to a lack of certainty and transparency in the process and the timing of involvement which contrasts with the State legislative EIA system. For instance:

- the process of community consultation was not standardised and was tailored project by project (thus, there is no public certainty about time-frames and opportunities available for comment as in the formal EIS process);
- formal community involvement was instigated quite late in the process (after the completion of the Working Report and internal approval of a preferred alternative), with no explicit provision for input at the triggering or scoping stage, and no publication of the planning scope (it has frequently been found that involvement at this early stage may alleviate problems later and allows a focus on the key issues of concern to the community);
- there was usually no stand alone environmental assessment document and the EIA was integrated into a Working Report and Concluding Report which reduces transparency;
- the Working Report containing the EIA was for internal use and was not generally released to the public which reduces the level of information available to the community (although it has been known to be released to Councils and other organisations: DRT 1992-93);
- there was no separate or public 'Assessment Report' available for public review which also reduces external accountability, and only internal Minutes were produced to form this role.

At the same time, strengths of public-agency control related to the fact that there were: clear provisions for formal community consultation in the planning process; early provisions for informal stakeholder involvement (prior to the identification of a Preferred Option), as opposed to broader community consultation; and requirements to modify the proposal based on stakeholder and community consultation which indicates openness to change. The very lack of certainty in the consultation process also introduces flexibility and allows the consultation process to be appropriately tailored to the project and its overall significance. Formal and rigid mechanisms of public involvement have sometimes been found to be inadequate, leading to the instigation of more informal and indirect public pressure and protests (*eg* refer Harvey 1996). Thus, despite a poor performance in the *system-evaluation framework*, practice may actually be better than the process on paper, and this is discussed further in Chapter Eight in terms of cultural 'openness' and in Chapter Nine which evaluates EIA openness in practice.

Another significant point to note was that, despite the particularly strong nature of procedural control, there was a lack of procedures to be followed in the event of major environmental impediments to a project. It seemed to be assumed that environmental clearance would be forthcoming and there were no explicit provisions for a refusal at this stage (and indeed there are no indications that a project has ever been refused) (refer also Section 7.2.2). Nonetheless, there were a number of hold points which could provide an avenue for an early 'no go' or modification to the project if ever the need arose. The other problem with procedural control, although not encapsulated in the evaluation framework, was the fragmented nature of the procedures and guidelines. Not all of the information in the project management guidelines, for instance, was included or updated in the planning investigations procedures manual and checklists, nor was there any cross-referencing between these procedural manuals (refer also Section 7.3). There was thus a need for a more comprehensive description of the whole process in one universal folder comprising all roles, and all stages of the project development cycle, and links to other guidelines. Overall, however, performance was satisfactory for the *system-evaluation* of Transport's EIA procedures.

7.2 ENVIRONMENTAL STAFF, ROLES AND STRUCTURES

DIMENSION 1.2: STAFF AND STRUCTURES

- | | |
|-------|--|
| 1.2.1 | Has the organisation employed staff with environmental expertise to support the EIA process and other environmental management requirements? |
| 1.2.2 | Is there a 'critical mass' sufficient for these staff to pervade both EIA for new project developments and other activities? (There is no 'right' number or proportion of staff, but some idea will also be gained in questions about resource adequacy) |
| 1.2.3 | Do these staff have a range of disciplinary backgrounds useful for implementing EIA? |
| 1.2.4 | Are these staff appropriately located in the organisation's structure to facilitate <i>autonomy</i> and independence in reviewing organisational operations (where that is part of their role)? |
| 1.2.5 | Are these staff appropriately located in the organisation's structure to facilitate <i>influence</i> on the planning and decision-making processes for EIA and new project development? |
| 1.2.6 | Do these staff also have broader environmental management roles such as education, research, policy development which may indirectly guide the EIA process? |

7.2.1 New Staff: Numbers and Disciplines

The creation of environmental goals, EIA and other environmental procedures are important in developing a formal capability for EIA, but so too is the presence of environmentally-oriented staff in their role as change agents (refer to Part I of this thesis). Prior to EIA both organisations relied on *ad hoc* advisory committees (and these committees continued to operate

for several years after the EIA requirement).¹⁹ ETSA also created a temporary project-based Environment Committee in 1975 in response to the State's first EIS requirement (for the Northern Power Station), thus indicating some influence of the EIA requirement on the organisation. This committee, including community representatives, advised on the EIS and project siting process, and was considered 'unprecedented' and a 'unique experiment' in South Australia (Hazell and Whyte 1985; Linn 1996). With the establishment of this Committee, ETSA wanted the public to see that they 'cared' and were being genuine about involving the public in its major proposals (Linn 1996). According to Mazmanian and Nienaber (1979) committees such as these give the impression of 'doing' whilst simultaneously providing flexibility because of their *ad hoc* nature. They do not, in other words, require fundamental change to the organisation.

The lack of environmental staff in the early years is not surprising given that responsibility for the EIA process was given to existing planning and design engineers within both organisations. This appeared to be an intentional decision because, by maintaining engineer responsibility for the EIA process, a sense of ownership and responsibility for environmental protection was afforded (Interview 1 1997; Interview 10 1997). The environment was 'everybody's business' and not just the responsibility of a select few (Interview 1 1997; Interview 10 1997). In ETSA it was also believed that '*they [ie transmission engineers] [were] much closer to the action and ha[d] a better understanding of the project than somebody from corporate environment people*' (Interview 4 1999). As a result of this approach, environmental expertise was initially lacking, although landscape staff were employed to address vegetation issues within Transport. Environmental officers were, however, gradually being employed on a limited basis.

Transport

The first officer in Transport with responsibilities for environmental concerns, albeit limited to tree removals, was the Engineer (Right of Way) who was employed in the late 1960s in response to the Montacute tree saga (Donovan 1991). Shortly after the development of the EIA procedures in 1977, which gave Transport greater internal responsibility for EIA, the department recognised the need for greater environmental expertise, and employed a temporary environmental officer in 1978 (Interview 11 1997). Community pressures were also an influence on the establishment of this position. For instance:

¹⁹For instance, Transport relied on the Roadside Vegetation Sub-Committee, the Flora and Fauna Advisory Committee, and NAASRA's *ad hoc* Environment Committee (Highways 1970-1971; NAASRA 1976; 1978). In 1967, ETSA created an aesthetics committee to advise on the amenity and environmental effects of overhead power lines (the Electricity Reticulation Advisory Committee). Other environmentally-related committees formed by ETSA included the Technical, Electric and Electromagnetic Fields (EMF) committee formed in 1986 which focused on the health effects of EMF radiation (Gordon 1990), and the Power Line Environment Committee created in the 1980s to replace the original reticulation committee (ETSA 1981).

'There was a fair gulf between what some areas the community wanted to do for the environment and what we were actually doing...and we set about trying to repair that gap in a project sense to put on an environmental officer' (Interview 22 1997).

One year later in 1979, the first permanent environmental officer was employed as a 'scientific officer' classification (Interview 11 1999; Interview 72 1999; DoT April 1997b). This was a four year time lag for change following the 1974 EIA requirement, but it was, according to the Department:

'...a progressive move for the Department at that time. It was early days for environmental impact assessment anywhere in government, and this was probably one of the first positions like this created outside the then Department for the Environment. In addition this was one of the few non-engineering professional positions within the Department...and amongst the first professional women engaged by the Department' (DoT April 1997b: p3).

At the time, the environmental officer's background was social-science based, but the scientific skills of the external EIA branch in the Department of Environment were also drawn upon (Interview 72 1999).

The Transport organisation relied on this one environmental officer for a lengthy period, which continued to indicate minimal structural changes as a result of EIA, and it was not until nearly ten years later in 1986 that a second environmental officer was appointed (DoT April 1997b). This appointment was probably a reflection of the increasing status of environmental goals at this time, but there was little reference to these environmental officers in annual reports during the 1980s, and the landscape staff appeared to have a higher status consistent with the focus on 'green' issues. However, both areas worked closely together despite the separation of function (Interview 72 1999). Over the years, the number of environmental officers expanded, although not substantially, and in addition to the separate landscape unit with 5 staff, there were approximately six environmental officers within headquarters in 1998-1999 (RLD 1998a; Interviews 10-14 1999; Interview 56 1999).

The contrasting composition of these officers relative to existing staff had an impact on the department. Three of these officers were women, and according to one employee, this 'novelty' made a difference in the interaction process given that the organisation was dominated by male engineers (Interview 12 1998). Also of significance is that two of the environmental officers had transferred directly from the Assessments Branch of the then Department of Environment and Planning (DEP) (replaced the DEC in 1981). In this respect, they brought a significant element of EIA experience into the organisation, and it has been suggested that the department was more open than other departments as a result (Interview 58 1997). At the time of this research, the numbers of environmental staff were expanding, and in the year 2000, two additional environmental staff had been employed, making a total of approximately 8 environmental staff. Disciplinary backgrounds of environmental staff varied including biology,

botany and zoology, geography, natural resource management, engineering, and environmental studies (but lacking in air quality, water quality, and health assessment expertise, among other areas).

ETSA

The trends in environmental staff numbers in ETSA were less clear due to a lack of written records and problems of memory recall of the survey participants, but it did appear that relative to Transport, greater environmental staff numbers were employed in the 1970s. Initially, the employment of environmental staff was *ad hoc*, and in addition to the creation of committees, began with the employment of consultants and University students to undertake monitoring of existing operations and marine discharges in the early-mid 1970s (Interview 1 1997; Interview 2 1999). Two biologists were also employed in 1974 on a contract basis (Interview 3 1999; Interview 9 1997). As a result of these studies, the first permanent environmental officer was employed in 1976 to continue the work (Interview 1 1997; Interview 9 1997), which was three years prior to Transport's first permanent environmental officer and indicates only a two year time lag from the EIA requirement. ETSA's second environmental officer was employed in 1979 (Interview 1 1997) at the same time as Transport's first permanent environmental officer.

The numbers of environmental staff expanded more rapidly during the mid 1980s and this was attributed by one employee to the Planning Act 1982 and its environmental requirements such as EIA (Interview 1 1997). In 1982 there were only two environmental officers, but in 1985 there was a peak number of up to 10 environmental officers, in addition to several other related positions scattered throughout the organisation related to air emissions or EMF issues (Interview 1 1997). Although another employee noted that there were actually only six environmental staff (Interview 2 1999), this is substantially higher than in Transport at the same time with only 2-3 environmental staff. Whether or not the employment of extra environmental staff was a direct result of the EIA requirement under the Planning Act is questionable though given that during this period, ETSA's environmental staff had little involvement in the EIA process during the 1980s (see later discussion). The employment of extra staff in ETSA may have been attributable more to the *Clean Air Act* which was passed in 1984 and which resulted in much effort devoted to the assessment of air quality associated with power station emissions (Interview 3 1999). According to one employee it was also around this time that ETSA became more interested in the environmental implications of its operations (Interview 3 1999).

The background disciplines of environmental staff in ETSA tended to vary from those in Transport, with a greater degree of individuals with engineering or mechanical backgrounds (*ie*

the environment was simply added onto their role).²⁰ One employee stated: '*environmental officers I don't think existed until about 1988-89...apart from the biologists, we didn't employ any. We just stuck the name on someone*' (Interview 3 1999). Unlike Transport, where staff were initially socially-based and included women, environmental staff within ETSA were dominated by males and were more science-based, and this stemmed in part from the need to focus on thermodynamics, cooling systems and boiler design in meeting environmental requirements during the 1980s for power stations. There was, however, some discipline variety including for instance, environmental engineering (*eg* air quality assessment), zoology, horticulture, chemical engineering, applied science, environmental studies, natural sciences, and specialists looking at alternative and renewable energy solutions. At the time of this research, it was not expected to employ additional environmental staff (except on a temporary basis), and in Electranet SA (*ie* the transmission side of the electricity industry), there were only two environmental staff.

Critical Mass

The numbers of new staff (*ie* <11) in each organisation was small in comparison to experience overseas and relative to total numbers of staff in the organisations. As noted in Chapter Three, in the United States' Army Corps of Engineers, for instance, 575 environmental staff were on record in 1977 within an overall staff of approximately 30,000 (Andrews 1976; Mazmanian and Nienaber 1979), whilst the Electricity Generating Authority of Thailand employed 70 environmental officers (Shepherd and Ortolano 1997). The approximate ratio of overall staff numbers to environment staff numbers in the US Corps of Engineers in 1977 was 52:1, whereas in ETSA during the late 1980s it was approximately 500:1; and in Transport, approximately 1000:1. The low numbers of environmental staff in South Australia may be attributable to the smaller size of the organisations (and smaller scope of operations), given that they were at the State rather than the national level of operation as was the case for these overseas organisation. The low numbers of environmental staff in Transport and ETSA may also indicate that 'environment' had not yet pervaded the organisation's overall operations or attained a level of significance to reach critical mass at the time of this research.

²⁰One officer was originally employed in the chemical laboratory at Torrens Island power station analysing transformer oils). Another was a tradesman and design engineer who dealt with boiler design, and eventually addressed coal pollution management equipment, and assessed the implications of the Clear Air Act on the organisation, which in turn led to a greater environmental role. He does not view himself or others as 'environmental officers', but prefers to differentiate roles: for instance, 'biologists'.

7.2.2 Roles of Environmental Staff

EIA Roles

In the internal model of reform, it also tends to be assumed that the degree of change will in part be dependent on the roles of environmental staff as change agents (*ie* whether they are able to have an influence). Six possible roles in EIA were identified in Chapter Three: planning, report preparation, internal report review, design, system monitoring and external report review. The roles of environmental staff within both Transport and ETSA differed to many agencies in the United States in that the focus was not on EIS report preparation (although ETSA had some involvement in this role in the 1970s). Rather, the greater focus was on planning (albeit *ad hoc*), internal report review, and more recently, system monitoring roles (the roles are specified in Table 7.4).

Table 7.4: EIA Roles of the Environmental Staff within Transport and ETSA

EIA ROLE	TRANSPORT	ETSA
Planning	√ advisors only , and not 'active' planners, but procedural requirements for input at different stages had been established	√ (limited) advisors only, but more <i>ad hoc</i> than Transport with no procedural requirements for input
EIS Report Preparation (or equivalent)	x	x but present in the 1970s
Internal Report Review	√ document review, environmental clearance	√ (limited) Informal quality check, but <i>ad hoc</i>
Design	x but there was provision for input into minor projects via EIA process (<i>eg</i> by commenting on, and clearing, EIAR forms which were the responsibility of the Design section)	x no mechanisms for formal input (design usually occurred after EIA approvals, although more recently this has sometimes been done in conjunction)
System Monitoring	√ recently with EMS (EMPS, audits)	√ recently with EMS (EMPS, audits)

In Transport during the 1970s, the first and primary role of environmental officers was EIA (DoT April 1997; Interview 11 1997), and within this, they had a dual role as (i) advisors on the EIA and planning process conducted by planning engineers, and (ii) a more independent review role. This latter included quality checks on environmental documents (Interview 10 1997), and the formal environmental clearance role defined previously in Section (7.1.6).

A more active and ongoing planning role for Transport's environmental staff was likely to have been inhibited by the limited numbers of staff (*ie* 2 staff by 1986), and although environmental staff were nominated for planning teams, they were there to assist and advise and not to actually carry out the planning work (Interview 10 1997). Thus, according to Ortolano *et al's* (1987) findings noted in Chapter Three, the potential for integration of environmental factors becomes reduced and relies on the knowledge and attitudes of the planning engineers (refer also Chapter Eight). Nonetheless, the role of Transport's environmental officers was closely tied with the planning EIA process under the documented planning procedures, and there was provision for input into the early scoping phase, selection of a preferred option, community consultation stage, and the formal environmental clearance stage (DRT 1992-1993). Beyond this EIA involvement, their environmental management role was initially limited (Interview 64 1999).

Landscape staff were also involved in an environmental role within Transport, but this was not focused on EIA *per se*, and officers were located within a different section. These staff were the '*custodians for the landscape*' and in addition to an education and landscape advisory role, they provided vegetation assessments and surveys for planners, designers and project managers during the planning and EIA process (Interview 64 1999). Landscape staff were not consulted on broader environmental issues beyond this area (Interview 64 1999),²¹ but their role in vegetation protection and renewal (using local seed) was significant in that road corridor developments provided one of the last locations for remnant native vegetation in South Australia (and native fauna habitats). Despite the presence of this expertise, there was a lack of formal mechanisms within the Department to ensure that this advisory and landscaping role was consistently used for new project development, and as a result, landscape staff were sometimes bypassed and landscaping was not always integrated into new projects (except for the larger more visible projects where money was available) (Interview 64 1999).²²

In contrast to Transport, ETSA's environmental staff were initially involved in a report preparation role during the 1970s and most of the EISs were prepared internally (*eg* for the Northern Power Station EIS 1977; Port Augusta-Adelaide Transmission Line EIS 1979). This was consistent with the DoE's original aim under the Cabinet EIA requirement for proponents to prepare the EIS so that environmental values become internalised. However, the EIA role of environmental staff in ETSA was more limited during the 1980s, and most of the EISs were prepared by consultants (Interview 1 1999). As a result, the role of ETSA's environmental staff transformed from a report preparation role to a planning-advisory and review role, but even this was *ad hoc* (Interview 1 1997; Interview 1 1998). According to one transmission planner '*...to*

²¹It should be noted that whilst the roles of landscaping and environmental staff appeared distinct, there was some evidence of overlap and duplication in some areas which was being discussed at the time of this research, but this does not appear to have any major bearings on EIA practice and outcomes.

²²There were, however, formal mechanisms for the vegetation assessments and surveys in the vegetation removal and approval process requirements.

be honest, we didn't have a lot to do with them [environmental staff] in many cases' (Interview 6 1999). The review role of ETSA's environmental staff was also *ad hoc* (Interview 4 1999), and, unlike in Transport, was based primarily on quality checks of environmental documentation rather than providing formal environmental clearance (Interview 1 1997).

Broader Environmental Roles (Criterion 1.2.6)

ETSA environmental staff had limited roles in EIA in later years, but their roles were initially broader than those in Transport with the focus on scientific research and monitoring of existing power station developments noted earlier (Interview 1 1999).²³ This resulted in several published research papers (eg Thomas *et al* 1986; Ainslie *et al* 1989; Ainslie 1990; Ainslie *et al* 1990; Clarke *et al* 1991; Ainslie *et al* 1994). The roles of the environmental officers broadened even further in the 1990s, and this occurred in both organisations in reflection of the increasingly complex legislative requirements and the expanding procedures and goals. Consistent with overall trends in the organisations (Chapter Six), environmental officers transformed from 'doers' to managers, and there was less opportunity for them to get involved 'on the ground' (Interview 9 1997; Interview 12 1999). The reasons for this transformation included an increasingly large administrative component due to greater outsourcing in Transport (Interview 12 1999), and in ETSA, due to organisational downsizing, the increasing management focus within the organisation overall, less numbers of new projects, and cost-cutting (*ie* if it was not a legislative requirement or there was no pressure from outside, the aim was to cut costs and exclude the activity) (Interview 2 1999; Interview 3 1999).

In reflection of this change to management, environmental roles moved beyond monitoring and research in ETSA, and project-based EIA in Transport to encapsulate a more strategic and corporate role with a greater focus on maintenance issues (Interview 11 1997). This was particularly significant given the increasing maintenance and asset management roles of both organisations in the 1990s. The role of Transport's environmental staff role in 1997 included:

- providing leadership in environmental management
- developing and managing the Environment Strategic Plan
- ensuring consistency with environmental outcomes in other departmental strategies, procedures and practices
- facilitating environmental management throughout the department by:
 - input into strategic planning processes
 - provision of environmental clearances for projects (*ie* part of EIA)
 - development of environmental policies and procedures
 - provision of specialised environmental advice and services
- identifying and managing environmental training and awareness programs for the Department
- facilitating environmental research and development (Environment Unit Plan 1997).

²³For example, between 1972 and 1985 research and monitoring was undertaken of fauna distributions and changes associated with temperatures from the Torrens Island power Station in the Port River estuary (Thomas *et al* 1986).

An area which was lacking in Transport (which was evident in ETSA) was corporate environmental reporting (publicly and internally). The roles of environmental staff within ETSA were similar in nature to Transport staff comprising for instance:

- coordination of environmental policies, procedures and management systems;
- corporate environmental reporting and performance measurement;
- provision of environmental advice;
- preparing specifications for environmental consultants;
- research and monitoring-auditing;
- environmental education and awareness;
- contaminated land assessment and restoration (Interview 1 1997; Interview 2 1999; Interview 9 1997).

It was, however, still limited in terms of the EIA process (*ie* no formal mechanisms for involvement or clearance). A greater responsibility for EIA was recommended for ETSA's environmental officers in 1989,²⁴ but this caused some concern for the 'owners' of the transmission EIA process. It was argued by the Transmission department in 1989:

'Although rationalisation of ETSA's organisation and responsibilities for environmental matters is desirable and possible I strongly disagree with the proposal that the responsibility/accountability for all environmental activities associated with transmission projects be transferred from Transmission Engineering Department to another group, particularly the responsibility for environmental impact assessment approval.

The introduction of another group into the consultative process is likely to lengthen the process, lead to communication problems and is contrary to the current trend of minimising the number of management levels.

We would support an organisational change which makes one group such as the Environmental Sciences and Engineering Branch responsible for co-ordinating legislative, policy and liaison activities, providing technical support to design or operating groups, providing advice on the environmental process, assisting in the appointment of consultants and possibly in the administration of their contracts...

We do not support the proposal that our environmental responsibilities for transmission projects be separated from our overall responsibilities and transferred to another group.²⁵

Thus, the EIA role remained the responsibility of the planning engineers in transmission, although greater involvement of environmental staff was evident in more recent EISs by regular meeting attendance (Interview 2 1999).

7.2.3 Structural Location of Environment Staff

The difficulties of identifying the 'best' structural location for environmental staff in facilitating change were noted in Chapter Three. A number of different models were referred to, which were in part dependent on the roles of environmental staff in EIA, including the *integral* or *add-on* models (separate group), *mixed* or *integrated* models (integrated with other staff in one group), and the *dispersed* model (scattered throughout the organisation). Problems identified

²⁴Hidden Footnote

²⁵Hidden Footnote

included the potential for isolation from planning processes in the event of a separate group being created, and the potential for cooptation if staff are integrated or dispersed into existing structures. The approach adopted from 1979 to 1998 in both organisations is presented in Figures (7.4) and (7.5) which present simplified organisational charts highlighting the location of the EIA process and environmental staff (although charts were unavailable for ETSA until the mid 1980s). In ETSA, there was a reliance on separate environmental groups (*ie* add-on), whereas in Transport, the approach changed over the years and included separate environmental groups, integration and dispersal.

Transport

Initially environmental staff in Transport were integrated into the 'Planning and Design' Division within the then 'project planning' section (*ie* the section responsible for major EIA processes) (refer Figure 7.4a). With close physical proximity to planning engineers into the 1980s, the opportunities of the environmental staff to influence the planning, EIA process, and the attitudes of engineers were enhanced, which was consistent with their 'planning' advisory role (refer also Chapter Eight regarding communication between environment staff and planners). There was, however, an element of conflict in this structural arrangement given that the formal 'review' or environmental clearance role of the environmental officers requires greater independence from the planners (refer Chapter Three).

Whether or not the EIA review role of Transport's environment staff was compromised is a matter of debate, and it was frequently argued by employees that because of the ongoing involvement of environmental officers from an early stage in planning, there was rarely a need to make major changes to projects at the late formal review or environmental clearance stage (Interview 10 1997; Interview 18 1999; Interview 19 1999). In fact, for this reason, the potential scenario of project refusal at the formal clearance stage was not even considered a realistic option by two officers (Interview 18 1999; Interview 19 1999). It was noted by one environmental officer:

'we like to get involved upfront, so that you don't get presented with a project at the end that...you're ...not happy with... Issues may not have been dealt with appropriately because its extremely difficult to do anything at that [late] stage. That's why we like to get involved early on to make sure these sorts of issues are being addressed all the way through. If there are any queries about to what extent we might address an issue or spend money on mitigation measures,...there can be an internal review process with other people...the people who are responsible for seeing that the project meets its time line, its budget...So there may be...round table discussions... Because we go through this negotiation process we've never come up with a position ...[where] we say we need you...to meet our requirements, we need to meet a certain standard, ...and other people in the department saying no...we won't do it... We'd never end up with that sort of situation because we negotiate it all the way through' (Interview 10 1997).

FIGURE 7.4: TRANSPORT STRUCTURES

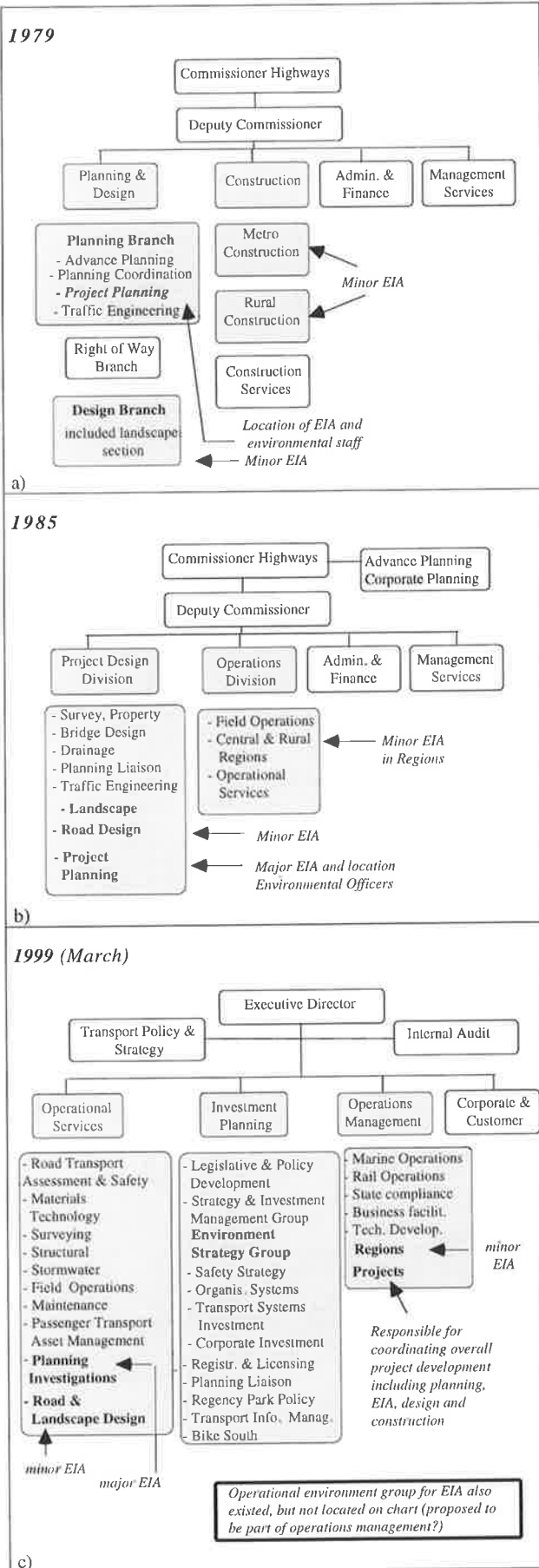
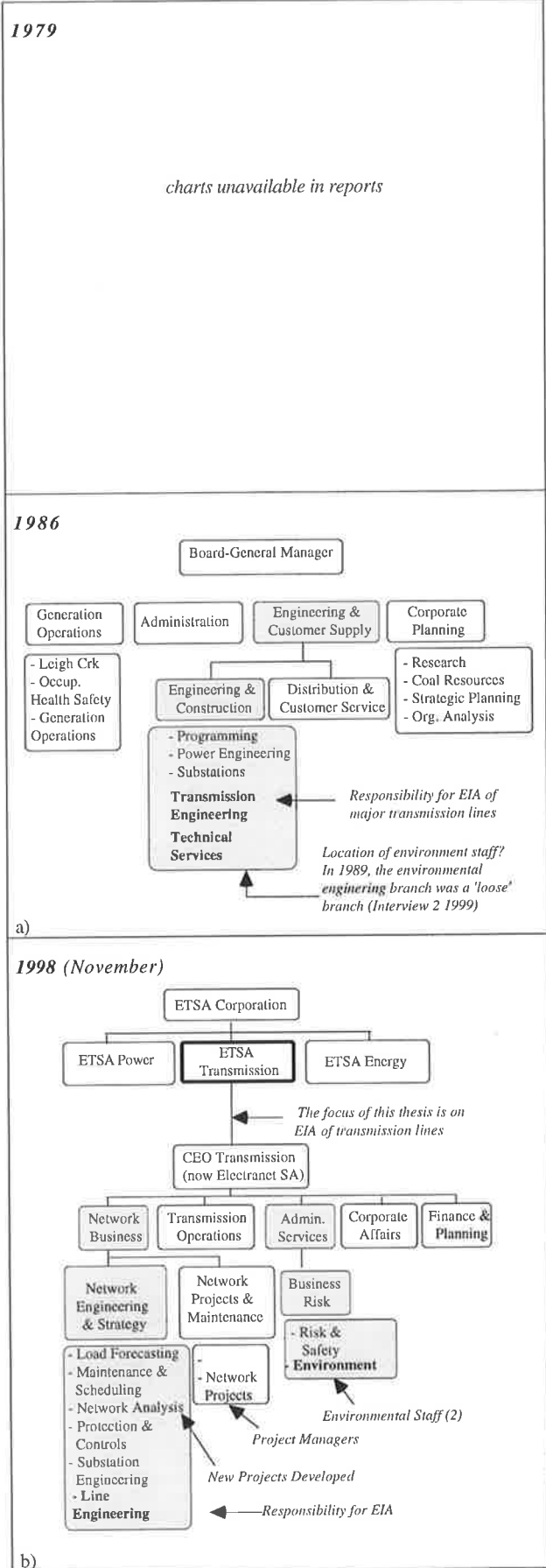


FIGURE 7.5: ETSA STRUCTURES



(compiled from Highways 1979; Highways 1985; ETSA 1986; TSA March 1999; ETSA 1986; ETSA 1998)

What this indicates is that the value of environmental officer *independence* later in the 'review' process was outweighed by the value of *integration* and the ongoing 'planning' role. This supports earlier research by Jenkins and Ortolano (1978) in the United States, which indicated that more objective review roles for new proposals in the EIA process were not as effective as direct involvement in early stages of project planning (refer Chapter Three). However, what these views also reflect is the assumption that all environmental impacts are resolvable, and that they can be appropriately managed by technology (thus, the no-go option may not be seriously considered).

The integrated approach with planning changed slightly in Transport with the creation in 1990 of an individual Environmental Unit (*ie* the 'integral' approach) (Interview 11 1997). It was not technically an 'integral/add-on' approach because the group was still located as a subset within the project planning area at the time, and there was ample opportunity for the environmental officers to influence planning processes. It was instead a form of the 'mixed' group or 'integrated' model whilst retaining a distinct group. The creation of such an environmental group, as noted in Chapter Three, has the benefits of locating like-minded staff together, providing a cohesive support network and group 'spirit', establishing a readily identifiable group (and moving towards the benefits of critical mass), in addition to creating a visible public image of environmental responsibility. These structural changes and associated benefits were initiated sixteen years after the EIA requirement, which indicates a major time lag between change requirements and actual change, but the development of environmental units within transport organisations was only a recent initiative across Australia at that time, except in Victoria and New South Wales (DoT April 1997b).

Consistent with the expanding procedures and roles of environmental staff in the mid 1990s, there was a major structural change in 1996 within Transport when the Environmental Unit was transferred away from the project planning area and moved into the new 'Strategic Investment Planning' Directorate (now in Strategic Investment Management Group: SIMG) (refer Figure 7.4c) (Interview 12 1997). This move, which now reflected the 'integral/add-on' model, effectively raised the profile of the environmental unit and facilitated new power relations at higher levels of organisational decision-making with direct access to executive (refer also to Ortolano and Shepherd 1997 in their study of EIA in Taiwan). According to one executive, there was quite a bit of access to senior management levels in that *'they'd [environmental managers] be in the top 25% of the organisation in terms of accessibility'* (Interview 63 1999).²⁶ It was also noted by the Department that this change:

²⁶Whilst the environmental groups status was increasing in line with a broadening focus, the originally higher status of the landscape area was declining (*ie* its 'section' status was lost when the group was integrated into Road and Landscape Design Section). At the time of this research, there were however, discussions about potentially integrating both groups together given some overlap of role in vegetation area, but this was uncertain given that under the new internal trading and accounting system noted in Chapter Six (FOPP model), landscape had

'reflects a recognition that "the environment" is an important strategic issue for the Department and that environmental issues need to be more overtly and consciously addressed in some key areas of strategic planning such as the network and transport asset management plans (DoT April 1997b: p3).

The Strategic Investment area was one of the locations where new projects were developed, and the potential to influence this earlier project conception stage was considered an important advantage (Interview 12 1997; Questionnaire 12 1998). However, at the time of the research there was still little interaction between environmental officers and employees who were making significant decisions about the development of the road network, asset management and the future of transport (Interview 12 1997). Thus, the early integration of EIA was limited to the selection of alternatives at the later more detailed project planning stage (refer Chapter Nine).

The potential for isolation from planning and operational processes was also increased with this move to a more strategic area. Some employees indicated that the move away from planning was a disadvantage because it meant that environmental officers were less accessible (Questionnaire 28 199), because it 'hindered communication channels' (Questionnaire 30 1998), and because the environmental expertise was remote from the operational people (Questionnaire 15 1998) (refer also Chapter Eight). One officer noted that the environment group was sometimes:

'a little bit isolated, a little bit remote because we don't always know exactly what's happening. People don't always come to you. You've got to go out and find out what's going on to a large degree....I think the idea of centralising all the environmental expertise isn't necessarily the best way to go.... I think we need more people [environment] at the coal face. ...people in the Regions...the ability to influence other people is much better if you work closely with them and you work within their own system of operating' (Interview 13 1999).

Yet one employee noted that, despite this move the environment group was still part of the same 'family' (Questionnaire 29 1998), and it was believed that the unit continued to be integrated through its advisory role in planning and EIA. For instance:

'I don't see the environmental unit as being isolated...I see it working very closely with ...staff right across the department...now that we have moved to another area we need to be more conscious of...planning, but I think the environment unit has got pretty good connections with most areas...but...you can only stretch your resources so far...in a perfect environmental world you'd have [an]...environmental specialist throughout ...every section in the department...there is a trend towards that in the Department (Interview 10 1997).

Structural changes occurring in Transport during the late 1990s were beginning to overcome the potential isolation problem. Rather than relying solely on the integral/add-on model (*ie* separate group), a hybrid approach to structural change was adopted in three ways. First, the

'business unit' status (*ie* they were a service provider which cost money), whereas the environmental group was not (and hence their services were 'free') (Interview 64 1999).

integral/add-on approach remained, and in 1999 this was separated into two groups comprising an 'operational' environment group (for project development, EIA clearance and advice), and a 'strategic' environment group (for broader policy development). There were also moves to give 'section' status to the environment group, and for the first time the group had autonomy, whereas previously it had always been a subunit of another group (Interview 63 1999). According to one executive:

'We've never had an environmental unit with autonomy before and its been a subgroup as part of another section...so its the first time we've ever had one stand alone. Its the first time we've had a manager of the group, and its certainly the first time we've had a female manager at such a high classification in the environmental area and in the whole organisation...That was quite deliberate to have it as a separate unit. There was a lot of discussion that it should sit within something else...[but it needed to] have its own identity, and therefore have a reasonably senior person...actually giving it some credibility as part of the organisation. The other [reason] is to demonstrate externally that we're serious about it' (Interview 63 1999).

Second, the dispersed model, albeit not termed as such, was adopted with the appointment of additional environmental staff which were integrated into the different sections responsible for EIA such as the planning investigations section, with plans to include environmental officers in the projects section, and possibly in the Regional offices. Thus, again, there was the potential for influence given the closer physical proximity, in addition to having the benefits of a separate environment group. According to one employee:

'I think it is useful having a few [environmental] people around...it makes more people aware, it makes the department more aware...and it might tackle the issues on a few levels...rather than leaving it until the last minute.... Issues might get thought of earlier on.... I do think its a good idea, especially out in the regions...They get forgotten sometimes because they're out in the bean box' (Interview 56 1999).

Third, the potential pitfalls of isolation may also have been alleviated with the adoption of the 'mixed group model' (Taylor 1984) or 'organisational matrix approach' defined in Chapter Three (*ie* the creation of temporary project teams from different functional areas which come together under the leadership of a project manager). This matrix approach was facilitated in Transport with the introduction, in the early 1990s, of a project management system to coordinate the project development process.²⁷ It was suggested that this approach aimed to improve communication (Questionnaire 20 1998), and to overcome the past 'silo' mentality in the organisation noted in Chapter Six, where each section such as planning or design focused on their task without close interaction with other participants (Interview 18 1999) (refer also Chapter Eight). In this respect, a project manager was given the task of coordinating officers from different functional areas for different stages of the project cycle.

²⁷According to Ford and Randolph (1992), matrix organisation and project management are interchangeable terms.

ETSA

The structural changes in ETSA contrasted markedly with Transport, and this is likely to be a reflection of the limited and *ad hoc* role of environmental staff in EIA in later years, but their greater role in broader environmental research, monitoring and management activities. ETSA has relied on the add-on/integral approach, although initially environmentally-oriented staff were tacked onto existing groups (Interview 3 1999). At a much earlier stage than Transport, a separate environment group was established with the creation of an Environmental Sciences branch in 1979 following the appointment of the second environmental officer (Interview 2 1999). During the mid 1980s, this separate environmental group was called the Environmental Sciences and Engineering Branch (Interview 2 1999; Interview 9 1997). This Branch appears to have been integrated into the Engineering and Construction area of the Engineering and Customer Supply Division, but separate to the branch responsible for the EIA process (*ie* the Transmission Engineering Branch) (refer Figure 7.5a). As a result, the potential for influence of environmental staff was less than for instance, in Transport when staff were integrated with planning.

The creation of a separate group at this early stage was intentional because the focus on broader issues which beyond the EIA process would have been constrained with co-location into project planning (Interview 9 1997). A broader environmental role was not occurring in Transport at this time, and thus the need for a separate group with a greater scope of activities was less relevant. It is not clear why a hybrid approach to structural change was not adopted in ETSA (*eg* dispersing environmental staff in addition to having a central group), but given the heavy reliance on consultants for the EIA process, ETSA may have been believed the additional staff resources was unjustified, particularly given the extensive downsizing in the 1990s.

In a similar manner to Transport, some minor restructuring of the environment group was made in the 1990s, which reflected the increasing status given to the environment. The Environment Sciences and Engineering Branch was replaced by the Environment and Technology Department in the early 1990s (Interview 1 1997; Interview 2 1999), and this Branch was later replaced by the Corporate Environment Department in the mid 1990s (Interview 9 1997). Being a separate and corporate identity, ETSA's environmental staff had a fair degree of autonomy (Interview 1 1998). According to one employee, '*We set our plans... We set our own objectives and targets to meet... corporate goals... We ha[d] a fair amount of autonomy*' (Interview 1 1998). This move also facilitated greater proximity to the executive, and thus, like Transport, the environment department's status was enhanced. The access to higher levels of decision-making within the organisation was also facilitated by the close physical location to executive members (*ie* on the same floor and corridor) (Interview 1 1998).

Despite the potential benefits of the separate corporate environment group, the isolation problem was a real one. One ETSA employee noted:

'I felt it was the right thing to have as a corporate identity and I still do...I mean sure there are pockets of areas where specialists could be used in particular areas....at times you do feel [isolated]...it really depends on the project which I can't think of too many examples where we haven't been involved, and where we should have been' (Interview 1 1998).

There was also a belief that environment staff worked closely with the engineering area particularly as a result of the originally close physical location (Interview 1 1997; Interview 9 1999) (although they are now located in separate buildings). These views clearly contrast with the comments noted earlier that transmission engineers rarely made contact with environmental staff during the environmental approval process. Nonetheless, a project management system similar to the one in Transport had been created (*eg* ETSA 1991), although the matrix approach was less clearly defined and the presence of environment staff was not explicitly guaranteed.

The status of ETSA's environment group declined in the late 1990s, and with the major restructuring and the fragmentation into different subsidiaries, the Corporate Environment Department was disbanded, and the environmental officers became scattered between the different ETSA subsidiaries (Interview 1 1997; Interview 3 1999). Thus, the environmental coordinating role was gone for generation, transmission, and supply; access to the executive was reduced; critical mass of numbers and the support network declined; and the channels of information flow changed (Questionnaire 3 1998; Interview 3 1999). At the time of this research, two environmental officers were located in Electranet (previously ETSA Transmission) within a separate group in Administrative Services in the Business Risk area alongside Risk and Safety (refer Figure 7.5b) (*ie* the mixed model).²⁸ In this approach the 'environment' gave the impression of being 'tacked on' with risk and safety, and the key identity and autonomy of the environment group was lost (Interview 2 1999). These changes tend to reflect the lamentations noted earlier about the decline in environmental management within ETSA (refer Section 7.1.4).

²⁸This also appeared to be similar to recent trends within some areas of the private sector which have consolidated environment, health or safety and other specialised areas into groups so that resources and staff numbers are more effectively managed and shared between other departments (MacLean 1998; MacLean *et al* 1999).

7.3 KNOWLEDGE BASE AND RESOURCES FOR EIA

7.3.1 Knowledge Levels

DIMENSION 1.3: KNOWLEDGE	
1.3.1	Do employees involved in the EIA process have sufficient knowledge of the EIA procedures?
1.3.2	Are employees aware of, and have sufficient knowledge levels of external environmental policy requirements which may guide the EIA process?
1.3.3	Are employees aware of other internal policies, procedures or guidelines (where they exist) which guide the EIA and planning process and outcome-compliance requirements (eg noise, cultural, vegetation)?

Environmental staff in both organisations were responsible for increasing and maintaining the environmental knowledge of employees, and they achieved this through informal seminars and the development of internal environmental training courses. Change in this respect was almost immediate in Transport after the initial EIA requirement when environmental training was given to staff in 1973-1974 (Highways 1973-1974), and a conference 'Roads and the Environment' was jointly convened by Transport and the Department of Environment in 1976 (Highways Department 1976; 1977).²⁹ ETSA's environmental staff have also been closely involved in educational programmes which spanned a wide range of employees (Interview 2 1999). Given the lack of formal procedures in ETSA, education and knowledge was more critical, not only for staff involved directly in EIA, but also for operational people in construction and maintenance. One employee noted '*...we've seen an enormous difference with the training that's [been] done*' (Interview 2 1999). Given staff turnover and downsizing in both organisations, whether or not this knowledge persisted is another question.

In understanding the change process, knowledge in EIA can be viewed in two ways:

- knowledge which emerges as a *result* of implementing EIA; and
- knowledge which *informs* the EIA process.

In the former case, the majority of questionnaire participants in Transport indicated that by implementing EIA, their knowledge of, and support for, environmental issues was enhanced (68% believed this to be 'moderately effective' to 'very effective'). One Transport employee noted: '*I think...environmental impact assessment as we apply it to major or minor projects is a*

²⁹Other training examples, include a seminar on road traffic noise and its impacts on the community held in 1975 (Highways 1975-1976), a workshop was held in 1978 to identify ways of improving public consultation (Highways 1980); and a number of awareness courses development in the 1990s (eg DoT November 1994; DoT 1996).

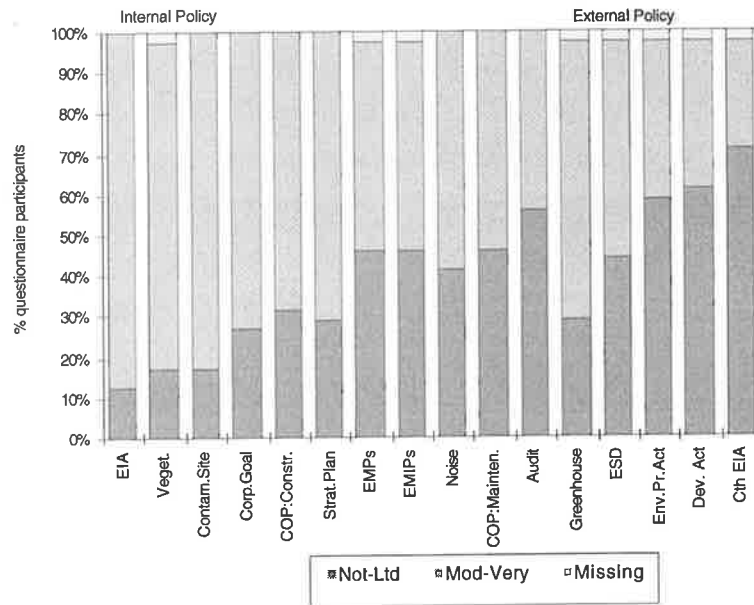
terrific vehicle for promoting environmental awareness' (Interview 12 1997). This clearly indicates that the EIA requirement was having an impact on individual staff knowledge levels, although this appeared to be to a lesser degree in ETSA (42% indicated that EIA was of 'limited effectiveness' in improving knowledge levels). However, only two engineering staff were directly involved in the EIA process for transmission lines, and thus the pervasiveness of knowledge dispersal as a result of EIA was more constrained than in Transport where it affected greater numbers of people. Other factors were also believed to maintain levels of environmental knowledge, such as the educational courses and training from environment staff (Questionnaire 16 1998), the development of the EMS, and the concept of sustainability (Questionnaire 15 1998).

In the second case (*ie* knowledge *informing* EIA), the questionnaire participants were asked if they believed that their *overall* knowledge of environmental procedures and issues was adequate for implementing EIA. In ETSA, 85% (n=6) believed their level of knowledge was 'adequate', which compared with only 43% (n=18) in Transport (41% in Transport believed their knowledge was 'moderately adequate' with room for improvement). Only a small proportion of Transport participants indicated that their knowledge levels for EIA were inadequate (7%: n=3). Given that the policies and detailed guidelines developed by the organisations are useful tools for providing upfront knowledge and expectations for the EIA process, the participants were asked how familiar they were with both *internal* policies and guidelines (evaluation criterion 1.3.3), and *external* policy and legislative requirements (evaluation criterion 1.3.2). The results of these questions are illustrated in Figure (7.6) and are discussed below. Other external legislative and policy requirements such as the Aboriginal Heritage Act were also relevant (as were many other Acts), but not all of these were not incorporated into the survey to minimise time for survey completion.

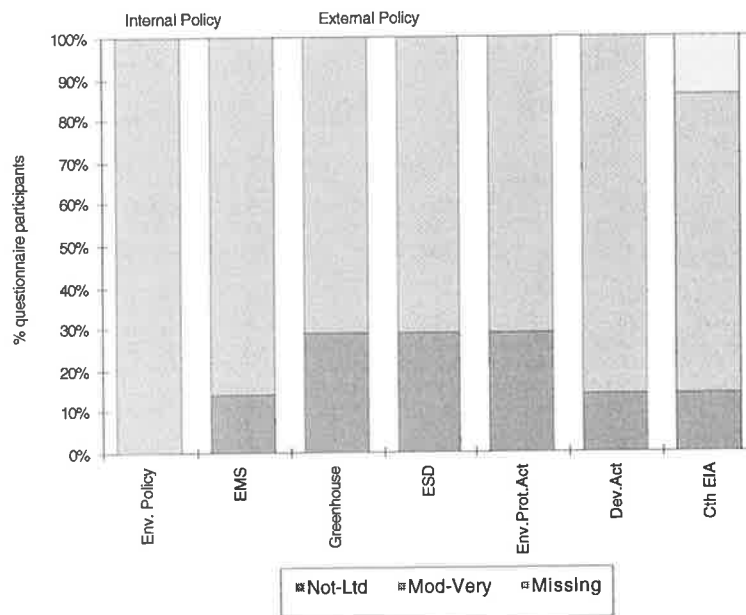
External Policy & Legislative Requirements

Knowledge of external policy requirements differed between the organisations, with evidence of higher levels of knowledge in ETSA for all external policies. However, potential bias in the results needs to be acknowledged given that 57% of participants in ETSA had an environmental officer position (and hence greater knowledge of most of the policy requirements), whereas environment staff only comprised 12% of the Transport survey population. The difference between Transport and ETSA was particularly evident with the formal EIA requirements (under legislation), in which case the majority of participants in Transport had no or limited familiarity with the Commonwealth EIA process (70%) or the State's legislative EIA system (60%), which compares to a minority with no or limited knowledge of these requirements in ETSA (14%). These results are not all that surprising given that in Transport, EIA under formal legislation has only been undertaken twice under State legislation in the 1980s, and once under Commonwealth

legislation in the 1970s. Thus, there was no immediate need to know about these requirements, whereas ETSA relied heavily upon the Development Act EIA process (previously Planning act), which probably explains the higher knowledge levels. Relatively high knowledge of the Commonwealth EIA process can also probably be attributable to ETSA's reliance on this process for guidance in the 1970s (refer Section 7.1.2).



Transport



ETSA

Figure 7.6: Knowledge levels of internal and external environmental policies and guidelines in Transport and ETSA (Key: Veget=Vegetation, Contam. Site=Contaminated Site guidelines; Corp. goal=corporate environmental goals; COP=Code of Practice; EMPs=Environmental Management Plans; EMIPs=Environmental Management Implementation Plans; ESD=ecologically sustainable development; Env.Pr.Act=Environment Protection Act; Dev.Act=Development Act; Cth=Commonwealth; EMS-Environmental Management System)

In Transport, knowledge of greenhouse and ecologically sustainable development (ESD) policies was comparatively higher than knowledge of the external EIA process, but were still slightly lower than in ETSA. The relatively high levels of knowledge in the greenhouse policy area in both organisations is also not surprising given that their operations directly and indirectly contribute to greenhouse gas emissions. The slightly higher levels of knowledge in ETSA may be a result of the greater immediacy of the problem to the organisation. That is, ETSA's greenhouse emissions are a *direct* result of power station operations (which have been the focus of environmental officers), and can be managed more directly by design and technology (in addition to demand management strategies). Greenhouse issues were also significant in ETSA's annual reports in the 1980s, whereas in Transport, the issue rarely rated a mention. The problem of greenhouse emissions for Transport are also less immediate or relevant at the project level of planning (Interview 22 1999), given that they are *indirectly* caused by road construction activities (*ie* increased road access causing vehicle increases and associated greenhouse emissions). There is little that can be done to alleviate the problem at the project level, and the issue is best dealt with at a more strategic travel demand management level (most of the questionnaire participants were not involved at this higher level of decision-making). One Transport noted about EIAR forms and air emissions:

'[in] a lot of them [EIA forms] you [are] always going to tick the same thing. ...air emissions...vibration, those sorts of things. They're going to be the same for every job...so I don't understand why we're filling them in and ticking them...they don't get questioned or anything...there's nothing as a designer we can do to help that [air emissions]...not that I can think of...' (Interview 39 1999).

This clearly highlights the need for Strategic Environmental Assessment, but as suggested earlier, this was not being undertaken in Transport at the time of this research (despite a desire to do so).

The higher levels of knowledge about ESD may have been more pervasive in both organisations because of the extensive efforts devoted across government sectors in developing this policy in the early 1990s (*ie* the National Strategy for ESD: Commonwealth of Australia 1992). The higher knowledge of ESD in ETSA relative to Transport may also be attributable to its inclusion into ETSA's formal environmental policy noted earlier. There were, however, signs of ESD analyses being undertaken in Transport during the mid 1990s (*eg* 'Ecologically Sustainable Development and Guide Posts'), but this was not undertaken at the project construction level (*ie* in planning and design areas). Moreover, in Transport overall, there were still high levels of 'no-limited familiarity' with ESD (43% compared to 28% in ETSA).

Given the apparently significant impact of the Environment Protection Act on both organisations in terms of developing new procedures and Environmental Management Systems, one might expect a high level of knowledge of this legislation, particularly given that EIA can be a useful

tool for coordinating compliance with the Act's requirements. One might also expect high levels of knowledge of this Act given the threat of criminal liability, and given that summaries of the legislative requirements had been prepared in both organisations. These expectations were met in ETSA with relatively high levels of knowledge about the Act (particularly with its greater relevance to air quality control for instance), and only 28% (n=2) had 'no-limited familiarity' with the Act. This compared with 58% (n=24) of participants in Transport who had 'no-limited familiarity' with the Environment Protection Act. Not surprisingly, environment staff were generally very familiar with the Act's requirements in both ETSA and Transport, which contrasts with other planning, design and project management staff in Transport. This limited knowledge within other staff is surprising given the potential responsibility of the latter for ensuring compliance. Knowledge clearly needs to be improved in this respect to ensure that the EIA and planning process is an important stage for identifying all potentially non-compliant areas.

Internal Policies & Guidelines

Knowledge levels of internal policies also varied between the organisations, and ETSA again demonstrated higher levels of knowledge. Many employees in Transport found it difficult to keep up with the development of new procedures and manuals, and indeed, some never found the time to read these procedures in detail (Interview 23 1999; Interview 18 1999; Interview 51 1999). However, given ETSA's less bureaucratic nature, there were not as many internal policies and guidelines to become familiar with when compared to Transport. All ETSA questionnaire participants were very familiar with the organisation's environmental policy which indicates good circulation and expectations of environmental protection requirements, which in turn, informs the EIA process. Although knowledge of the EMS was not quite as good, the EMS was still being developed at the time of this research, thus explaining lower knowledge levels. Surprisingly, knowledge of internal policies within Transport was relatively low, but was generally strong in terms of:

- the internal EIA process (87% mod-very familiar);
- vegetation policies (80% mod-very familiar);
- contaminated site guidelines (82% mod-very familiar);
- corporate environmental goal (73% mod-very familiar), although knowledge levels were comparatively low in some sections (41% in one section with no-limited familiarity);
- Environment Strategic Plan (70% mod-very familiar), although again knowledge was still slightly lower in some sections (41% in one section with limited familiarity); and
- Code of Practice for Construction (68% mod-very familiar), but knowledge was relatively good in one section (80% mod-very familiar).

Knowledge of the internal EIA process had improved since its initial introduction when many engineers learned to conduct EIA by guesswork and the accumulation of experience on the job (Interview 18 1999; Interview 23 1999; Interview 24 1999; Interview 37 1999; Interview 40 1999; Interview 44 1999; Interview 51 1999). In the early years, for instance:

'it was just a matter of here it is, [EIA], do it, and...it was up to you to find the expert opinions...to fill in the form, but there was no training,...or nothing much at the time...you can always fill out a form. Its not difficult...but to fill it out properly...I remember filling out one, it was crazy. It was a very small project and I just went tick, tick, tick and sent it off...[but it got rejected because it was not good enough]' (Interview 45 1999).

This statement indicates the importance of the environmental staff's oversight role in checking EIS (or equivalent document) quality. Knowledge levels of other policies and guidelines in Transport was relatively low in terms of the:

- Audit Guidelines (56% no-limited familiarity) (and knowledge was particularly low in one section with 83% with no-limited familiarity);
- Code of Practice for Maintenance (46% no-limited familiarity);
- EMP Guidelines (46% no-limited familiarity);
- EMIP Guidelines (46% no-limited familiarity); and
- Noise guidelines (41% no-limited familiarity).

Although 58% of EIA participants in Transport were knowledgeable of the noise guidelines, it is still surprising that such a high proportion had limited or no familiarity, particularly given that noise is often a significant issue in the EIA and planning process for major projects. Knowledge of EMIP and audit guidelines was not high, and this may be explained by the limited involvement of participants at the later construction stage when these guidelines are most relevant, and given that these guidelines were a relatively recent initiative within Transport. Improvements in knowledge about EMP requirements may enhance the ability of planners and designers to incorporate mitigation measures, and (if auditing lessons are fed back to these officers) may also reduce the potential of proposing measures which may be impractical 'on the ground', and which are not measurable in terms of their effectiveness.

Whilst the questionnaire generally indicated a high level of knowledge about the internal EIA process in Transport (and many believed that the process was well defined), the in-depth interviews indicated some ambiguities and uncertainties about timing, roles and responsibilities in EIA. ETSA did not appear to have this problem, and employees interviewed were very clear about the EIA procedural requirements, although as noted earlier, this was at risk due to the loss of knowledge and experience from downsizing (Interview 6 1999). The certainty about the EIA process in ETSA is likely due to the relatively non-ambiguous nature of the EIA process outlined under Development Act and guidelines, whereas the uncertainty in Transport may be a

reflection of the fragmented nature of the procedures, and the continual updates. Appendix (13) provides extracts from some of the interviews in Transport which illustrate some of these uncertainties. According to one Transport employee:

'The level of clarity of understanding [of the EIA process] outside of the environmental unit varies quite a bit, and part of what we do is really continuing the education of what the processes are...that has been done on a daily basis with contact with people, but we also have an environmental management training course...definitely time to re-run that' (Interview 12 1999).

Because of heavy workloads (refer next section), and the increasing focus on strategic issues in addition to operational issues, this educational responsibility appears to have been pushed down the hierarchy of priorities in more recent years (Interview 12 1997). Yet it should also be noted that some EIA participants believed they did not need to know everything because they generally knew where to get the information when it was required, and could rely on the environmental officers (Interview 10 1997; Questionnaire 18 1998; Interview 24 1999). Thus, detailed knowledge in some areas was in need of clear improvement, but at the same time, the levels of awareness about general requirements in the process appeared to be sufficient.

7.3.2 Resources for EIA

DIMENSION 1.4: RESOURCES	
1.4.1	Are the financial resources considered sufficient within the organisation to effectively implement EIA?
1.4.2	Are the staff numbers considered adequate for the effective implementation of EIA?
1.4.3	Are the levels of internal expertise considered adequate for the effective implementation of EIA?
1.4.4	Is sufficient time allowed for the EIA and planning processes so that all major issues can be adequately addressed?
1.4.5	Are external consultants used where internal staff numbers are insufficient?

Questionnaire participants were also asked about the adequacy of resources for implementing EIA (*ie* technical expertise, financial resources, staff numbers, and time), and the results are presented in Figure (7.7).³⁰ In the questionnaire, only a small number of participants in both Transport and ETSA believed that technical expertise was limited (17% in Transport and 14% in ETSA), which suggests that resource capabilities were not a major problem in this area. The perceived high level of technical expertise is interesting given that staff numbers were

³⁰Given the limited time frame and availability of information, it was not possible to conduct an external and more objective assessment of the adequacy of resources for EIA (some of the budgetary information was also confidential). Thus, the research relied in part upon the assessment of project case studies (refer Chapter Nine), and more importantly, upon the attitudes of those directly involved in the EIA process.

considered a problem area for some (see below). Financial resources were slightly more of an issue (but not substantially so), and 24% in Transport and 28% in ETSA considered financial resources to be insufficient or limited. The problem of increasing financial constraints are well acknowledged within the Department (*eg* Projects 1999; PI 1998). In Transport, 31% of those responsible for major EIA at the *planning* stage indicated that financial resources for EIA were insufficient or limited. This was of some concern given that it may impact on the quality of outputs such as the ability to include environmental management or mitigation requirements; or to select more costly alternatives (refer also Chapter Nine for economic emphasis in EIA).

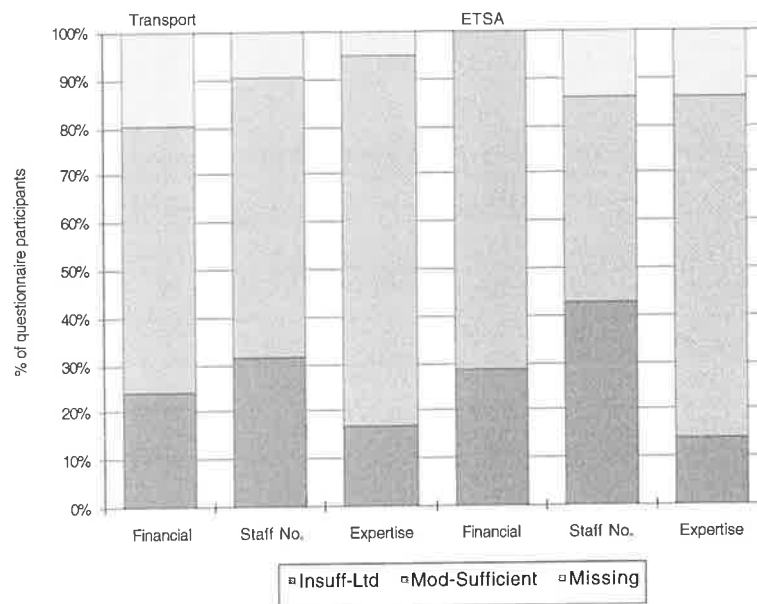


Figure 7.7: Adequacy of resources for implementing EIA in Transport and ETSA as perceived by questionnaire participants

Financial resources were considered 'moderately sufficient' to 'sufficient' by the majority of environment staff in Transport which was a similar trend to ETSA (although the numbers of environment staff in ETSA were too low to facilitate useful comparison). Some limitations were however, evident in Transport which was indicated by a SWOT³¹ analysis undertaken in 1997 by the Environmental Unit which identified a lack of resources for considering lower priority environmental issues (Environmental Unit 1997). An Environmental Review undertaken in the same year of the Department's environmental performance also indicated that resources were insufficient to deliver on all functions including strategic, advisory and operational roles (DoT April 1997b). It should however, be noted that resources in the broader environment area were actually underspent in 1999, although this did not actually relate to the

³¹assessment of Strengths, Weaknesses, Opportunities and Threats.

EIA process and infrastructure development process. On a more positive note, resources were improving for the environment group in Transport relative to other groups within the organisation. For instance:

'I think in overall dollars spent the environment doesn't score very well. However, if we were to look at the change in dollars spent on resourcing environmental advice...then we're certainly ...in an area of growth, where many other areas are either in stasis or decline...and there is definitely a recognition on the part of executive to boost resourcing of environmental management' (Interview 12 1999).

'I think the increasing amount of resources that have been put into the environmental unit...has reflected [the] increase in commitment' (Interview 13 1999).

Staff numbers to implement EIA (evaluation criterion 1.4.2) also did not appear to be a major issue, but this viewed tended to vary between participants. In Transport 58% believed numbers were 'moderately sufficient' to sufficient' compared to 42% in ETSA. Where staff numbers have been lacking, consultants are relied upon for EIA, planning and design in both organisations (evaluation criterion 1.4.5). The limited staff resources (as perceived by some) is probably a reflection of the massive downsizing in both organisations which occurred in the 1990s (refer Chapter Six), and given that in ETSA, only two engineers are responsible for the EIA process in transmission (with *ad hoc* input from environmental officers). In Transport, staff numbers for EIA did not appear to be as significant an issue in the design area, and the main deficiencies appeared to be in the planning area which is again cause for concern given that this is where the majority of major EIA is undertaken (*ie* half of planning respondents believed staff numbers for EIA and planning were insufficient or limited). It was also indicated in the interviews, that the numbers of environmental staff were limited in both ETSA and Transport (Interview 1 1998; Interview 12 1999; Interview 13 1999). The need for greater environmental expertise for the Regions in Transport was noted which is consistent with comments noted earlier about the 'dispersed' structural model:

'There are certainly times when it would be of great benefit to have some [environmental] expertise in the regions. There's a lot of things going on...that we don't have the resources to check up on. If there were environmental officers in each region, then they could pick up some of those, they could do some of the clearances on minor works...' (Interview 12 1997).

'We need more environmental expertise in the department, particularly in the regions. The environmental unit is in a central position ...but we need staff who actually drive ...and extend to the regions' (Interview 13 1997).

'I don't know that they've got enough people [environment group]...to keep track of what's happening. Often its the follow through that's the problem...they don't have the resources up there to watch that' (Interview 20 1999).

The need for more environmental staff, in addition to making better use of existing staff, was also recognised by one executive member (Interview 65 1999). In contrast, the likelihood of ETSA employing more permanent environmental staff was unlikely given the restructuring and privatisation process.

The perceptions about staff number constraints in some areas were further burdened by the increasing time pressures being placed on EIA participants (evaluation criterion 1.4.4), which resulted in part from political pressures, and from working backwards from inflexible construction dates (see also Chapters Eight and Nine). This contrasted with views in the 1980s when construction times in Transport's Forward Planning Documents could be revised due to the times required for preconstruction activities (Highways 1980). It was argued that:

'the starting date cannot be rigidly fixed, particular as the Highways Department is often reliant on outside bodies to undertake pre-construction activities, such as the relocation of electricity lines or water pipes. Other changes to the starting date can be caused by a variety of reasons, particularly those relating to funding (1980: p68).

Although not addressed in the questionnaire, time constraints were a key theme to emerge in the more in-depth interviews, and many of the comments made which relate to the fast-tracking of the process are presented in Appendix (15). It was noted in one Transport interview, for instance, that the busy workloads of environment staff sometimes made access to them more difficult (Interview 20 1999). Like the issue of financial resources, the time pressures and heavy workloads in the project planning and management process was well recognised within Section Plans (*eg* PI 1998; RLD 1998a; Projects 1999). It was also noted in Transport:

'Its mainly pressures of unrealistic times to do a job...when you're given a project at the start you undertake...a detailed project assessment of it...and you've got to estimate time...and what's involved...Its like a service agreement...once we work out the number of hours, the cost, and all the other stakeholders, then it goes to the project management...but during the course of a project, ...something unexpected might pop up and it means that there's longer time requirements...quite often the construction date's the same and you've got extra work to do, [but] you've still got to complete it within the target date, so it makes it difficult sometimes' (Interview 48 1999).

'I think it [creation of business units and time-budget pressures] has affected every ...aspect of the project, to the detriment of the projects. I think...we would all argue that in the past that...if you give planning a free hand, they'll take forever, they would take too long...I think we've gone a little bit the other way. We're not doing enough in any of the areas...that's clearly evident in some of the recent jobs we've done, that we've half done the job... We've ..sort of raised the issue but we haven't really sorted it out... Its equally an issue by using consultants because...consultants will do the job they're given...but no more, no less... So...if their brief doesn't allow them to fully resolve these issues, they won't... If they haven't got time or money to do it, they won't... So...we're finding on a few of our jobs now that issues were known about...but weren't fully resolved... The business unit...the money...the time...we tend to be doing more jobs in a rush now... Years ago we'd take years to design a job, to plan a job' (Interview 16 1999).

'The fast tracking of projects has had a very bad impact on environmental outcomes. And many times the projects are fast tracked because of some arbitrary political target, or procrastination in the project initiation stage. Worse than fast tracking is commitments to proceed are made prior to the project being assessed' (Questionnaire 35 1998).

Added incentive for planners to fast-track projects was the need to stay competitive and to maintain a customer base (*ie* with their new service provider role which now competes with external and private consultants) (refer Chapter Six). Although this was not a view held by all

interview participants,³² some believed that the fast-tracking and corner-cutting was having implications, not only for the quality of the EIA and environmental clearance process, but also for other technical planning and design factors. Similarly in ETSA, the pressures of time were becoming increasingly significant:

'The time frame... is... starting to become an issue because they [external customers for new projects] require a quick response...commercial pressuring [is being put on us]... So by working backwards we say we cannot meet that [date] because we've got this development approval process. So what we do then is we start lobbying and doing things behind the scene to see where can we expedite the process' (Interview 4 1999).

'A problem we have found with many previous projects is the time taken to complete the environmental impact assessment...process. This is a critical issue when the total time to carry out the EIA process and construct the project is less than the time available to meet an inflexible commissioning date set by business or political decisions.'³³

Thus, financial and time constraints are clearly a problem in the EIA and planning process, which signals that fully effective organisational change at the capability level has yet to be attained.

7.4 SUMMARY

The organisational capability for EIA discussed has clearly expanded and improved since its beginnings in the late 1960s, albeit initially at a slow pace. At the surface level both organisations have responded to environmental requirements including community pressures, EIA policies, and other environmentally-related legislation, with very similar responses and timing. Initially, the response to EIA was limited to the development of EIA procedures in Transport, and the creation of stronger public consultation initiatives in ETSA. More substantial changes were not made until some years after the EIA requirement with the employment of environmental staff to oversee the EIA process and the creation of environment groups in the 1980s. The most fundamental changes in the organisation's approach to EIA and environmental management were made in the 1990s, and the main influence on this appeared to be the enactment of the Environment Protection Act, rather than the EIA requirement.

Table (7.5) summarises performance in the capability component of the *CCP framework* for both Transport and ETSA for the late 1990s. Overall, Transport's performance was stronger in capability, with 72% of criteria at least 'partly addressed' compared to 58% in ETSA, although the difference between percentage of criteria which were 'fully addressed' was smaller (*ie* 55% in Transport and 50% in ETSA). Performance was stronger in Transport in terms of 'objectives

³²It was noted by one employee for instance, that '*there have certainly been instances where we need to get the approvals quicker than normal so therefore we put pressure on...but I don't believe its ever actually affected the ..result of whatever the clearance might have been...I'm not aware of any fast-tracking that's actually affected ...or compromised what people want done*' (Interview 38 1999).

³³Hidden Footnote

and procedures' and 'staff and structures', whereas performance was stronger in ETSA in terms of 'knowledge and resources' for EIA.

Table 7.5: Comparison of performance in the capability for EIA (Dimension 1 of the CCP Framework) (Key: 0=not addressed; 0.5=partly addressed; 1=addressed)

1.1 OBJECTIVES AND PROCEDURES		Trans.	ETSA
1.1.1	Has the organisation developed environmental goals in its mission statement?	1	1
1.1.2	Have internal EIA procedures been developed by the organisation?	1	0
1.1.3	Do these procedures (where they exist) rate at least satisfactory according to the system-evaluation framework?	1	-
1.1.4	Has the organisation developed broader environmental procedures, management systems, and/or guidelines which may inform the EIA process?	1	1
1.2 STAFF AND STRUCTURES		Trans.	ETSA
1.2.1	Has the organisation employed staff with environmental expertise?	1	1
1.2.2	Is there a 'critical mass' sufficient for these staff to pervade both EIA for new project developments and other activities?	0	0
1.2.3	Do these staff have a range of disciplinary backgrounds?	0.5	0
1.2.4	Are these staff located in the organisation's structure to facilitate <i>autonomy</i> and independence in reviewing organisational operations?	1	0.5
1.2.5	Are these staff located in the organisation's structure to facilitate <i>influence</i> on the planning and decision-making processes in EIA?	1	0
1.2.6	Do these staff have broader environmental management roles such as education, research, policy development which may indirectly guide the EIA process?	1	1
1.3-1.4 KNOWLEDGE & RESOURCES		Trans.	ETSA
1.3.1	Do employees involved in the EIA process have sufficient knowledge of the EIA procedures?	0.5	1
1.3.2	Are employees aware of and have sufficient knowledge levels of <i>external</i> environmental policy requirements which may guide the EIA process?	0.5	1
1.3.3	Are employees aware of <i>internal</i> environmental policies, procedures or guidelines which guide the EIA and planning process?	0.5	1
1.4.1	Are the financial resources considered sufficient to adequately implement EIA?	0.5	0.5
1.4.2	Are the time resources considered sufficient to adequately implement EIA?	0	0
1.4.3	Are the staff numbers considered sufficient to adequately implement EIA?	0.5	0.5
1.4.4	Are the levels of internal expertise considered sufficient to adequately implement EIA?	1	1
1.4.5	Are external consultants used where internal staff numbers are insufficient?	1	1

Key *strengths* which were similar between both organisations included:

- the creation of environmental goals and broader systems of environmental management (beyond EIA);
- the employment of staff with environmental expertise which also had broader roles beyond EIA;
- sufficient levels of internal expertise for EIA and planning (not just in terms of environment staff where numbers of environment staff were actually limited); and the
- use of consultants in the event that staff numbers were lacking.

Limitations which were similar between both organisations included insufficient 'critical mass' for environment staff, and inadequate time resources for the EIA and project delivery process. The main *differences* in performance between the organisations included:

- the lack of internal EIA procedures in ETSA;
- the lesser autonomy and influence of ETSA's environment staff relative to Transport's environment staff; and
- the lower levels of knowledge in Transport in terms of the EIA process and internal and external policy requirements.

The organisational capability for EIA is further addressed and summarised in Chapter Ten, whilst the following Chapter evaluates the second component of the *CCP framework* - the organisational culture for EIA.

Chapter Eight

THE ORGANISATIONAL CULTURE FOR EIA

'Change means movement. Movement means friction. Only in the frictionless vacuum of a nonexistent abstract world can movement or change occur without that abrasive friction of conflict' (Alinsky 2000).

8.0 INTRODUCTION

Chapter Seven provided an understanding of how both Transport and ETSA responded to the EIA requirement at the surface and official level with the development of an organisational *capability* to implement EIA, but was this response consistent with the responses of individuals and groups employed within the organisations at the *cultural* level (*ie* the deeper and less visible base of the organisational 'ice-berg')? Elements of both Transport's and ETSA's organisational cultures prior to the 1974 EIA requirement were elucidated in Chapter Six with portrayals of traditional 'cowboy', 'pioneering and 'trailblazing' construction cultures where scant consideration was given to environmental factors. How did the EIA requirement impact on these traditional construction cultures (if at all)? Did employees become more supportive of environmental values as EIA was adopted and implemented? How much influence did internal and external groups actually have on EIA outcomes (*ie* what sources of power were available to participants in the organisational cultures)? Were the cultural tensions and 'fiefdoms' evident in Transport during the 1950s and 1960s overcome by EIA in the communication process?

In answering these questions, and addressing research objective (7), this Chapter explores the culture for EIA in the organisational change process, by exploring the attitudes of those employed within the organisations, including executives, environment staff, project planning staff, design staff and project managers. This constitutes Evaluation Dimension (2) of the *CCP framework* defined in Chapter Four, but some indications of EIA outcomes in practice (*ie* Dimension 3) are also presented, which supplements the assessment of EIA in practice in Chapter Nine. The evaluation criterion defined in Chapter Four are reiterated at each relevant

section, but given the difficulties of separating the cultural evaluation criteria into neat and mutually exclusive groups for discussion, they are addressed indirectly across several sections in this Chapter, whilst the overall performance is summarised at the end of this Chapter and compared with other dimensions in Chapter Ten.

Information was drawn primarily from the questionnaires and the in-depth interviews. These interviews were particularly useful in surfacing elements of the culture[s] which involved a tapestry of complex interrelationships between different groups. A rich, strong and colourful portrait of the organisational cultures became evident throughout this research, particularly in Transport, but it was extremely difficult to translate this complex and three-dimensional image into one-dimensional text. Hence, there is a heavy reliance on quotes from the interviews to portray some of this 'colour'. It also needs to be reiterated that the focus here is on the culture[s] of groups involved with the EIA and project delivery process rather than the broader culture[s] of the organisations. Moreover, given the limited numbers of staff involved in EIA within ETSA, the focus is on Transport, although some useful insights were still gained about ETSA's 'environmental' culture and individual responses to EIA.

8.1 INITIAL ATTITUDES AND VALUES: 1970s TO THE 1980s

DIMENSION 2.1 ENVIRONMENTAL ATTITUDES/VALUES	
2.1.1	Are <i>individuals</i> involved in EIA within the organisation committed to the values of EIA and environmental protection, particularly those who are from 'non- environmental' backgrounds (<i>ie</i> value it at least equally with other issues such as technical or economic issues)?
2.1.2	Do employees perceive that the <i>organisation</i> has a strong environmental commitment <i>in theory</i> ?
2.1.3	Do employees perceive that the <i>organisational</i> commitment is strong <i>in practice</i> ?
2.1.4	Do employees believe that EIA is an important tool for achieving the organisation's environmental goals as opposed to simply improving organisational image or public relations?
2.1.5	Are environment staff valued highly within the organisation?
2.1.6	Is there a culture which formally rewards good performance in EIA?

As indicated in Chapter Seven, the surface *organisational* reaction to the EIA requirement was virtually immediate in both organisations, albeit initially limited in focus and capabilities, but the initial reaction of most *individual* staff was not as fast or responsive, nor did all employees receive the EIA or environmental message at the same time. This discrepancy in timing is probably partly a result of the survey participant's role and structural location within the organisation at the time of EIA's introduction (*ie* they may not have initially been directly involved in EIA). The delayed response is also likely to be a result of an initial resistance towards the EIA requirement, which was consistent with the resistance at the organisational

level noted in Chapter Seven. However, resistance at the 'hidden' cultural level was more significant. It was possible from the interviews to classify six types of responses to the EIA requirement. These categories, some of which overlap, are summarised in Appendix (15) ranging from least to most resistance:

- the '*whole-hearted supporters*';
- the '*sympathetic, but...*' group;
- the '*neutral administrators*';
- the '*jokers*';
- the '*its just a nuisance*' group; and
- the '*not valued, waste of time*' grouping.

In both organisations, all of the resistance groupings referred to in Appendix (15) applied (except for the 'neutral administrators' in ETSA). In both organisations, there was generally an awareness in long-term employees of the trends towards environmental protection in the community and in government during the 1970s, and this awareness, according to one Transport employee, emerged simply because '*it was just that era*' (Interview 40 1999). For many of the employees surveyed in both organisations (*ie* those who were directly involved in project development), resistance to EIA was not always about the concept or value of environmental protection *per se*. Rather, the additional time, workloads and the extra layer of bureaucracy to achieve EIA were considered the major problems. This finding is consistent with the notion of '*action-based non-compliance*' described in Chapter Two, where a policy requirement may be valued but the actual requirements for implementation are considered to be onerous.

Yet there were others in both organisations who obviously did not value the role of EIA in any form, and although a minority,¹ some employees considered the process to be ambiguous, complicated, optimistic, ambitious, 'over the top', or on the 'airy fairy' side (Interview 8 1999; Interview 16 1999; Interview 19 1999; Interview 40 1999; Interview 44 1999; Interview 46 1999). In this respect, there were employees who continued on as they always had even in the presence of EIA and other formal approval procedures (*eg* vegetation clearance approvals). This was possible due to the greater anonymity of employees during the 1970s and 1980s, and hence less personal accountability. EIA in this sense failed to be fully integrated into planning, and was treated merely as an add-on, a formality, or an 'afterthought' (Interview 50 1999). It was argued by one Transport employee:

¹In Transport, the '*not valued, waste of time*' grouping was probably a minority group during the 1970s in light of Shepherd's (1980) study of Transport's EIA process, which found that most participants were 'sensitive to environmental issues'. Those individuals in Transport which did not appear to value the environment very highly prior to the 1980s, and who had negative attitudes towards EIA constituted only 10% of those surveyed (Shepherd 1980: p70).

'I'd have to say it would have been well into the 1980s or late 1980s that the prevailing culture was that environmental amelioration...[was] seen as add on, so that the principle task was within the budget, build the road, and if you had some money left over, you'd actually go and then build what you were supposed to build' (Interview 63 1999).

On occasion, Transport employees endeavoured to find ways of bypassing higher levels of environmental assessment such as the 'Departmental Appraisal of Environmental Factors' (DAEF) which was a higher level than an 'Identification of Environmental Factors' (IEF). For instance, *'I can recall a reticence,...if we're ...careful how we filled out the IEF...it might not mean that we had to go to the next stage,....you could bypass the work...'* (Interview 29 1999). Minor assessments through IEFs were also sometimes conducted *after* construction had commenced, just so that the policy requirement was met (Shepherd 1980). One employee in Transport noted, *'the problem was that the IEFs...were filled out by people who had no real understanding or awareness of environmental issues'* (Interview 20 1999). Given that there were minimal environmental staff to oversee this process prior to the 1980s (refer Chapter Seven), it was quite possible that some projects with more significant impacts also escaped the higher levels of assessment.

According to some within Transport, there were no obvious patterns to the resistance towards EIA (*ie* this functional group was always more or less resistant than another group) (Interview 12 1997; Interview 13 1999), but there were some subtle indications that the degree of support for EIA tended, at least in the past, to depend on one's role (and subculture) within the organisation. Signs of less resistance were evident in employees within project planning areas given that their roles already involved the consideration of multiple factors. In other words, a framework already existed which was in some ways consistent with the EIA process, and environmental factors were simply added to this role (albeit not always equally integrated with other factors). Reference to pockets of more serious resistance (*ie* 'not valued, waste of time' perceptions) were frequently equated with the construction or regional people in both organisations. This resistance reflected the traditional and more dominant construction ethos of the organisations explored in Chapter Six, and comments made in ETSA are noted in Appendix (15). In Transport, it was also noted in the interviews:

'construction engineers had a lot of clout...It was quite normal in those days [15 years ago] for people in [the] planning section to write recommendations and have them completely ignored' (Interview 62 1999).

'Everybody talks about the Crystal Brook cowboys which was the mid north region...and they did have a very...cowboy attitude...*"lets just get the job done...don't worry about the paperwork"*...Not so much these days, but during my time...there's been a lot of, *"just get it signed, get it out the way so we can build the road"*' (Interview 38 1999).

'Even though we had landscape architects, we had money specifically set aside, and we were going through processes with the community in terms of projects with respect to environmental impact assessment of some sort or another...even though we were doing all

that,...the construction end of the business was still pretty much gungho and very much cowboyish' (Interview 63 1999).

'I suspect that a lot of the people working in the construction area had a fairly narrow view of ...the importance of the environment...and that's a real cultural thing, and...they're about bulldozers and explosives. They weren't about conservation and minimising impacts. So for a long time, while we've had that culture and those people, I don't know [if] it really mattered what we did. I don't think we would have moved on until you actually make a major...culture shift' (Interview 20 1999).

The construction and surveying 'cowboy' culture in Transport continued to be reflected by large projects within the Department such as the South Eastern Freeway and the Stuart highway upgrade. In the former case, one employee recalled that '*we went through, butchered trees left, right and centre. We didn't care what was going on...*' (Interview 40 1999). Although the Stuart Highway project underwent a formal EIA process and care was taken because of the ecological fragility of the area, construction and surveying for this project was still '*..the stuff of tall tales*' for many (Donovan 1991: p243). Transport's construction and surveying culture was represented in verses such as 'Heroes of the North' which told the tale of surveyors on the project from 1978 to 1983 (Donovan 1991). One passage in this verse gives a small hint about the level of environmental concern at this time: *And how they fought to spare their men, From clearing with an axe. It took them only three short years, To get machines with tracks*' (in Donovan 1991: p243).

The Stuart Highway project was developed primarily by Transport staff, but the environmental assessment was done by external consultants (Shepherd 1980). This is perhaps, one reason why the environmental message did not reach all Transport employees on this project. Transport's reliance on consultants for the EIA was despite the endeavours of the then Department for the Environment to get proponents to do the EIA themselves to improve the chances of internalising environmental values (refer Chapter Five). As a result, the 'cowboy' culture was still alive and well. According to Parkin and Pugh:

'Earmarked Commonwealth grants and professional criteria emphasising the facilitation of traffic flow, minimisation of congestion and maximisation of highway safety produced roads and bridges constructed according to the best engineering principles. However, the impact of highways and traffic on neighbourhood amenity, on the safety and health of residents, on patterns of community interaction, on the integrity of parklands and on aesthetic appearance were factors outside the Department's perceived mission' (Parkin and Pugh 1981: p93).

Stretton similarly suggests that '*its highwaymen showed as much respect for social or environmental values as road engineers show anywhere else*' (Stretton 1989: p200); whilst Donovan noted that the Department was criticised as a '*philistine organisation concerned primarily with the design and engineering of efficient transport corridors rather than with the enhancement of the environment*' (Donovan 1991: p231).

ETSA also demonstrated signs of the residual 'cowboy' or 'trailblazing' culture and this was in part due to the non-binding nature of the EIA process and Ministerial directions under the Planning Act which was noted in Chapter Five and Seven. Goodall (1982) refers to a transmission line study in the mid-north of South Australia which was the cause of public outrage in 1982 due to the transmission line's impact on the landscape. He noted that some '*...members of the public expressed amazement that ETSA could proceed with the project in complete disregard of the recommendation of a conservation study...*' (Goodall 1982: p3). It was also noted that the '*politicians are powerless to intervene. ETSA, it seems, is a law unto itself, answerable to no-one*' (Goodall 1982: p3). This is perhaps one reason why the government adopted direct Ministerial control over ETSA in 1987 for the first time in its history (refer Chapter Six).

8.2 ATTITUDES AND VALUES IN THE 1990s

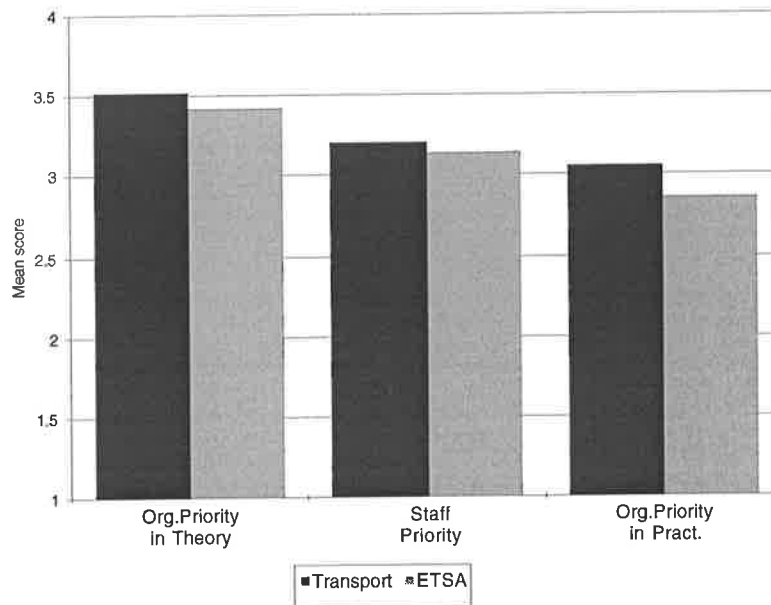
How were attitudes different (if at all) in the 1990s given that the formal organisational capability for EIA had become more advanced, and given the accumulated experience in EIA? What were the attitudes of EIA participants towards the environment and to EIA in an era when environmental protection had apparently been 'mainstreamed', 'routinised' and 'professionalised' (as described in Chapter Seven)? Three similar questions were asked of questionnaire participants (including engineers/technical officers involved in EIA) to elicit any trends in current perceptions of the *organisational* commitment (both in theory and in practice), and the *individual* commitment to the environment. For instance:

- What priority do you personally attach to the environment?
- What priority do you think [the organisation] attaches to the environment in *theory*?
- What priority do you think [the organisation] attaches to the environment in *practice*?

Answers could be in the form of either: no priority (score=1); minor priority (score=2); moderate priority (equal to other technical, economic issues) (score=3), significant priority (overrides all other issues) (score=4), and uncertain (score=5). The results are presented in Figure (8.1) which present mean responses (for comparison purposes only rather than exact indicators of performance; refer Chapter Four), and in Table (8.1) which presents more specific frequency distributions in Transport and ETSA.

Trends in environmental commitment within both organisations were very similar, although with slightly lower mean scores in ETSA which may be attributable to the major restructuring and privatisation process going on at the time of the research (*ie* there were other more immediate priorities such as survival) (refer Chapter Six). As indicated in Figure (8.1), the mean score for priority attached to the environment at both the staff and organisational levels was between 'moderate' and 'significant', with the exception of ETSA in terms of organisational commitment in practice which was below 'moderate'. However, the key point to

note is the difference between organisational commitments in theory, individual commitments, and organisational commitment in practice. The highest level of commitment was at the rhetorical level (*ie organisational commitment in theory*), which was perceived to differ to, and be higher than, *individual commitment*, which in turn was perceived to be higher than *organisational commitment in practice*.



Key: 1=no priority 2=minor priority 3=moderate priority and 4=significant priority

Figure 8.1: Priority attached to the 'environment' in Transport and ETSA: Comparison of Means (missing value=5)

Table 8.1: Priority attached to the 'environment' in Transport and ETSA: Frequency Distributions (%) (shaded numbers=largest grouping)

	TRANSPORT				ETSA			
	None	Minor	Moder.	Signif.	None	Minor	Moder.	Signif.
Organisational Priority in Theory	0	0	46	51	0	0	57	42
Staff Priority	0	0	78	19	0	0	85	14
Organisational Priority in Practice	0	17	58	22	0	14	85	0

Most individuals in both organisations attached 'moderate' priority to the environment, whilst approximately half of the participants believed that the *organisational commitment in theory* was 'significant' (*ie 51% in Transport and 42% in ETSA*). The apparently stronger organisational commitment in theory is probably attributable to the extensive and visible efforts devoted by

both organisations in the 1990s towards developing an organisational capability for the EIA process and other environmental management requirements (Chapter Seven). In contrast, only a small proportion of participants believed that the *organisational commitment in practice was 'significant'* (ie 22% in Transport and 0% in ETSA), and some believed it was actually 'minor' (ie 17% in Transport and 14% in ETSA).

Of significance, however, is that none of the questionnaire participants attached 'no priority' or 'minor priority' to the environment which suggests an internalisation of environmental values relative to previous years when EIA was first introduced. Examples of the more supportive attitudes (from the interviews) towards EIA and environmental management in the 1990s are summarised in Appendix (16). Reasons cited for this change included increasing community pressures, greater contact with internal environmental staff, the development of the Environment Strategic Plan in Transport (refer Chapter Seven), increased visibility and accountability of employees, and the EIA process. In terms of visibility, it was noted in Transport, for instance:

'There's [one] guy...[who's] probably gone full circle. He used be very, '*don't worry about the paperwork.*', whereas now he's, partly because of his position...very concerned with the environment and getting things done properly... The pressure of his job... He's very visible... There's also a lot of pressure...coming through from other government departments' (Interview 38 1999).

In addition to this increasing public visibility, Transport participants were also asked about the influence of EIA on attitudes to indicates EIA's impacts on the change process. It was noted for example:

'It [EIA] does change the way you think. I must admit when I think about a project from the start, I think environmental issues are up there along with accidents, traffic volumes...whereas before they might have been down there when you're thinking about issues. They're now...up there in the forefront' (Interview 33 1999).

'Absolutely yes. In years gone by...the alignment of a road for example would take precedence in the minds of the planner or designer...It makes us think much harder now, are there alternatives...the fact that you've got to get environmental clearance...means that you've got to look more seriously at alternatives' (Interview 30 1999).

This is also consistent with the findings in Chapter Seven whereby 68% in Transport and 42% in ETSA believed that EIA had been at least moderately effective in improving their environmental knowledge and awareness levels.

The increased support for EIA and environmental management in the 1990s was also likely to have been reinforced by the attitudes and top-down commitment of the executive who, although not necessarily understanding everything about environmental issues (Interview 12 1997), played a key role in raising the profile of environmental staff in both organisations. Not all interview participants knew what the personal attitudes of executive attitudes were (and some

believed that they varied), but most believed that the executive were sympathetic to the environment, which was demonstrated by their support of the environmental group and endorsement of the Environment Strategic Plan in Transport, and of the Environmental Policy in ETSA (Interview 25 1999; Interview 30 1999; Interview 34 1999; Interview 44 1999; Interview 45 1999; Interview 48 1999; Interview 65 1999). A Transport executive suggested that you *'can't bludgeon people into changing the culture...but if you...require and insist and give importance to [it], people will do it, and after awhile, behaviours...start to change...and before you know, values start to change...'* (Interview 63 1999).

Also of significance was the belief among the majority who responded to the questionnaire that EIA was an important means for achieving environmental goals within their organisation. Participants were asked to rate this importance on a scale from 1-4 whereby '1=not important' and '4=major importance'. The mean score in Transport was 3.6 compared to 3.4 in ETSA. More specifically, 61% in Transport believed that EIA was of 'major importance' in achieving environmental goals compared to 42% in ETSA, and only 4% in Transport believed EIA to be of 'minor importance' compared to 0% in ETSA. Moreover, nearly all of those surveyed in the questionnaire indicated that they would consider the environment in their role even if not required to do so by organisational procedures or by legislation. This tends to indicate a greater acceptance of the benefits of EIA and environmental values and demonstrates that 'professional control' in EIA was becoming more apparent. The greater value attached to EIA was further indicated by rankings of the 'benefits' of EIA in the questionnaire. The EIA process was considered in both organisations to be an important compliance tool and an environmental protection tool, and was not perceived to be a tool merely aimed at improving public relations or image (*ie* very few participants ranked this as important).

Despite these positive indications about EIA and commitment to the environment, the fact that *organisational commitment in practice* was perceived to be lower on average suggests the presence of other factors which compromise the intentions of both organisations. These factors may include the resource and knowledge constraints noted in Chapter Seven; political constraints on decision-making (see Chapter Nine); and the lower commitment of individual staff members on average (*ie* more emphasis on 'moderate' rather than 'significant' priority). In this latter case, the discrepancy between organisational commitment in theory and individual commitment is interesting in Transport, given that a recent climate survey indicated a high degree of staff loyalty to the organisation² (DoT 1997a). One might assume from this climate survey that there would be greater consistency between individual commitment and organisational commitment to the environment. The fact that there was not in all cases, suggests

²For instance, 88% of employees involved in the climate survey ($n=1349$) believed that Transport SA was a 'good place to work'; 78% were supportive of the statement 'I am proud to say I work for TSA'; and 80% were satisfied with working in Transport SA (TSA 1997a).

that Transport had changed at the official organisational level, but that some individual employees were slower to adjust to this change.

This result may also suggest that the traditional and previously dominant construction ethos was still being informally rewarded by the organisation, because many of the executive were still of the 'old school', in Transport in particular. That is, there may have been cultural change towards the environment, but only insofar as the fundamental mission of the organisation was not impacted upon. It was generally perceived in Transport, for instance, that the primary role of the organisation was to build roads and to provide accessibility, not to provide environmental regulation or protection. In ETSA (Electranet SA) the main mission was to construct large transmission lines. This reflects attitudes in the United States' Corps of Engineers noted in Chapter Three, and while the Corps was evidently at the forefront in EIA practice, environmental quality was perceived to be an auxiliary function rather than a dominant one (Mazmanian and Nienaber 1979). Thus, the lower number of individuals attaching overriding 'significance' to the environment would not be surprising.

The loyalty of some employees to residual construction cultures was also evident in the more in-depth interviews which surfaced some remnant resistance to EIA and environmental protection (which was not apparent in the questionnaire). This was particularly evident in Transport, and those involved in EIA within ETSA demonstrated virtually no resistance except for continued concerns about the time frames involved in the EIA process (Interview 8 1999). In Transport, some continued to believe that, although EIA was necessary (*ie the 'sympathetic but'* grouping), the paperwork, time and costs involved were still of concern, particularly in a time of increasing financial constraint and inflexible construction dates (Interview 12 1999; Interview 18 1999; Interview 23 1999; Interview 56 1999). Moreover, whilst the '*gungho*' nature of construction was nearly gone in Transport, which was probably associated with the fact that very few construction employees remained, there were '*still pockets of it*' (Interview 63 1999). Apparently, there was:

'still an underlying feeling that you know some of the stuff is all a bit wussy, and...building things is what its all about, and that's where the engineers get their jollies I suppose...Even today...as we move through the continuum of change...the underlying...notion is that its [an add-on]. Its what you do if, when you've done everything else... There's just no empathy there in many areas. [They]...don't see it as a fundamental part of delivering our mission' (Interview 63 1999).

'Still even now...there are people that think like that [to build the black stuff and nothing else matters]...people have been here for 20 or 30 years and its hard for them to change, although their doing their darndest... They're gradually coming around. A lot of them are coming around because they have to, or because there might be a procedure in place' (Interview 64 1999).

Another Transport employee believed that the level of environmental awareness was still low, despite claims to the contrary:

'I don't think I have a very good awareness or understanding of environmental issues. I've been interested in the environmental stuff and how this section responds to it...for some time now, and I guess my concern is that we are still only paying it lipservice...I think part of the problem is that if you talk to engineers in this current day and age, they'll say we understand what the environmental issues are...but I don't think we do. I think there's a fairly high level of ignorance...there's an awareness but it's very limited' (Interview 20 1999).

Consistent with internal models of reform described in Chapter Two, there was a belief by some Transport employees that this remnant resistant culture would only change when the older staff left and new and younger employees arrived (Interview 20 1999; Interview 24 1999; Interview 63 1999; Interview 68 1999). Yet given that some younger engineers in Transport were still not particularly '*sympathetic to the environment*' (Interview 63 1999), this assumption can be challenged. This view was reinforced by the attitudes of a younger engineer:

'I can see the benefits...but sometimes...the thing that concerns me is that people take it to all extremes...that's when it does worry me... I don't want environmental issues to drive a project. There's got to be the balance...Sometimes I have to admit I think it's only a tree, can't we just avoid it, can't we just bulldoze it...I mean that's being real blunt but you know sometimes you think why are we spending so much time on something like this' (Interview 37 1999).

A small number of other employees in Transport also continued to believe that environmental issues were sometimes 'over the top' and thus damaged the credibility of the process (Interview 16 1999; Interview 38 1999; Interview 62 1999). For instance:

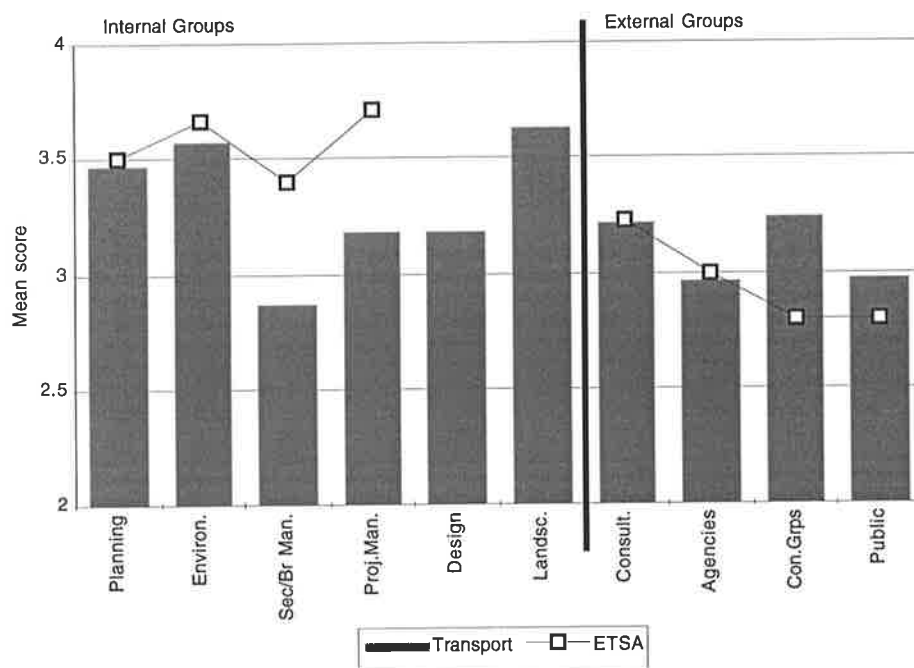
'there was a bit of an issue down at the airport [runway extension project]...[where] somebody [heard] a frog croak. The whole job stops and people have to go out looking for these frogs...and...we feel some of those things are a bit over the top' (Interview 16 1999).

Nonetheless, this resistance was not significant, it was restricted to a minority, and it was exacerbated by the increasingly stringent time and resource pressures placed upon EIA participants within the organisations (see Chapter Seven).

8.3 COMMUNICATION IN EIA

DIMENSION 2.2 COMMUNICATION	
2.2.1	Is communication considered to be effective in the EIA and planning process between all parties in EIA including internal and external participants?
2.2.2	Is EIA perceived to be a mechanism for improving coordination between the different parties in the process?
2.2.3	Is the culture such that individuals are confident about expressing their opinions concerning environmental factors in a peer group situation, particularly if this opinion is contrary to the dominant perspective (<i>ie</i> this reflects the concept of group think defined in Chapter Three)?

Attitudes and values in EIA are closely allied with the communication process (and group pressures), which is an important issue in EIA given the dispersal of large amounts of information to multiple participants. As noted in Chapter Three, in the presence of functional group conflicts, information can be unconsciously or deliberately withheld, or filtered by dominant groups within an organisation (*ie* controlling the 'decision premises'), which makes it difficult for other participants to participate effectively in the EIA and decision-making process. The effectiveness of communication in EIA and planning was the subject of both the questionnaire and the interviews, with a focus on both internal groups and external groups in reflection of the internal and external models of reform in EIA noted in Chapter Two. In the questionnaire in particular, participants were asked how effective communication was in EIA and planning with internal groups, comprising planning staff, environmental staff, section/branch managers, project managers, road design and landscape staff (in Transport only); and external groups, comprising consultants, government agencies, conservation groups and the general public. The results, including means and frequency distributions, are illustrated in Figure (8.2) and Table (8.2). Responses were in the form of either: no contact (score=1); limited effectiveness (score=2); moderately effective (score=3); very effective (score=4); or uncertain (score=5).



Key: 2=limited effectiveness; 3=moderately effective; 4=very effective
(Road and landscape staff not present for the survey in ETSA)

Figure 8.2: Communication effectiveness between internal and external groups in the planning and EIA process in Transport and ETSA: comparison of means (missing values=1; 5)

Table 8.2: Effectiveness of Communication in Transport and ETSA: percentage distributions (%) (shaded=largest grouping)

	TRANSPORT				ETSA			
	No contact	Ltd Eff.	Mod. Eff.	Very Eff.	No contact	Ltd Eff.	Mod. Eff.	Very Eff.
INTERNAL GROUPS								
Planning Staff	7	4	29	39	0	0	42	42
Environment Staff	0	7	22	56	0	14	0	71
Section/Branch Managers	14	24	34	14	14	0	42	28
Project Managers	4	14	36	29	0	0	28	71
Design Staff	4	19	29	34	-	-	-	-
Landscape Staff	4	0	31	53	-	-	-	-
EXTERNAL GROUPS								
Consultants	12	14	24	31	0	0	71	28
Other Agencies	12	17	34	14	0	14	71	14
Conservation Groups	22	9	26	24	28	14	57	0
General Public	9	19	39	17	0	14	57	0

* Remaining % refers to those participants who selected 'uncertain' or did not respond

8.3.1 Communication with Internal Groups

Figure (8.2) indicates similar trends of communications with planning and environment staff in both organisations, whilst perceptions about effectiveness with section/branch managers and project managers was higher on average in ETSA relative to Transport. In both organisations, the mean score for communication for most internal groups was between 'moderately effective' and 'very effective', with the exception of Section Managers in Transport which was just below 'moderately effective'. Overall, internal communication in Transport was perceived to be most effective with landscape staff, environment staff, and planning staff; whilst in ETSA, communication was perceived to be most effective with project managers, environment staff, and planning staff. Design and Landscape staff were not included in the survey for ETSA (*ie* not relevant in the EIA process or not present).

Communication with Environmental Staff

Of importance is that all EIA participants had contact with environmental staff, and very few considered communication to be of limited effectiveness. This contact is important given the role of environmental officers as change agents and evaluators or 'watchdogs' over the EIA

process, particularly in Transport (*ie* the internal model of reform). In ETSA, communication with environmental staff in EIA was considered less crucial than in Transport given the lower-level interaction in the past between environmental staff and transmission engineers during the project development process, which was noted in Chapter Seven (Interview 4 1999). Communication with environmental staff in Transport was probably considered effective because of the high value attached to the environmental group, and a belief by some that they were a vital source of expertise and information (Interview 24 1999; Interview 38 1999; Interview 50 1999). Without environmentally-oriented staff, it was believed that the environmental management role in Transport was likely to deteriorate (Interview 20 1999; Interview 45 1999; Interview 34 1999; Interview 46 1999; Interview 48 1999). For instance:

'I think we all tend to use the environmental section more these days than what we have in the past, and...we have to from the point of view of achieving the goals we want to achieve with design' (Interview 45 1999).

'If they weren't there...I think the environment would suffer because people just don't have the time to pursue everything' (Interview 24 1999).

'If they didn't exist...there would be a glaring deficiency in the way we operate' (Interview 34 1999).

'We'd be lost without it [the environment group] to tell the truth... They're essential' (Interview 48 1999).

'I think that the role that they play is actually critical because...if you take them out, I suspect that a lot of these initiatives will just fall by the wayside. I think it needs to be driven' (Interview 20 1999).

'I think we'll tend to forget the environment [if the group wasn't there]... There are too many issues' (Interview 46 1999).

These comments highlight the important and ongoing role of internal environmental officers as change agents, and because of multiple political and budget constraints, the continued prompting by environmental officers still appeared necessary (Interview 12 1997). Thus, despite changes in attitudes and values of engineers/technical officers relative to the 1970s, this change does not guarantee that the consideration of environmental factors will be maintained, and this tends to challenge the linear process-based models of change defined in Chapter Two.

Effective communication also appeared to depend in part on the attitudes and approaches of the environment staff. Initially in Transport, some environmental staff were '*very ..enthusiastic*' and considered as '*zealots*', but this enthusiasm '*mellowed*' over time (Interview 45 1999; Interview 63 1999). This is consistent with points made in Chapter Two about environmental departments becoming disillusioned. What became apparent is that successful communication depended on '*moderation*' and a practical approach by environment staff, which in turn reflected the predominant attitudes of other staff towards EIA and environmental management. In ETSA, it was believed that '*extremist*' behaviour meant loss of credibility (Interview 13 1999), whilst in Transport, if considered '*radical greenies*', environmental staff could easily be bypassed at

early planning stages, and at the later construction stage with the suppression of information (Interview 13 1999; Interview 38 1999). According to one Transport employee:

'[when] we were a construction organisation. I guess the people out there constructing roads viewed the planners and the designers and the environmentalists as just a hindrance to them getting on with their job. So providing them with lots of information was even more of a hindrance, and more likely to cause hiccups.

The last thing you would want if you're out there building a road project...fifteen years ago was someone from the environmental unit looking at what you were doing, and the best way is to not tell them anything... Within construction there would be all sorts of...environmental issues that would never be fed back, because people probably know what the answer's going to be and they wouldn't want to hear it, so they go off and do their own thing' (Interview 20 1999).

This lack of information probably had major ramifications for the influence of environmental staff (see later discussion). Given the small numbers of environmental staff in both organisations (even today) and the difficulties of following through on all new project developments, the group must rely on the support and provision of information from engineering/technical staff. The need to be moderate and accommodating in behaviour to gain this support and to maintain credibility with engineering/technical staff is consistent with Taylor's findings noted in Chapter Three.

'Moderate' behaviour was equated with the ability to compromise (Interview 23 1999; Interview 44 1999), and to communicate in 'technical', 'sensible' and 'reasonable' terms rather than from a 'dictatorial' perspective of a 'radical greeny' who dreams about saving 'mother earth' (Interview 12 1999; Interview 33 1999; Interview 38 1999; Interview 51 1999). Greater acceptance was also likely if environmental officers had an engineering or technical background, as was particularly the case in ETSA (see Chapter Seven). The creation of good working relations was vital for getting things achieved, and in ETSA, some environmental staff relied on a 'buddy system'. In this respect, although other 'non-environmental' employees may not value the environment highly, they would comply with an environmental officer's requirements simply because they were 'buddies' and spoke the same language (Interview 2 1999; Interview 3 1999;). The 'buddy system' was however, deteriorating in ETSA given the fragmentation and downsizing of the organisation to prepare for its privatisation, which was noted in Chapter Six. Speaking the same language was also emphasised as crucial to good communication in Transport (Interview 40 1999; Interview 44 1999).

The communication approach of environmental staff in both organisations appeared to be accepted by the majority, and this acceptance would have been facilitated, in part, by their increasing status and executive support within both organisations during the 1990s (although ETSA's status diminished in the late 1990s) (refer Chapter Seven). The communication style of environmental staff was perceived by some in Transport to be '*structured and sensible*' (Interview 38 1999); they were considered '*easy to work with and helpful*' (Interview 18 1999);

and there was a belief that they worked *with* rather than against other staff (Interview 50 1999). That is, environmental staff tended to be loyal to their organisations and successfully socialised within its value system in both organisations (refer also Chapter Three). There was for instance, no indication that environmental staff had ever worked to prevent a project from going ahead (refer Chapter Seven). This is not to say that the environmental staff had compromised their environmental values in either organisation. Rather it was the way in which they sought change (refer section 8.4), and their role as change agents in EIA, particularly in Transport, was still important even 26 years after the EIA requirement was first introduced.

Attitudes towards environmental staff, and hence communication effectiveness, could also be influenced by the structural location of the environmental group which was discussed in Chapter Seven. In other words, environmental staff must remain in touch with operations ('on the ground'), which in turn relates to being able to speak the 'same language'. With the increase in status to corporate/strategic levels, there is a risk of alienation, and this was already apparent in ETSA, although not so much for the environment group because they still did a lot of 'hands on' work. For instance:

'there was a general feeling among many of the troops that..."oh its the "up the top" making the decisions for us...and they can all get lost. [They] sit up in their 'bullshit castle',...the 'ivory tower'...in their plush officers and make all the decisions without actually getting out in the field and know what's happened" ...[that level of animosity towards the environment group was less] because [the environment group] did get out there...on the ground...with the people' (Interview 2 1999).

However, just as for the decline in the 'buddy system', communication with ETSA's environmental group was being detrimentally affected in the late 1990s because of a declining focus on 'hands-on' work when compared to the 'dynamic' and 'exciting' days of marine monitoring and research in the 1970s and 1980s (Interview 2 1999; Interview 3 1999). In other words, the environmental role in the 1990s was more desktop-oriented (Interview 2 1999; Interview 3 1999). The potential for alienation in communication between higher and lower structural-management levels highlights the value of Transport's approach in maintaining both a strategic group and an operational group, to both oversee and to keep in touch.

Not only was hierarchical status important in the communication process, but so too was the physical location of environment staff. When environmental officers moved away from the planning section in Transport to the other side of the building (but still on the same floor) (refer Chapter Seven), there was a sense of loss for some planners. In other words, an artificial barrier had been created. For instance:

'[When they moved away] I wondered how we're still going to have a close working relationship with them. You didn't have the day to day contact you used to...Quite often you'd chat for morning tea...whereas now...being...in fact being only on the other side of the floor... you wouldn't sort of...wander around there for a chat unless you had specific questions... That sort of interaction has [been] lost a little bit' (Interview 33 1999).

'I think most of us felt that it would be a loss because...morning tea discussions for instance. The environmental unit people would be there, and ...they would enrich the discussion with environmental matters, and thus expose us to...their knowledge... So I think...we were conscious that [the move of environmental staff away from the group] would be a loss...everyone was conscious that it was extra responsibility on us to deal with environmental concerns' (Interview 34 1999).

This may have been alleviated with the introduction of another environmental officer into the planning section (in addition to the operational and strategy environment groups) (refer Chapter Seven).

Communication with Project Managers, Planners & Designers

Effective EIA and planning outcomes is not just about communication with environment staff (particularly given the limited role of ETSA's environment staff), but is also about good communication between planning staff, design staff, project managers, other technical staff, and consultants (although technically consultants are an external group). As noted in Chapter Six, Transport had a 'silo' or 'fiefdom' approach to communication with cultural tensions between planning and construction groups in the 1950s and 1960s. In other words, nobody communicated effectively with other groups (if at all). Planning was undertaken by planning groups; detailed design was undertaken by design groups, and both planning and design groups were isolated from construction groups. Yet knowledge of environmental information needs to be evident at all of these stages:

- in planning (to identify issues upfront and to 'avoid' and prevent environmental damage);
- in design (to incorporate detailed environmental mitigation measures);
- in final decision-making and environmental clearance (to determine the suitability of avoidance and mitigation measures); and
- in construction (to adequately implement planning and design recommendations).

If any of these are isolated by cultural tensions, then communication in EIA and project development will obviously be less effective in all types of issues, not simply environmental ones. Ridgway (1995: p189) similarly notes that designers should have input into the earlier planning stage to improve efficiency and to prevent the need to make design changes later in the process. The need for communication between all of these groups was also particularly obvious when, as noted earlier, construction people ignored the EIA process and failed to feed back environmental information during the 1970s and 1980s.

How effective was communication and the transfer of knowledge in the 1990s? Had the 'fiefdoms' been overcome? What influence did EIA have on communication? In the questionnaire, 43% of participants in Transport and 71% in ETSA believed that the EIA process

was 'moderately effective' in improving coordination and compromise in the planning and decision-making process. Yet it may also be true that the project management approach adopted in both organisations was having a greater impact than EIA on improving communication in the overall project delivery process. As noted in Chapter Seven, Transport's project management approach was adopted in part to overcome the silo mentality and to gain greater departmental control and co-ordination over project efficiency and outcomes.

Project management was a significant development in the EIA and overall project delivery process, but it had (and still has) both dangers and opportunities. The project management approach is a potential danger in that it concentrates control of the communication process into the hands of one individual who co-ordinates flows of information (see also section on influence in EIA). Thus, the attitudes of that person towards environmental issues becomes particularly important (*ie* whether or not, and to what degree, they involve environmental issues and staff, or incorporate costly mitigation measures). At the same time, the project management approach is also an opportunity to strengthen communication because it can bring together all participants from different functions into a team-based approach with similar goals. As noted earlier, communication with project managers was generally considered 'very effective' in ETSA (*ie* by 71%), whilst in Transport most considered it to be 'moderately effective' (36% compared to 29% who perceived it to be 'very effective').

For the project management approach to work effectively, there are certain preconditions which need to be met, and there were some indications of problems in Transport (*ie* 14% in Transport believed communication to be of 'limited effectiveness'). The most obvious condition is that all team players in EIA and project delivery have their roles clearly defined, and that they be involved throughout the life of the project, including those involved in project conception and in construction management (through direct involvement in meetings and/or through written updates). This has, however, sometimes been hindered by a lack of time and resources, and members, including environment officers, have not always been present for the life of a project's delivery. It was noted by a Transport employee:

'I think that the group that has the greatest opportunity in terms of flow of information is ...the project managers...I know that the flow of information on the projects I work on is nowhere near as good as it should be in terms of making sure that all the team members are informed, that all environmental information is spread to all other players...it comes back to time and resources...and that's one of the first things that has to suffer' (Interview 20 1999).

'There's got to be strong communication, strong liaison with those groups, and there's a continuous...communication link, round table discussion, continual information transfer, ...there's still certainly room for improvement with this communication...we've got to persevere with it and ...make it work' (Interview 29 1999).

The opportunities and strengths of the matrix project management approach are also dependent on the presence of 'groupthink' which was defined in Chapter Three (*ie* how comfortable do

team members feel about raising sensitive issues in a potentially hostile group situation). As noted in Chapter Three, a team member may refrain from challenging the group's attitudes or failure to raise an issue if that member believes that they will be judged as '*disruptive or disloyal*' (Kennedy 1988: p123). To ascertain the presence of 'groupthink', the majority of interview participants, particularly engineers/technical officers, were asked how comfortable they felt about raising a significant environmental issue even if they believed that the group or project team was focused on other technical and economic factors. There were varied opinions on this issue, but the majority in both organisations strongly asserted that they would raise an environmental issue if necessary, which suggests that groupthink was not strong in either organisation.³ For example:

'There wouldn't be a problem of raising [an environmental issue] in the group...there's no threat at all. ...I think the culture is now that you should be able to express whatever you think, be it right or wrong' (Interview 24 1999).

'Oh yeah for sure...the people...I ..usually deal with ...are road and landscape design people who also have an affinity with the environment....and our...project managers...because we've been beating them over the head with it for so many years, they'd understand. If there was an environmental issue, it would be raised and it would be considered...seriously' (Interview 30 1999).

'Definitely yes, I would bring [an environmental issue] up...I already do much to the consternation of the people I'm working with...I already do raise issues that they don't want to know about...bump them out of their comfort zones...in a quiet sort of way' (Interview 18 1999).

This latter comment suggests a willingness to raise an environmental issue, but it also suggests that some people within the Transport organisation still prefer to maintain the *status quo* (ie the 'comfort zones'), which suggests the presence of groupthink to a minor degree in Transport. Groupthink was also evident because raising an environmental issue was sometimes considered to be conditional, and some would only raise an issue on a one-to-one basis after the group meeting had closed (Interview 18 1999; Interview 37 1999). For example:

'I don't feel comfortable...there would [be] an amount of discomfort and you would feel like you're going out on a limb on some of those issues, ...but...you've got to be prepared to speak out and argue the point and cop...flack, sometimes called feedback...' (Interview 25 1999).

Attitudes about the communication process also gave further indications that EIA was still sometimes an add-on even in the 1990s, and some noted that environmental factors were still an 'afterthought' particularly if a project had financial or technical constraints (Interview 12 1999; Interview 18 1999; Interview 30 1999; Interview 50 1999). For example:

³My attendance at meetings for the ETAG group (Environment Technology and Advisory Group) indicated that this was the case, but it should be noted that this group was designed specifically to examine environmental issues, whereas project meetings are not in all cases.

'More likely than not, its a conversation revolving purely around engineering and budget and time constraints...simply because its where they come from and they "oops, oh I forgot about the ...the environment side of things". So yeah, we raise it' (Interview 30 1999).

While most indicated that they would raise an issue, the fact that some would not may indicate, not only the presence of groupthink, but also the presence of continued conflict or underlying tensions. As noted in Chapter Four, conflict in the communication process, particularly underlying conflict, is difficult to identify with any certainty unless directly involved in the day-to-day operations of the organisations. There were however, several indications of covert tensions in both organisations, particularly in Transport. Although the questionnaire results generally indicated a generally favourable results for all participants about effective communication, some indications of residual 'fiefdoms' emerged, but only on a minor scale. In Transport there was some '*real strain and differences of opinion*' and '*latent conflict*' between planners and project managers (Interview 34 1999; Interview 62 1999); there was '*tension between designers and contractors*', and designers and project managers (Interview 48 1999); there was '*tension*' between landscape and environment groups (Interview 50 1999); and in ETSA there was '*healthy tension*' between delivery, engineering and planning people due to overlaps in role (Interview 4 1999).

In addition to overlaps in roles, the underlying tensions in Transport were a result of several factors, most of which are summarised in Table (8.3) including for instance, financial issues, status and power issues, loss of work to external consultants, conflicts between safety standards and environmental issues, and the overemphasis on some environmental issues at the expense of others. In this latter case for example, one Transport employee was concerned about the overemphasis on vegetation in a bridge construction project on Kangaroo Island, which in turn caused impacts in another area. It was noted:

'There was a single lane bridge which had to be replaced by a dual lane bridge. Now the cheapest way is to build a new bridge right alongside....and demolish the other one. To do that it meant ... actually knocking over a few more [trees] ... and a bit of undergrowth, no significant trees like Eucalypts. ...On that road there were 50 kilometres where you're knocking over probably at least five, maybe even ten metres off of the side of vegetation, [and then revegetating] to minimise that amount of vegetation taken....[But] we had to build the new bridge on top of the old bridge...and that cost an extra 100,000 dollars roughly to save a few Melaleucas [a native tree species to Australia],⁴ when out on Kangaroo Island you knock them over [anyway].

There's so much seed around, its such a pristine environment, that they reseed anyway, and to me that was where...an environment consultant had lost the plot. I would have rather seen that 100,000 dollars spent on controlling...Phytophthora [a root-rotting fungus]⁵ or something like that. Its actually getting real benefit... In this case at the end of the day we spent a lot of money for bugger all benefit, and in fact...in the end we probably did more damage... It wasn't as clean a process as it might otherwise have been. We could have kept more material out of the river by building it alongside. It would have been a cleaner process' (Interview 62 1999).

⁴(Specht and Specht 1999).

⁵This fungus is an introduced pathogen and particularly a problem in the south-eastern areas of Australia (Specht and Specht 1999).

Barriers to effective communication also included language gaps (noted earlier), changes in staffing, and physical barriers such as participants being located in different buildings (and sometimes even on different floors) (Interview 29 1999; Interview 44 1999; Interview 3 1999). Conflict and disagreements tended to vary depending on the project importance (*eg* the more important a project was, the more effort one would go to in pushing a view, or communicating with someone at a different location), and the timing of participation (*eg* if on project team at the same time) (Interview 44 1999).

Table 8.3: Causes of underlying tensions in Transport in the communication process

POSSIBLE CAUSE	EXPLANATION
Residual tensions from the 1950s and 1960s	<i>ie</i> the 'fiefdoms'.
Disagreements between planning and design groups about technical standards	For example, passing lanes on country roads need to be a certain length according to the design standards to maintain safety. Yet if these standards were rigidly adhered to, a greater impact on the environment in terms of vegetation removal may result. In one project, after research on alternative lengths and safety, planners decided to reduce the length of these lanes to minimise the impacts on vegetation, which caused some discord with design people (Interview 46 1999).
Resentment about encroachment upon traditional role, or confusion over roles	There's a tension between what planning investigation's role and project management's role is (Interview 62 1999). For example, project managers in the projects section are perceived by some to be taking over the public consultation process which has traditionally been the realm of planners in the planning section (Interview 62 1999).
Differences in status; loss of power and 'power struggles' (Interview 34)	<i>ie</i> due to service providers and service purchasers and loss of authority and involvement for service providers. For example, one group within the organisation may provide a service and be 'free' whilst another group who provides a similar service may cost money internally because they are defined as a 'service provider'; thus, the group which costs may be bypassed even if the role required is their primary one (Interview 50 1999).
Inconsistencies in project management expectations	different approaches of project managers has caused some 'frustration' (Interview 48 1999).
Costs factors in a time of increasing economic constraints (Interview 48 1999)	for example, costly environmental mitigation measures (Interview 31 1999; Interview 34 1999). One participant in a major project was unhappy about including an environmental mitigation measure due to the high costs, but due to pressures from internal groups and the external Department for Environment (who was responsible for granting a permit), the measure was incorporated.
Loss of work to the private sector	<i>ie</i> some resentment about loss of high profile jobs such as the Southern Expressway to external consultants, so ' <i>there's the rats and the mice left...in this place to do...</i> ' (Interview 20 1999).

The most prominent cause of resentment and underlying tensions in Transport's communication process (at the time of the interviews) related to changes in the internal management systems, structures and power relations. Because of the FOPP model defined in Chapter Six, and the

definition of some groups such as planners and designers as internal 'service providers' (ie internal consultants), there was a sense of power loss for many in Transport (but no indications in ETSA). Planners and designers as 'service providers' have less autonomy and power in the organisation because the need for, and the scope of, their work is defined by other groups within the organisation such as project managers (see also Section 8.4). Not only does this approach invoke resentment about loss of authority and involvement in large projects, it also means that the communication process has become more formal with 'service agreements' which outline, for example, the planning or design outputs to be purchased, the parties to be involved, the purpose and scope of the service, monitoring and reporting arrangements, and rewards and sanctions among other things (refer FOPP 1997: p26).

Internal and formal service agreements between functional groups may create better efficiency and expectations about the project delivery process, but formal agreements may also lack flexibility. It is difficult to define upfront exactly how much and how long a planning and EIA process will take in reality. Because of the pressures of competition, internal providers may only provide exactly what is budgeted for in the service agreement (as is already the case for external consultants with more formal contracts). The potential for initiative, creativity and quick decisions in this respect becomes lost if unforeseen environmental issues which fundamentally impact upon a project are found and raised. While there is also evidence of effective informal communication within Transport which may resolve these issues, the informal communication of fundamental issues impacts on the formality of service agreements if they require major changes to budgets or to timetables. Internal communication may become hindered by red tape if the system becomes too formal and too rigid. It is however, a relatively new system and informal communication prevails in both organisations, but the potential dangers should be noted. Communication with external consultants for instance, was already being kept to a minimum in some cases to save money (Interview 20 1999).

Despite the underlying tensions (in Transport in particular), the importance of negotiation and compromise was frequently emphasised in both organisations, and conflict was not considered overt or 'nasty' (eg Interview 3 1999; Interview 20 1999; Interview 33 1999; Interview 62 1999; Interview 48 1999). Two Transport employees did not believe that environmental information continued to be withheld between groups in the 1990s (Interview 16 1999; Interview 20 1999), and the visibility of information may have been further enhanced with formal procedural requirements such as auditing processes during the construction stage. Thus, although the dangers of formalising communication and information flows via service agreements must be noted, so too must the potential benefits of formal arrangements such as auditing which open up previously closed channels of information.

8.3.2 Communication with External Groups

As noted in Chapters Six and Seven, public consultation in Transport was limited in the 1970s and 1980s, with an over-reliance on councils to release information or the 'occasional public meeting' (Shepherd 1980). The only time when consultation was mandatory was when a full EIS was required by law (Shepherd 1980), whereas consultation in ETSA was more extensive and consistent with the formal EIA process under the Planning Act (*ie* ETSA triggered more EISs than did Transport). The attitude and culture towards communication with external parties changed in the 1990s with the increasing focus on 'stakeholder' and 'customer consultation' (refer Chapters Six and Seven). In Transport, for example:

'Consultation has become ...a bigger part of our planning work. In the early 80s it was 'oh consult with the council and maybe talk with a few people, answer a few calls, maybe put up a plan somewhere.' Now we have workshops, we gather the councils, we have key stakeholder meetings and...we're doing a lot better than we did... But then again, I think the...public...have become more aware... They want to have a say...and that's fair enough' (Interview 33 1999).

'In the early 70s it may have been more an information type thing... We develop what we want to build...and stick it up on display and say here it is. Its a fairly token sort of exercise... So I think there's been a gradual change over many years in terms of the level of consultation and how much notice we take of people' (Interview 20 1999).

However, as illustrated earlier in Figure (8.2), there was a belief in ETSA that communication with external groups was generally less effective on average than with internal groups in ETSA. Similar trends were evident in Transport but not for all groups. Trends in mean scores were similar between both organisations in terms of communication with consultants and government agencies, but the mean score for communication with conservation groups and the general public was lower in ETSA than in Transport (and below the mean of 'moderately effective'). Moreover, not all groups had contact with the external groups. For example, 22% of participants in Transport and 28% of participants in ETSA had no contact with conservation groups (refer back to Table 8.2). Most participants did however, have contact with the general public and other government agencies in the project development process.

These questionnaire results suggest some limitations in the communication process with external parties, which may in part be attributable to procedural limitations. This was demonstrated in the evaluation of 'public-agency control' for Transport's EIA system (Chapter Seven), and for the legislative EIA system (Chapter Five). But in ETSA, despite having a more transparent, formalised and consistent approach to consultation (as outlined in law), the process of public consultation was considered slightly less effective on average than in Transport which is difficult to explain, but may be a result of the longer time frames required by law and the resistance this evoked within the organisation. Other factors which contributed to perceptions about communication effectiveness include resource constraints and concerns about the possible

outcomes of consultation. In the latter case, both Transport and ETSA participants were increasingly expected by their organisation and the government to consult with the community, yet were rarely provided with the additional time and resources required to consult effectively (Interview 18 1999). This was further confounded by a residual 'arrogance' in Transport (*ie we are the experts*) and the late stage of consultation:

'We do tend to be a bit arrogant... We do tend to go out to people and say this is how it is, this is what we believe should be done, rather than going out and saying this is what we want to do, how would you guys like to do it...[but] we're starting to do that more now. The downside for us is that it is a longer process...more effort, and we're not really being allowed that time and effort. The organisation is saying yes, we've got to be more community driven...responsive, but the reality is that we're not given the resources or the time to do that' (Interview 18 1999).

The concerns about potential consultation outcomes related to the difficulties of responding to several different, and sometimes, conflicting demands which can threaten the organisation's survival (refer Chapter Three). The individual involved in project delivery experiences pressures from all sides, but in particular, as part of their role (and in maintaining their job) they must strive to ensure the smooth delivery of a project, yet this could easily be confounded by consultation requirements and public attitudes. In ETSA it was noted that public meetings could get very '*ugly*' (Interview 4 1999), and although the value of consultation was noted, one Transport employee stated that '*you've just got to be weary that people can...lock the job up*' (Interview 24 1999). In an environmental review of Transport's processes, it was found that, although government agencies perceived consultation to be good, the general public had low confidence in the consultation process (DoT April 1997a).

A limited form of 'agenda control' which inhibits the external model of reform (refer Chapter Three) was also evident. Although both organisations were also open to releasing information, this was done with some caution. In the past, Transport was '*very reluctant to give out information*' (Interview 31 1999), and this may have been the cause of some of the conflicts and protests in years gone by (refer Chapter Six). In the 1990s, contact with the public became more personal and direct, but politically or commercially sensitive information would not be released if there were directions at a higher government level (Interview 33 1999). Freedom of Information legislation existed for public access to internal documents (Interview 31 1999), but still in Transport, the release of information was not always to the extent required if a full legislative EIS process had been triggered. It was noted in Transport for example,

'The organisation doesn't generally give out data to external groups because we are the decision-makers' (Interview 31 1999).

'We're fairly careful with what we hand out' to minimise 'flare up' of issues ...'There's a fair bit of power within the agency as to what you tell people and what information you release' (Interview 20 1999).

Internal reports were also not widely dispersed because of the costs involved (although individuals could request the information) (Interview 33 1999). At the same time, it was noted by one Transport employee: *'I don't know that I've ever found myself in that position where I have knowingly...withheld stuff because I know that by releasing it it will just inflame something or make something worse...'* (Interview 20 1999). The control of information in ETSA did not appear so obvious.

The potential for 'co-optation' which can also inhibit the external model of reform (refer Chapter Three), was difficult to judge because the intentions of both organisations for including external participants into meetings and workshops were not evident. Obviously a balance of assessment needs to be made here. On the one hand, there are calls for greater community participation in EIA and planning through meetings and involvement in workshops, yet on the other, if this participation occurs, the organisations could be criticised for attempting to co-opt potentially hostile parties. Both organisations did however, appear genuine in their attempts to consult with external parties (refer also Chapter Nine).

8.4 POWER AND INFLUENCE IN EIA & PROJECT DELIVERY

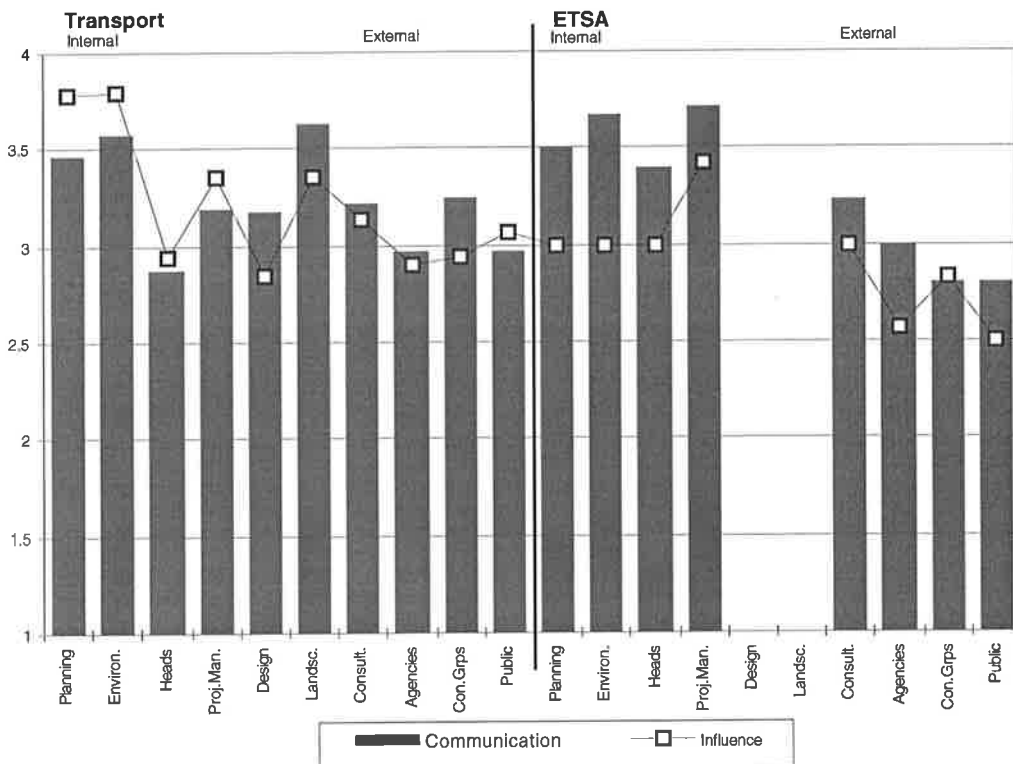
DIMENSION 2.3 PARTICIPANT INFLUENCE IN EIA	
2.3.1	Are all internal groups involved in EIA perceived to have an influence on the EIA and planning process?
2.3.2	Are environmental staff in particular, perceived to have the power to influence, change or prevent environmentally inappropriate projects?
2.3.3	Is the organisational culture open to influence from external groups such as the public and conservation groups?

As already alluded to, effective communication in EIA and planning is also closely allied with the degree of power or authority one has in the decision-making process, which in turn is related to attitudes and values and accountability in the process. The questionnaire participants were asked how much influence they believed both internal and external groups had on the EIA and planning process, and the results are presented in Figure (8.3) which compares communication effectiveness with degree of influence (mean scores), and Table (8.4) which presents frequency distributions. Answers to the question about influence could be either: no influence (score=1); limited influence (score=2); moderate influence (score=3); major influence (score=4); or uncertain (score=5).

8.4.1 Influence of Internal Groups

Environmental Staff

As illustrated in Figure (8.3), the influence of environment staff was perceived to be very high in Transport (and higher than in ETSA). In fact, in Transport the group believed to have the greatest influence in EIA and planning was the environmental group⁶ (followed closely by planning staff), whereas in ETSA, project managers were believed to have the most influence. This difference in influence of environment staff between the organisations reflects findings in Chapter Seven; that is, the role of ETSA's environment staff in project development was less formal and consistent, whereas Transport's environment staff had formal and consistent roles in the project delivery process (eg by the formal environmental clearance of projects). Transport's landscape staff were also perceived to have a relatively high influence, although this was lower than beliefs about their communication effectiveness (which was high), and individual perceptions varied (eg 17% thought they had 'limited influence' and 26% 'moderate influence'). However, the focus here is on the role of environment staff in EIA and planning.



Key: 1=no influence; 2=limited influence; 3=moderate influence; 4=major influence

Communication: 2=limited effectiveness; 3=moderate effectiveness; 4=very effective

Figure 8.3: Perceived influence of internal and external groups in EIA and planning: comparison of means (Influence: missing value=5; communication: missing values 1; 5)

⁶However, as found by Petts *et al* (1999), these results may be biased given the aim of the questionnaire (*ie* it could be considered socially unacceptable to respond otherwise, or it may be an indication of participants giving the answer that they expect should be given).

Table 8.4: Perceived Influence of internal and external groups in EIA and Planning: frequency distributions (%) (shaded numbers=largest grouping)

	TRANSPORT				ETSA			
	No Influence	Ltd Influence	Mod. Influence	Major Influence	No Influence	Ltd Influence	Mod. Influence	Major Influence
INTERNAL GROUPS								
Planning Staff	2	2	7	75	0	28	42	28
Environment Staff	0	2	14	78	0	28	42	28
Section/Branch Managers	2	29	29	29	0	28	28	28
Project Managers	2	7	36	43	0	0	57	42
Design Staff	4	26	39	22	-	-	-	-
Landscape Staff	0	17	26	51	-	-	-	-
EXTERNAL GROUPS								
Consultants	4	9	26	29	0	14	71	14
Government Agencies	2	19	34	17	0	42	57	0
Conservation Groups	2	26	26	26	0	42	14	28
General Public	0	22	34	26	0	57	14	14

* Remaining % refers to those participants who selected 'uncertain' or did not respond

The belief that the influence of environmental officers was slightly higher on average than communication effectiveness (Figure 8.3) indicates that other factors were at work in the decision-making process. These factors relate to the sources of power available to environment staff (refer Chapter Three), and their means of influence (*ie* how they sought to achieve change). In the latter case, Hellriegel *et al* defined eight ways of influencing decision-making encapsulating:

- rational persuasion (use of logical arguments and factual evidence);
- inspirational appeal (appeal to values, ideals to arouse enthusiasm);
- consultation (seek participation in planning a strategy or activity);
- ingratiation (attempt to create favourable mood before making request);
- exchange (offer an exchange of favours, benefits, or promise to reciprocate at later time);
- personal appeal (appeal to feelings of loyalty or friendship);
- coalition (seek to establish legitimacy of request by claiming authority or by verifying consistency with policies, practices or traditions); and
- pressure (use demands, threats or persistent reminders) (Hellriegel *et al* 1995: p510).

Some of the approaches used by environmental staff were already noted to in the previous section on communication in EIA (*ie* being 'moderate' in behaviour). With the exception of

'pressure' influences (although this could be used), all of these means for influence appeared to be adopted, particularly in Transport. There was 'rational persuasion' (eg communication in 'technical, sensible and reasonable terms' and 'speaking the same language'), 'coalition' (eg referring to legislative requirements such as Aboriginal heritage legislation and the need to comply; this gave greater legitimacy to the role of environment staff) (Interview 12 1999), 'ingratiation' and 'exchange' (see below), 'personal appeal' (eg the 'buddy system' noted in ETSA), 'consultation' (eg negotiation and compromise, involvement of staff in the development of Transport's Environment Strategic Plan), and 'inspirational appeal'. In this latter case for example, it was about *'making people appreciate that to consider the environmental issues,...will not only ...be quite easy to do...but [will also] enhance the overall project, and that'll look good for them...'* (Interview 12 1999).

As was the case in some organisations in the United States (Taylor 1984) (refer Chapter Three), environment staff used their influence to seek incremental changes via a process of 'mutual accommodation' which resulted in more fundamental change over a long period of time (Interview 13 1999). As an old Chinese proverb goes: *'It is possible to move a mountain by carrying away small stones'*. Influence in this respect was all about compromise and making a project as environmentally sound as possible without losing credibility in the organisation. In Transport:

[one of the environmental officers] has bent over backwards sometimes to be accommodating on projects...because he obviously believes in what he's doing... He's prepared to make that extra bit of effort to encourage other people, to help other people.

He's got that manner... He's been from what I would say from an engineering point of view, ...realistic about his requirements... He's allowed a little bit of latitude and...done that in such a way that's kept the contractors and our own site staff on side rather than saying, *'oh another one of those bloody greenies coming along and telling us how to run the job...'* He has actually fitted in and emphasised...with people he's trying to change the habits of' (Interview 18 1999).

Because of this communication approach (characterised by rational, exchange, ingratiation, and consultation means of influence), the environment officer managed to achieve a greater level of environmental protection (during construction of a major project) than might otherwise have been the case if resentment towards his approach had transpired (eg if he had used 'pressure' as a means of influence).

These means of influence are also closely related to the sources of power examined in Chapter Three, and the sources most relevant to Transport and ETSA environment staff are summarised in Table (8.5), which also relate to their roles in EIA (refer Chapter Seven). With formal roles in 'report review', 'planning' (albeit as advisors only), and 'system monitoring', Transport's environment staff appeared to draw from all of these power resources to some degree (particularly legitimate authority with their formal environmental clearance role). Because they

had multiple sources of power, the potential for resistance and conflict, if they relied solely on legitimate authority and procedures (*ie* pressure influence), was reduced.

Table 8.5: Types of power available to environment staff in EIA and decision-making within Transport and ETSA (definitions of power from Kanter 1982; Hellriegel *et al* 1995; Bolman and Deal 1997)

TYPE OF POWER	TRANSPORT	ETSA
Rewards/Resources (<i>ie</i> rewarding desirable behaviour)	Yes Environmental clearance is a form of 'reward' for planners/designers when doing the 'right' thing	No
Coercive (<i>ie</i> ability to constrain, block, interfere, punish such as closer supervision, tighter enforcement of rules)	Yes Environmental clearance (<i>eg</i> delaying or preventing a project from going ahead)	No
Legitimate Authority or Position (<i>ie</i> ability to influence because of position in hierarchy, or legitimate power of inspector to shut down production)	Yes Strategy group relatively high in the hierarchy (where projects developed; budgets allocated; access to executive). Operation group has legitimate authority to refuse environmental clearance (although this has never been done to date). This authority is given to them by the EIA and planning procedures	Partly Previously located high in hierarchy at corporate level, but status has since been reduced, and no formal authority in decision-making for project development such as transmission lines (but can advise)
Expert (if expertise essential and unique, there will be more power)	Yes Expertise generally unique to this group but can also be provided by consultants and landscape staff.	Yes Expertise unique to this group but often provided by consultants
Referent or Personal (<i>eg</i> charisma, passion, energy, articulative skills; ability to influence as result of being liked or admired)	Unknown Depends on individual (but apparent with the ability of environmental officer to 'accommodate' and communicate noted earlier)	Unknown Depends on individual but apparent with 'buddy system' and ability to 'speak the same language' as other officers
Decision-Making or 'seat at the table' (individuals or groups acquire power to the extent that they can affect some part of the decision-making process and control the agenda)	Yes (Limited) Planning procedures provide formal mechanisms for input at various stages in the planning/EIA process (including scoping of issues which is a form of agenda control), but limited staff numbers restrict ability to have 'seat at the table' in all cases	Limited Lack of formal mechanism to bring environmental staff into agenda decisions and decision-making (for transmission development), but in more recent years, environment staff attend meetings regularly from an early stage
Network (ability to get cooperation in tasks. If there are connecting links with other individuals and groups, result will be more power)	Yes Links to project planning staff due to previous co-location. Relations with external Environment Department, EIA Branch, other environmental organisations	Yes Internal 'buddy system'; relations with external Environment Department, EIA Branch, other environmental organisations

However, perceptions about whether environmental staff in Transport could actually use their formal authority to refuse environmental clearance for a project varied. Several interview participants in Transport (n=11) believed that the environmental group did have the power to stop a project. This was 'perceived power', which in turn influences the behaviour of planners/designers in doing the 'right' thing to avoid sanctions from the environmental group. Yet others believed that their 'actual' power was limited (Interview 25 1999; Interview 20 1999; Interview 29 1999; Interview 44 1999; Interview 51 1999). Despite the role of formal environmental clearance (and implied authority), the power to stop a project in this respect was believed to be constrained by higher management levels, and decisions could ultimately be overridden by the executive and the government (Interview 12 1999; Interview 29 1999; Interview 44 1999). If blocking a project, the environmental officer challenges the fundamental mission of the organisation and runs the risk of being perceived as 'disloyal' and hence, being bypassed at earlier stages of the planning process when they can have the most influence (refer also Chapter Seven). Thus, the role of environmental clearance in Transport, despite implying the power to stop a project, was perceived to be merely a formality, and major constraints on a project came more from outside parties (*eg* regarding an Aboriginal heritage site), rather than from internal ones (Interview 56 1999).

In contrast to Transport, the limited roles of ETSA's environment staff noted in Chapter Seven (*ie ad hoc* 'planning' role, no formal 'report review' or environmental clearance roles), meant that less sources of power were available to them (*ie* they lacked rewards/resources power, coercive power, legitimate authority, and decision-making authority; hence their lower level of influence in EIA and planning). The main source of power available to ETSA's environment officers appeared to be 'network' power (*ie* the 'buddy system' noted earlier), and 'expert' power. ETSA's environment staff were, according to one employee, the '*resident ...library*' (Interview 8 1999), and it was suggested that the external EIA branch of the then Department of Environment and Planning (DEP) actually had more of an influence on EIA for transmission projects than the internal environmental officers (Interview 4 1999) (refer also Chapter Nine). This suggests that the external model of reform had a greater influence on ETSA than the internal model. Unlike Transport's staff, ETSA's environmental staff also had no perceived or actual power to delay, stop, or significantly modify a project, and were sometimes brought into the planning and EIA process at a stage which was too late for them to have any influence, even in an informal advisory capacity (Interview 2 1999). Nonetheless, their influence was still perceived to be higher on average than the influence of external groups.

The Influence of Project Managers, Planners and Designers in EIA

Planning staff in Transport were perceived to have a similar level of influence to environmental staff (75% of participants noting a 'major influence' for planning staff compared to 78% for

environment staff) (refer back to Table 8.4). This is not surprising given that EIA forms a main component of the planner's role in choosing alternatives for projects in the planning investigations process (refer Chapter Seven). This result compares to 28% in ETSA who believed that planners had a 'major influence', and instead, the project managers were believed to have the most influence. The perceived influence of Transport's project managers was mixed, with 43% indicating a 'major influence', 36% indicating a 'moderate influence', and 9% indicating 'no or limited influence'. The influence of road design staff in Transport was believed to be less overall than all groups including external participants such as the general public (only 22% believed they had a 'major influence' on the planning and EIA process, and 26% believed they had a 'limited influence'). This lower result may be because the questionnaire was targeted at the 'planning' and EIA phase, whereas detailed design is often undertaken after this phase (although more recently this is undertaken simultaneously to meet rigid construction timetables).

Perceptions about communication effectiveness again did not always match perceptions about the degree of influence in EIA for planners, designers and project managers in both organisations. In Transport, influence was frequently perceived to be higher on average than communication effectiveness (for planning, section managers, and project managers) (indicative of higher power sources), and lower for design staff, and landscape staff (indicative of less power sources). In ETSA, however, the degree of influence was perceived to be less than communication effectiveness in all cases for internal groups. This again, suggests factors other than communication at work such as power sources in the decision-making process. Moreover, the more in-depth interviews indicated that, as was the case for environmental staff, the overall influence of other EIA participants was constrained in reality.

Ultimately, the power for decision-making on projects in Transport lay with the original 'client' who developed the project and provided the money (for example, the regions or Strategic Investment Management Group), or with the Executive Managerial Committee in ETSA which was responsible for budget allocations. For major projects such as the Southern Expressway (see Chapter Nine), it was often a political decision, and these political pressures (in the absence of full understanding of environmental implications) have been known to indirectly cause environmental damage at construction stages. For example, political pressures on ETSA to construct a transmission line project at the wrong time of year caused major erosion problems despite the concerns of employees:

'Everything went through at the wrong time of year, through all these croplands and very sensitive soils, and they blew it away. Dunes of sand just blew way, hundreds of acres all over this cropland...where the tower was [the sand] just blew away. I mean ...tower footings,...big towers, ...they have [concrete] footings...in the ground about the size of this roof height in the ground or further... I could actually stand up next to those footings, and...my head was below where the top of that footage should be sitting on the ground. In other words, it had eroded away that much...and if something had hit it, [the tower] would have toppled...and they [construction people] just sort of go "help".

And then they went through all these high rainfall areas in the middle of winter. [Letters were written] saying don't do this, you are going to cause huge problems, but...its the political minister saying get the project done so they can score a point before an election...always a problem...and that's what we have a lot of' (Interview 2 1999).

In past years, Ministers had little role in the project development process (in both organisations) and more than likely 'rubber-stamped' everything (Interview 16 1999). But in the last two decades, political pressures were significant in both organisations, and within this context, employees involved in project delivery had limited authority. It was noted in Transport for instance:

'In today's environment I suspect that ...engineers don't get the opportunity to be involved in construction projects, or if they do its in a very subordinate role...[They] certainly wouldn't be given the authority and responsibility for millions of dollars worth of road works. They are within a regime of administrative requirements far beyond, way beyond anything that we ever had' (Interview 63 1999).

This contrasts with the 1960s when construction and planning engineers had a lot of authority and hands on experience (refer Chapter Six), and the decline in authority was a result of several factors. In addition to political pressures, this included increasing financial constraints and government bids for efficiency (compared to the 'millionaire' days in the 1950s), the adoption of the project management approach and the creation of 'service providers' which meant a loss of power (as noted previously). It was noted by one Transport engineer that '*vocal people from service provider units...tend to get overridden a little bit by concerns about schedule and producing working on time*' (Interview 34 1999).

Planners and designers in both organisations had the authority to select appropriate alternatives or mitigation measures in the project development process (in consultation with other stakeholders), but this authority existed within a predefined scope set down by the higher level groups noted above. If a project arose with significant environmental issues, most interview participants noted that they would make recommendations advising against the project (or requesting major changes) and by doing so, would thus '*discharge their duty*' (Interview 34 1999). But beyond this, they could do little else. As noted by one Transport engineer: '*I don't think it would matter how much I jumped up and down and screamed...that would have no impact*' (Interview 30 1999), whilst another felt '*like a little minnow*' (Interview 38 1999), and another indicated that they '*could make noises,*' but they lacked the authority and the 'clout' to have any effect (Interview 48 1999).

Broader alternative solutions to problems, such as improving public transport systems, were also outside the scope of the Transport department's sphere of influence, and control of this arena resided with the private sector following the privatisation process in 1999. Thus, although demand management were also serious options in both organisations, EIA outcomes are focused more on incremental modifications, including transmission or road alignment

changes and/or the adoption of environmental mitigation measures. In this respect, even though environmental values may have been internalised within engineers/technical officers (*ie* the notion of 'professional control'), they have limited flexibility within which to develop an environmentally sound project in the event that it requires a major change beyond their sphere of influence (Interview 4 1999; Interview 8 1999; Interview 18 1999; Interview 20 1999; Interview 24 1999; Interview 29 1999; Interview 30 1999; Interview 33 1999; Interview 34 1999; Interview 38 1999; Interview 39 1999; Interview 44 1999; Interview 51 1999). This is consistent with Ortolano's statement that:

'...professional control, by itself, may lead to an environmental study, but if study recommendations are not consistent with the project proponent's development agenda, the professionals concerned about the environment may be unwilling or unable to act on those recommendations' (Ortolano 1993: p359).

The constraints on making the 'best' choices indicates the need for Strategic Environmental Assessment (SEA) at the higher policy and plan levels and problem resolution stage, but as noted in Chapter Seven, this was not occurring in either organisation. This limited authority for some employees was a '*morale flattener*' (Interview 29 1999), and individuals dealt with this in different ways. One noted, '*I would probably hide my head in the sand*' (Interview 38 1999), whilst another dealt with it by 'depersonalising' it (Interview 34 1999). That is, if the action goes against personal values, the individual will ease their conscience by disowning the agency's action and distancing themselves from it. As a result, '*there's [not] a lot of people who are standing up and tying themselves to a tree...and saying..."this project has a major impact ...I'm refusing to be a part of it"*' (Interview 20 1999).

The interviews also suggested that project managers in both organisations were seen to have more power to make decisions than 'service providers' or business units (such as planners or designers). This is despite the questionnaire results which indicated that project managers in Transport had less influence on average than planners and environmental officers. Theoretically, project managers had more sources of power available to them in the overall project delivery process. Planners and designers have 'network power', a 'seat at the table', and 'expertise power', but project managers also had:

- 'position power' (*ie* formal authority to direct and coordinate the overall project delivery);
- 'coercive power' (*ie* influence in the scoping of planning or design work, and the ability to block certain decisions/requests such as a costly mitigation measure - although they could still be swayed by other parties to incorporate these measures);
- 'resources power' (*ie* control of budget decisions within the framework provided by higher strategic groups); and
- 'access and control of agenda' power' (*ie* a 'seat at the table').

Essentially, the power of project managers came down to the fact that they were *'holders of the purse strings'* (Interview 33 1999), and rigid construction time-frames and tight budgets can result in a culture of high stress for these groups. The project manager was ultimately accountable (and had greater accountability than functional groups) for the timing, costs and quality of a project's delivery (including EIA), and hence, had a great deal of influence on the outcomes (Interview 16 1999; Interview 31 1999). The project managers also tended to be publicly visible icons of responsibility and accountability. This visibility may provide an incentive for project managers to ensure compliance with environmental requirements identified during the planning and EIA stages, particularly with the potential for criminal liability for employees under the Environment Protection Act. The greater public visibility is also significant given that public servants have traditionally been anonymous, and responsibility for decision-making blurred. One Transport employee noted that this approach was *'a high risk strategy... because traditionally we haven't done that sort of thing. We've been anonymous public servants...there's this person there, a human being, not just some huge anonymous department...'* (Interview 62 1999).

In ETSA the lines of authority of project managers appeared clear with the project managers having the most influence in the project delivery process, but in Transport, the lines of authority in practice were not entirely clear, particularly the balance of power between functional managers (*eg* planning or design section managers), project managers, and environment staff. In some cases, functional managers still had a lot of power. A Transport employee noted:

'what's happening at the moment... lets say we get a planning investigation done [which includes EIA], the functional manager is still effectively running that to a large degree, [and] saying [to the project manager] "...well you're going to have to scope us \$300,000", the project manager says "no I want \$100,000" and the functional manager says, "no I'm going to do it this way...that's the way we've always done it..." so its a fight' (Interview 62 1999).

It was also noted that *'if you've got an environmental person saying you should do one thing, the project manager saying do the other, there's no clear line of authority as to who's decision it is to make'* (Interview 62 1999). Ultimately it depended on the style of approach adopted by the project manager which varied (Interview 62 1999). Transport's project managers were not able to directly control the outputs of the planning and EIA process, nor override standards or environmental issues, but they could attempt to balance the environmental issues in getting the project off the ground (Interview 62 1999). In a softer approach to project management, some project managers gave functional managers and groups (as the experts in planning, EIA and/or design) more influence, and hence these project managers would be better described as project *'coordinators'*; whilst other project managers adopted a harder approach with greater decision-making control (Interview 62 1999). It was noted by one manager:

'We can have [power]. Its a matter of how we use that... I think I would like to see our role as facilitating those processes, not making the decisions. But from experience, ...the crunch comes where he says this, she says that, he says that. Somebody's got to make the decision.'

So we do make decisions, and so we can influence that strongly...people can challenge it, but...different project managers use that to different degrees...' (Interview 16 1999).

Given the strong influence of project managers in both organisations (and the potential control over the communication process noted earlier), their attitudes towards environmental issues is again particularly important. All of the project managers involved in the survey gave 'moderate' priority to the environment (*ie* equal to other technical or economic issues), and it was believed that if they ignored EIA or environmental factors, they '*were putting their own heads on the block*' (Interview 33 1999). As noted by one participant, '*things do come back to bite you*' (Interview 16 1999) which relates in part to the greater 'visibility' of project managers.

Moreover, like other participants in the EIA process, project managers in both organisations did not have full authority to make major decisions about changes to a project's scope (particularly if they involved large costs), and, like the planners and designers, they must work within the project boundaries defined by the upper echelons or 'clients'. In this sense, planning and EIA comes at a relatively late stage when crucial decisions have already been made, and these decisions are made with no or limited environmental assessment. One project manager in Transport noted, for instance:

I'm...really working for other people as well...people who are funding the project [Strategic Investment Management Group: SIMG] and...for one of the regions... They've got to be happy with it. What I'm doing more and more with those hard decisions is referring it to those two....if it affects the outcome.

I should say to the region, "*well I can let you have a bit of road that will be a little bit safer...but it takes out these trees; or [the road] will have to wind around the trees, but you get to keep the trees. What do you think about that?*"

I...say to SIMG people..."*I can go through these trees and deliver it at the cost you've given me, or I can save the trees but it will cost you an extra 20%, are you prepared to pay...*" So I mean its fobbing off my responsibility a little bit, but I do tend to refer to others' (Interview 16 1999).

Thus, effective EIA and planning also depends on the attitudes and values of these other groups who are removed from the day-to-day operations of EIA (*ie* SIMG and the Regions or Executive in ETSA). Overall, however, one engineer noted that the chances for modifying a project's scope for environmental reasons in Transport was considered very good (Interview 20 1999), and there did not appear to be any problems in ETSA (*ie* most requests to higher management regarding project and budget changes were granted) (Interview 4 1999). However, economic factors have been a major influence in adopting the 'best' solution during EIA for some projects in both organisations, and this is discussed in Chapter Nine.

8.4.2 Influence of External Groups

Figure (8.3) presented earlier illustrates that in ETSA, as was the case for communication effectiveness, the influence of external groups on the planning and EIA process (including

government agencies, conservation groups and the general public) was believed to be less on average than the influence of internal groups. The influence of external groups in Transport was also generally believed to be less than internal groups, with the exception of section managers, and design staff whose influence was believed to be less on average than all groups including external groups. As for internal group trends, there was inconsistency between beliefs about communication effectiveness and the degree of influence a group had in EIA and planning (with the exception of consultants and government agencies in Transport, and conservation groups in ETSA). Generally in ETSA, communication effectiveness was perceived to be higher on average than the degree of influence, with similar trends in Transport (with the exception of the general public where influence was perceived to be slightly higher on average than communication effectiveness). The general public was considered by ETSA to have the lowest influence in EIA.

The influence of external groups was also generally perceived on average to be higher in Transport than in ETSA, and 42% and 57% in ETSA believed that conservation groups and the general public respectively had limited influence on the EIA and planning process (compared to 26% and 22% respectively in Transport). This suggests that ETSA participants did not perceive themselves to be as open to external influence in the planning and EIA process when compared to Transport, which is interesting given the apparently greater emphasis attributed to serving the 'public interest' noted in Chapter Six. At the same time, however, the recent corporatisation of ETSA and the increasing focus on the profit ethos may have changed this approach as ETSA began to operate in a similar manner to a private company in preparation for its privatisation.

The lower influence of external groups in both organisations probably stems from the late stage of public consultation in both organisations noted earlier, with a focus on public input in refining a pre-existing project and getting its acceptance. The lower influence also probably stems from the 'halcyon' days of engineering and planning noted in Chapter Six, when both organisations were the 'experts' and provided a product that much of the community obviously wanted (*ie* road access and electricity). It was noted: '*in the past] we haven't really listened [to the public...there is a certain amount of truth in that*' (Interview 18 1999), yet consistent with the improvements in communication effectiveness, the culture of responsiveness to external groups was also improving. It was noted in Transport for instance:

'Probably over the last 15-20 years,...the public voice has been...taken on board more seriously than ever... and I think the larger group of voices is probably starting to have, or can have...an impact now, where in the past it didn't where it was just a single voice... On the Expressway [project]...the alignment was shifted because of public concern. So that's the degree of impact it can have, where it can actually cause ... reconsideration of alignments.

[Public pressure] has become a fairly powerful tool...and its something...we just can't ignore... So...they are playing quite a major role in a lot of the decision-making that's going on... I think its only [in] recent years where the community has realised...if they group together [in] some sort of force, someone's going to have to listen to them' (Interview 29 1999).

Moreover, the very fears noted earlier by Transport and ETSA engineers that the community could block a project (Section 8.3), indicates that the public can have a significant influence if pressure becomes substantial. As suggested by the above quote, this influence tends to depend on how much use the community makes of the different power sources described earlier, and this in turn depends on the size and 'decibel rating' (or their ability to make noise) of the group (Doyle *pers. comm.* 1998).

It was believed in Transport, that all public concerns should be given equal weighting and that individuals as well as groups have a voice (Interview 23 1999; Interview 31 1999), but in reality, large groups (particularly if they have the ear of the government) tended to be listened to more (Interview 18 1999; Interview 20 1999). Thus, although the general public lacked 'legitimate authority' to make decisions, and their 'seat at the table' was more constrained than internal groups, by drawing from 'network power' sources and forming a group, other sources of power become available or more effective, such as 'coercive' power (in the form of threats to block a project and lobby the government), and 'reward' power (*ie* if you do the 'right' thing by us, we won't work to block the project). This also depended on the amount of 'noise' this group could make, and the degree of 'referent' power available (*ie* the ability and 'charisma' of the group to communicate effectively and successfully lobby the organisation and/or government).

Even a small community group can influence a project if they have sufficient referent power and enough 'clout' with government (Interview 18 1999). Some evidence of this is provided in Volume II of this thesis (the project case studies), but in Transport, two projects were frequently referred to in the interviews which indicated the degree of public influence through the formation of small groups. This included the proposal to upgrade Portrush Road (an arterial road), which was considered a safety hazard and one of the 'worst roads in Adelaide' (Interview 41 1999). Because of a minority, but powerful, community that did not want the road widened (*ie* it involved the loss of some trees and an upgrade would attract more freight traffic), the project was deferred for several years and still has not been upgraded (Interview 24 1999; Interview 41 1999; Interview 45 1999; Interview 50 1999). This community, although a small one, had strong influence with the local council, and in turn, the local council has significant influence on some road developments. It was noted by a Transport employee for instance, that '*if councils won't sign off on a scheme...you'd be loath to go ahead with it... It would be very rare that we go ahead with a scheme against council... Councils are becoming more powerful...*' (Interview 16 1999).

The other project frequently referred to in Transport the was the Cross Roads upgrade which suggested an increasing culture of 'openness' and 'responsiveness' to the general public (*eg*

Interview 30 1999; Interview 45 1999; Interview 50 1999). Originally the local community was against the upgrade due to loss of trees and safety issues (a similar scenario to the Portrush Road saga), but Transport wanted the community to get on board and to 'own the project' (Interview 50 199). Through a process of compromise, Transport was able to upgrade the project because they provided incentives to the community which is a form of 'reward power' to win over opposition. These incentives included the planting of mature trees and provision of access bays to improve safety, and the project, which received an award, was considered by the Department and apparently by the community, as a success story in working together (Interview 30 1999). Landscaping was considered to be a 'selling' point hence its greater importance in more recent years. As a result, the Transport Minister expected the project to be a benchmark for other arterial road projects (Interview 30 1999), and greater efforts were being made to facilitate the Portrush Road project and to accommodate community concerns. More about the influence of the public and other external groups is presented in Chapter Nine.

8.5 PERCEPTIONS ABOUT EIA OUTCOMES

Given the residual resistance to EIA (albeit minor), the emphasis on moderation and compromise in communication and decision-making, the political and budgetary constraints, and the limited authority of some groups, what were the perceptions about EIA outcomes in practice? The main evaluation of EIA in practice is conducted in Chapter Nine in terms of large projects of major environmental significance, but survey participants were also asked in the questionnaire what their beliefs were about EIA effectiveness in terms of:

- preventing environmentally unfriendly projects from being proposed to begin with;
- modifying and improving project design;
- choosing appropriate alternatives;
- providing appropriate management measures;
- addressing public concerns;
- addressing the concerns of other government agencies; and
- reducing project costs in the long run.

Answers could be in the form of either: not effective (score=1), limited effectiveness (score=2), moderately effective (score=3), very effective (score=4), or uncertain (score=5). The results are presented in Figure (8.4) which presents mean responses, and in Table (8.6) which summarises frequency distributions.

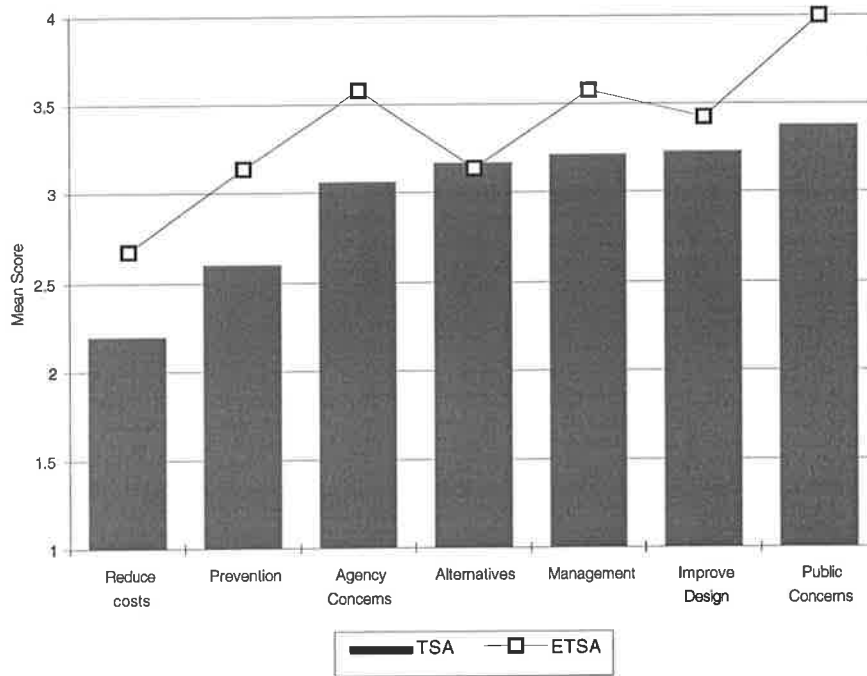


Figure 8.4: Perceptions about EIA effectiveness in Transport and ETSA: comparison of means (missing value=5)

Table 8.6: Perceptions about EIA effectiveness in Transport and ETSA: frequency distributions (%) (shaded numbers=largest group)

	TRANSPORT					ETSA				
	<i>Not Effect.</i>	<i>Ltd Effect.</i>	<i>Mod. Effect.</i>	<i>Very Effect.</i>	<i>Uncertain</i>	<i>Not Effect.</i>	<i>Ltd Effect.</i>	<i>Mod. Effect.</i>	<i>Very Effect.</i>	<i>Uncertain</i>
Prevention	14	17	41	12	14	0	28	28	42	0
Improve Design	2	14	36	41	4	0	0	57	42	0
Alternatives	2	17	39	39	2	0	14	57	28	0
Management	2	12	39	36	9	0	0	42	57	0
Public Concerns	0	4	46	39	9	0	0	0	100	0
Agency Concerns	7	9	34	29	19	0	0	42	57	0
Reduce costs	12	31	19	2	34	0	28	57	0	14

Some of the results are consistent with those noted in the International Study of Effectiveness which evaluated successes in EIA (Sadler 1996: p85). However, compared to the international study, a higher percentage of participants in this research (relative to Sadler's research) tended to select 'very effective' in terms of the incorporation of management/mitigation measures and in

choosing alternatives.⁷ The key points to note in the questionnaire results for Transport and ETSA are that:

- in both organisations, although there were variations in scores, the means scores for *most* EIA outcomes were around 'moderately effective' particularly for Transport;
- the average effectiveness scores in ETSA were generally higher than those in Transport (with the exception of considering alternatives which was the same on average), and the majority in ETSA frequently considered EIA to be 'very effective' (*ie* for prevention, management and the consideration of agency and public concerns) (this is interesting given that EIA performance was actually slightly stronger in Transport: refer Chapter Nine);
- both organisations (average scores) rated EIA effectiveness to be lowest in terms of reducing project costs in the long term;
- both organisations believed that EIA was most effective in addressing public concerns (63% in Transport believed it was *at least* 'moderately effective'; whilst 100% in ETSA believed it was 'very effective');⁸ and
- in Transport, the consideration of alternatives, incorporation of management measures, and the improvement of design were all considered to be of similar effectiveness (and just above 'moderately effective'), whilst in ETSA perceptions varied, and EIA was believed to be more effective as a management and design tool, than one for considering and choosing the most appropriate alternative.

Although large numbers of participants believed that EIA was 'very effective' in some outcomes, the need for some improvements in EIA was indicated by a small proportion of individuals who believed that EIA was of 'no or limited effectiveness'. This was particularly the case in Transport in terms of design (16% believed EIA was of 'no or limited effectiveness'), the consideration of alternatives (19%), the incorporation of management measures (14%), and in particular, preventing environmentally unsound projects from being proposed to begin with (31% compared to 28% in ETSA). It was noted in ETSA for instance, that although environmental issues were regarded seriously, *'everything you do is a compromise'* (Interview 3 1999; Interview 4 1999), whilst in Transport it was argued that *'the environment has got to be compromised for the fact that we're building a road there... So straight away you're compromising the environment... You can never say the environment is*

⁷ Although the questions were phrased differently, Sadler (1996) found that only 8% of study participants believed that advice on the selection of alternatives was 'very successful' in EIA, and that 12% believed that EIA was 'very successful' in identifying appropriate mitigation measures. This compares with 39% in Transport and 28% in ETSA who considered that the selection of alternatives in EIA was 'very effective', and 36% in Transport and 57% in ETSA who believed that the incorporation of management measures was 'very effective'.

⁸ This result, which suggests a high public influence in ETSA, contradicts the results in the previous section which indicated a low public influence on the EIA process in ETSA. This suggests that ETSA participants considered that the general public were not directly involved in making decisions (hence the perceived low influence), but that their concerns were adequately addressed by ETSA in the EIA process (*ie* a form of indirect influence).

never compromised' (Interview 44 1999). The relatively low performance in 'prevention' (*ie* the rule of anticipation) was probably because, as noted earlier, those employees involved at the earliest stages in a project's conception (*ie* before its gets to the detailed planning stages) are not directly involved in the EIA process. Thus, the lessons learned from the subsequent EIA process cannot be taken advantage of, particularly if they are not fed back from planners, designers, and construction participants. It should be noted, however, that ETSA has undertaken a very limited form of environmental assessment at this early conception stage, which may explain why a higher percentage in ETSA believed that 'prevention' was 'very effective' (42%) (Interview 8 1999).

In addition to the questionnaire, interview participants were also asked to highlight any successes or failures in the EIA process. The increasing internalisation of environmental values within many employees was indicated by an eagerness to share stories of project successes which had spread around the organisation, particularly in Transport. In Transport, success stories tended to relate to visible icons of the environment such as trees, fauna, and heritage issues as opposed to less visible pollution or 'brown' issues. Successes referred to included the protection of remnant native vegetation by modifying passing lanes on the Dukes Highway, the Cross Road project noted earlier, protection of Aboriginal heritage sites, changes to the Southern Expressway alignment due to community pressure, and in ETSA, technical changes to the Tungkillio-Cherry Gardens transmission line project (see Chapter Nine). A success story frequently referred to in Transport was the protection of heritage areas and the habitat of a rare Pygmy Blue Tongue Lizard (Interview 24 1999; Interview 33 1999; Interview 37 1999; Interview 38 1999, Interview 48 1999). For instance:

'A couple of years ago I [was involved in a] project up at Burra and it was sealing an unsealed road and it went through a heritage area. It also went through an area that was known to be a habitat of the Pygmy Blue Tongue [lizard]...and that had a major impact on the way we set the alignment up...that set some fairly tight constraints for us. We had to have lengthy negotiations with [the] State Heritage branch and we got...an expert... involved with the Pygmy Blue Tongue lizard to help us through.

We carried out surveys...[which] resulted in having to tighten up the alignment, and ...the Pygmy Blue Tongue lizard made the planning process for developing that alignment fairly extensive. We had to just about tie it down to the nearest ...foot... before it went to design and tell them "*don't change this at all without consulting us*".

In terms of the heritage area we had to draw up a series of alignments, mediate on site with council...and an architect representing the State Heritage Branch, and negotiate the alignment and just keep developing schemes until we reached one that was agreeable to both parties....It worked quite well' (Interview 24 1999).

Although there was some degree of frustration in making this project work, it was noted that people, including senior employees, had '*gone out of their way to do the right thing*' (Interview 38 1999), and the protection of the rare lizard appeared to have instilled some degree of pride and ownership about the positive outcomes in this project (Interview 24 199; Interview 38 1999; Interview 44 1999). According to one employee, '*the department got a fair bit of mileage on that...It was an environmental issue and here we were working in harmony...They've got*

signs on the road telling about it (Interview 33 1999), whilst another noted *'there's a lot of bad news these days, and something like that, it makes you feel good'* (Interview 48 1999).

At the same time, however, EIA outcomes were frequently compromised during construction because of continued difficulties in controlling behaviour at this stage. Even though construction employees (who were usually resistant to EIA) had virtually gone from Transport, the problem now related to controlling outside contractors. Because the attitudes of contractors at the construction stage were often beyond Transport's control and there were rarely any financial penalties or incentives in contracts, contractors sometimes 'flouted' the department's environmental requirements (Interview 18 1999). This was confounded by a lack of resources in both organisations to closely monitor this stage. Nonetheless, non-compliance was to the contractor's detriment because Transport was beginning to control their behaviour by not selecting them for subsequent contracts. On one major project for instance, Transport:

'made it very clear to [the contractor] that one of the reasons they weren't successful...[on a subsequent contract] was because of their [environmental] performance...and if they wanted to pick up future contracts they needed to lift their game...I think that got the message through' (Interview 18 1999).

This control on EIA and planning outcomes during the construction stage will become increasingly stringent if both organisations formalise their environmental selection criteria for contracts. This could be described as a form of 'competition control' to provide incentive for better environmental performance, and in this sense, may be a possible addition to Ortolano *et al's* (1987) original controls in EIA. Performance and outcomes at the construction stage may also be enhanced due to the visibility of a project and the public 'mileage' that can be extracted from doing a good job. For instance:

'the [construction] groups are getting pretty serious in...how they want to handle it...I mean they have signs up..."*the [contractor]...proudly...in conjunction with Transport SA...*" so if people see them [the contractor] ploughing through and doing all the wrong things, they're probably going to suffer from it anyway...they've got their own public face to look after' (Interview 38 1999).

However, outcomes in EIA may still be compromised because the ramifications of not meeting other requirements (*eg* budgetary or political pressures) are sometimes more serious and more immediate. This relates to the notion of 'problem immediacy and seriousness' noted in Chapter Two, and the greater the relevance and the seriousness of an issue (and its visibility) the greater the chances for compliance. Ramifications for non-compliance with environmental requirements can be serious (*eg* not getting an environmental permit to construct a bridge on watercourses, or public backlash), but these can often be worked around. According to one Transport employee:

'there are...other pressures, and those other pressures ... getting out there and getting contractors started because its going to rain in a month and if you don't start work there are going to be

claims and so we're driven often by time and cost and quality...and sometimes the environmental issues get left behind, because its very easy to leave those out... If you let the time stuff slip up, you may end up with a \$100,000 claim from a contractor which...you get kicked in the teeth for down the track. Some of the environmental stuff, I mean if you make major blunders, I guess you also get kicked in the teeth but it seems that its, because its a sort of a softer area or something...' (Interview 20 1999).

In other words, the sanctions for non-compliance with internal environmental requirements are sometimes less than those for other areas such as failure to meet construction dates. Compliance and EIA outcomes may also be hindered by the limited reward systems available within the organisations (criterion 2.1.6). Although there was an Employee Recognition Award Scheme in Transport, informal rewards and feedback for doing a good job in environmental terms were rare in both organisations. This was because it was considered part of the job: *'its taken for granted that environment's a part of the planning...why should you get rewarded for it when its part of the process'* (Interview 24 1999). Nonetheless, rewards are important and are incorporated into Transport's Environment Strategic Plan (refer Chapter Seven), and this combined with the self-satisfaction of doing the 'right' thing such as in the Pygmy Blue Tongue lizard scenario and Cross Roads project in Transport, may provide greater incentive to perform in the EIA process in both organisations (Interview 20 1999; Interview 23 1999; Interview 50 1999).

8.6 SUMMARY

Table (8.7) summarises performance in the culture dimension of the *CCP framework*. Clearly, cultural change as a result of a new policy requirement such as EIA is not straightforward. Like the adoption of an organisational *capability* for EIA, cultural change was a gradual and inconsistent process, and as was the case in the United States, there were indications of resistance to the EIA requirement following its introduction, albeit in a minority which were associated with traditional construction areas. As a result, EIA during the 1970s and 1980s, was treated as an add-on and could be avoided in Transport at the 'hidden' cultural level. Thus, despite the introduction of EIA, attitudinal change was not immediate and residuals of the construction 'cowboy' cultures continued to be apparent in both organisations.

In the 1990s, with the adoption of a greater organisational capability and infrastructure to implement EIA, attitudes had changed. Resistance towards EIA was low in both organisations and most survey participants appeared to have internalised environmental values, or at least incorporated the consideration of environmental factors, into their routines ('it was a part of business') (criterion 2.1.1). Relative to the years prior to EIA's introduction, the results suggest an increasing culture in both organisations of openness and responsiveness to EIA, internal and external parties. However, due to a number of confounding factors such as

political pressures and resource constraints, the organisational commitment to environmental protection in practice was believed to be lower than intent (criterion 2.1.3).

Table 8.7: Comparison of performance in the culture for EIA in Transport and ETSA (Dimension 2 of the CCP Framework)

2.1 ATTITUDES & VALUES		Trans.	ETSA
2.1.1	Are <i>individuals</i> in the organisation committed to the values of EIA and environmental protection, particularly those who are from 'non- environmental' backgrounds (<i>ie</i> value it at least equal with other issues such as technical or economic issues)?	0.5	0.5
2.1.2	Do employees perceive that the <i>organisation</i> has a strong environmental commitment <i>in theory</i> ?	1	1
2.1.3	Do employees perceive that the <i>organisational</i> commitment is strong <i>in practice</i> ?	0.5	0.5
2.1.4	Do employees believe that EIA is an important tool for achieving the organisation's environmental goals as opposed to simply improving organisational image or public relations?	1	1
2.1.5	Are environment staff valued highly within the organisation?	1	0.5
2.1.6	Is there a culture which formally rewards good performance in EIA?	0	0
2.2 COMMUNICATION		Trans.	ETSA
2.2.1	Is communication considered to be effective in the EIA and planning process between all internal parties in EIA?	0.5	0.5
2.2.2	Is communication considered to effective particularly with environment staff?	1	0.5
2.2.3	Is communication considered to be effective in the EIA and planning process between the organisation and external parties?	0.5	0.5
2.2.4	Is EIA perceived to be a mechanism for improving coordination between the different parties in the process?	0.5	0.5
2.2.5	Is the culture such that individuals are confident about expressing their opinions concerning environmental factors in a peer group situation, particularly if this opinion is contrary to the dominant perspective (<i>ie</i> lack of groupthink)?	0.5	1
2.3 INFLUENCE IN EIA		Trans.	ETSA
2.3.1	Are all internal groups involved in EIA perceived to have an influence on the EIA and planning process?	0.5	0.5
2.3.2	Are environmental staff in particular, perceived to have the power to influence, change or prevent environmentally inappropriate projects?	0.5	0
2.3.3	2.3.3 Is the organisational culture open to influence from external groups such as the public and conservation groups?	0.5	0.5

As for the capability dimension, the *overall* performance in the culture dimension was stronger in Transport in terms of the number of criteria at least partly addressed (92% in Transport compared to 85% in ETSA), although the difference between the number of criteria fully addressed was less, and performance was limited (28% of criteria fully addressed in Transport compared to 21% in ETSA). Similar strengths in both organisations included the perceptions of strong organisational commitment to environmental protection in theory (the rhetoric) (criterion 2.1.2), and the belief that EIA was an important tool for achieving organisational environmental goals (criterion 2.1.4). Key differences included the slightly lower value attached to ETSA's environment staff (criterion 2.1.5), and perceptions of lower communication effectiveness (criterion 2.2.2), in part because ETSA's environment staff had a less crucial role in influencing the EIA process.

Although environment staff were highly valued in both organisations (criterion 2.1.5), the legitimate power and influence of environmental staff in Transport was higher than environment staff in ETSA (criterion 2.3.2), thus the roles of ETSA's environment staff as change agents in EIA and organisational change was less significant. That is, in ETSA there appeared to be a greater reliance on external prompts for appropriate behaviour in EIA (the external model of reform). At the same time, the influence of Transport's environment staff was primarily achieved through the ability to be 'moderate' in behaviour and to demonstrate an ability to compromise rather than by threats, and the level of 'actual' power to make major changes or to prevent a project was constrained because, as was the case for other participants (criterion 2.3.1), Ministers and higher management levels had the final say in decision-making (which is why criterion 2.3.2 was only partly addressed).

Communication between the different functional groups in EIA and planning was generally considered to be effective in both organisations, but criteria (2.2.1) and (2.2.4) were only 'partly addressed' because of some residual and underlying cultural tensions between functional groups, and the presence of groupthink in a minority (criterion 2.2.5), particularly in Transport. With the possible exception of conflict about overlaps in roles and hierarchical status (*ie* strategic versus operational groups), communication problems were less apparent in ETSA due to the smaller numbers of people involved in EIA, and perhaps due to the fact that 'cultural tensions' between groups were not as evident prior to EIA as they were in Transport (refer Chapter Six).

Both organisations also had cultures which were initially closed to external parties such as the general public. Yet in more recent years, with the development of a more 'customer-responsive' approach in government (refer Chapter Six and Seven), communication with outside parties was considered to be effective by the majority. However, there was a general belief in both organisations, particularly in ETSA, that this communication was less effective than

communication with internal groups (although there were some exceptions) which explains why this criterion was only partly addressed. The lower effectiveness in communication may be due in part to:

- the conflicting nature of community requirements which are sometimes against the organisation's perceived mission (which is not the case for internal groups, or not as extensively so);
- residual 'arrogance' in the organisations which facilitates 'information' but precludes two-way 'dialogue' (*ie* 'we are the experts, we have always done it this way'), although this is changing;
- time, procedural, and resource constraints; and
- the fear that the community could 'block' a project.

As a result of these communication constraints, the influence of external groups, such as the general public, was also believed to be less than the influence of internal groups (although this was particularly the case in ETSA). This is probably because the community lacks some of the power sources available to internal groups (*eg* an equal 'seat at the table'), and because information flows were closely controlled by the organisations which is a form of 'agenda control'. However, in reality, the public had a major influence on ETSA's projects, and a moderate influence on Transport's projects, and this is discussed in the following Chapter which evaluates EIA performance (Dimension 3 of the *CCP Framework*).

Chapter Nine

EIA PERFORMANCE

9.0 INTRODUCTION

As indicated in Chapter Four, one of the most important factors in understanding the degree of organisational change achieved as a result of EIA, is an analysis of EIA's performance in practice. The history of an organisation, and its capability and willingness to implement EIA are important factors in evaluating change, but is this organisational capability and culture for EIA translating into effective EIA performance? In other words, what are the *outcomes* of the change process? Elements of this were addressed in the previous chapter through an examination of the attitudes of EIA participants towards EIA effectiveness. In addressing research objective (8), this Chapter focuses on EIA performance in more detail by examining eight case studies at the project level (four projects from each organisation). The analysis is structured around Dimension (3) of the *CCP framework* defined in Chapter Four which incorporated four dimensions:

- EIA Compliance;
- EIS Quality;
- Proponent Openness in EIA; and
- Proponent Responsiveness in EIA.

The evaluation process and conclusions are based on Yin's (1984) principle of '*chain of evidence*' in case study research. In other words, as in a criminal investigation, '*the principle is to allow an external observer...to follow the derivation of any evidence from initial research questions to ultimate case study conclusions*' (Yin 1984: p96). In this respect, there are two levels of information (or links in the chain of evidence), with some duplication between each level. First, at the most detailed level, individual case study reports with extensive detail were compiled for each project. These case studies are presented in Appendix (17) in Volume II of

this thesis, and in themselves provide interesting insight into both organisation's approach to EIA. They do not, however, need to be read completely unless more detail is required about a particular issue. And second, the key conclusions from the case study reports are drawn together in this Chapter which provides a broad summary of organisational performance in each of the four evaluation dimensions.

Like the analysis of culture, the case studies of EIA in practice provide only a snapshot in time, and are not necessarily representative of changes to attitudes and processes in the late 1990s. Most of the EIAs were also conducted by consultants, but this still provides an indication of organisational attitudes given that the consultants are closely monitored by employees within the organisations. According to an ETSA employee:

'the consultant works closely with all the people involved... There would be a significant time that they would have to put in for the consultant to do the job properly. Its not just a matter of alienating yourself from the consultant... There's heavy interaction between the two groups' (Interview 1 1998).

Given the limitations of the grading system noted in Chapter Four (and further limitations noted in this Chapter), the evaluation scores should be used as comparative guides only, rather than as indicators of true performance. The problems of subjectivity in grading became particularly evident when the evaluation of performance were conducted three times which resulted in minor differences to the scores. This repetition was undertaken to account for a change in the grading system and to ensure consistency between the project case study evaluations. The final evaluation tends to be critical of performance, but the aim is to highlight those areas which need improvement, and strengths are also highlighted with greater detail in Volume II. Before evaluating the four dimensions of EIA practice, the Chapter begins with an overview of general trends in EIA practice (Section 9.1), and a description of the project case studies (Section 9.2) including project rationale, and a summary of the EIA process undertaken for each project.

9.1 GENERAL TRENDS IN EIA PRACTICE

The total number of EISs (or equivalent documents) produced in both organisations was difficult to ascertain due to a lack of central records. However, the lack of exact figures is not significant given that EIS quantity is not a reliable indicator of organisational change or 'effective' EIA performance (Liroff 1976). As indicated in Chapter Seven, Transport's experience in EIA was extensive given that the process was undertaken internally and automatically for both minor-scale and major-scale projects. Only two formal EISs under State legislation have been prepared, both of which also involved the Commonwealth EIA process, (the Adelaide-Crafers highway project, and the Runway Airport Extension project). In comparison, ETSA does not have an internal EIA process, but had prepared 15 formal EISs from 1977-1999. Most of the EISs were prepared prior to formal EIA legislation in the 1970s,

and in the early-mid 1980s pursuant to the Planning Act. Despite the lack of internal EIA procedures in ETSA (refer Chapter Seven), a small number of informal EIAs were also undertaken by ETSA at a lower level of assessment, as noted in Chapter Seven, including a Public Environment Report (PER) for the Hummocks-Waterloo transmission line which forms one of the case studies in this research.¹

In more recent years, very few EISs have been prepared in either organisation, which is a reflection of the reduced level of development activity relative to the 1950s and 1960s that was noted in Chapter Six. In other words, most of the infrastructure for electricity transmission and road access had been established by the 1970s in both organisations, hence there was less need for EIA.

9.2 THE PROJECT CASE STUDIES

9.2.1 The Nature of the Projects

The eight project case studies subject to this evaluation include two road corridor developments, a runway extension project, a bridge construction project (Transport), and four transmission line developments (ETSA). In particular, they comprise:

Transport:	Adelaide-Crafers Tunnel Project (<i>A-C</i>) (EIS 1986); Blanchetown Bridge (<i>Bridge</i>) (Working Report August 1995); Southern Expressway (Stage 1) (<i>Exp.</i>) (Environment Report Nov 1995); Adelaide Airport Runway Extension (<i>Ext.</i>) (EIS May 1996);
ETSA	Tungkillo-Cherry Gardens Transmission Line (<i>T-C</i>) (EIS April 1986); Tungkillo-Tailem Bend Transmission Line (<i>T-T</i>) (EIS September 1986); Ardrossan-Dalrymple Transmission Line (<i>A-D</i>) (EIS May 1989); Hummocks-Waterloo Transmission Line (<i>H-W</i>) (PER September 1994).

The rationale for selecting these case studies was presented in Chapter Four. The details of each case study are summarised in Table (9.1) in terms of, for example, development type, estimated size and costs involved, numbers of alternative alignments considered, public review periods, and the decision-makers in the EIA process.

¹Other examples include: ES (Environmental Summary)-Electricity supply to North West Eyre Peninsula (1976); ES-Development of electricity supply to South East of South Australia (1977); ES-Blanchetown Substation and Associated Transmission Lines (1978); ES-Davenport Substation associated with Northern Power Station (1978); and the PER (Public Environment Report) for the Hummocks-Kadina Transmission Line (1983).

Table 9.1: Project Case Study Details

	TRANSPORT				ETSA			
	<i>Adelaide-Crafers</i>	<i>Runway Extension</i>	<i>Expressway</i>	<i>Bridge</i>	<i>Tungkillo-Cherry</i>	<i>Tungkillo-Tailem</i>	<i>Ardrossan</i>	<i>Hummocks</i>
Level: Legislation or internal	EIS; Planning Act; Environment Protection (Impact of Proposals) Act	EIS; Development Act; Environment Protection (Impact of Proposals) Act	Environment Report; Internal EIA process	Working Report; Internal EIA process	EIS; Planning Act (Section 7 Crown Developments; Section 49 - formal EIS process)	EIS; Planning Act (Section 7 Crown Developments; Section 49 - formal EIS process)	EIS; Planning Act (Section 7 Crown Developments; Section 49 - formal EIS process)	PER Development Act (Crown Development process Section 49)
Proposal Type	Road Corridor (6 lanes, 8km); Tunnel; Bridge	Runway extension (572 metres); extension airport boundary (450 metres); diversion of roads; bridge construction; creek relocation	Corridor New Road Corridor (7km); 5 bridges	New bridge (407 metre) (replace existing bridge of 442 metres); 2 new approach roads; redesign intersections	Transmission Corridor (49-58km) New Line (275kV); future substation	Transmission Corridor (61-68km) New Line (275kV)	Transmission Corridor (62km) New Line (132kV); substation 2 33kV exit lines from substation (3km each)	Transmission Corridor (~72km) New Line (132kV)
Proposal Rationale	Improved Access & Safety	State Economic Benefit	Improved Access & Safety	Improved Safety	S-E Interconnection	S-E Interconnection	Repair; Upgrade	Repair; Upgrade
No. Corridor Alternatives	Initially 30 4 assessed in EIS	3 runway options; 6 road options	6 road alignments	5 alternatives for bridge alignment & road approaches	2 corridor alignments	3 corridor alignments	1 corridor 2 routes	3 corridor alignments
Cost Range	\$100-150 million	estimated \$48 -76 million (1995 prices)	\$25 - \$55 million (1995 [prices)	est. \$15 million	\$20.6 -\$30.1 million	\$12.7-14.1 million	\$4.2 million (1988 prices)	\$7.2 million (1993 prices)
Proposal Setting	Adelaide Hills (Mt Lofty Ranges); Entry Adelaide; Sensitive Hilly Terrain & Native Vegetation	Urban; Coastal-Basin/Creeks; Recreational	Urban; Empty Corridor	Rural; River Murray crossing	Adelaide Hills (Mt Lofty Ranges); Sensitive hilly Terrain; significant cultural heritage	Rural; River Murray crossing	Yorke Peninsula; Agricultural region	Rural

As indicated in Table (9.1), the Transport project case studies were more expensive with projects up to \$150 million (Adelaide-Crafers) compared to a cost of up to \$30 million (Cherry Gardens) for the ETSA projects. Transport's Expressway project was considered a major development for the State, but Transport's Adelaide-Crafers project was probably the largest and most significant of all the project case studies, and was described in the year 2000 as the '*State's largest ever road project*' by Premier Olsen (The Advertiser, special feature, 1 March 2000: p2). The Transport projects relied on other parties for a large part of their funding (eg from the Commonwealth government), whereas the ETSA projects were generally self-funded. Funding problems at the Commonwealth level resulted in Transport's Adelaide-Crafers project being delayed until the mid-late 1990s, despite being assessed in the mid 1980s. Transport's Expressway project which triggered EIA in the mid 1980s, was also deferred until the 1990s because of budgetary problems, but this time at the State level.

9.2.2 Project Rationales

Because the projects were essentially proposed to resolve a public infrastructure problem (eg traffic access and safety problems, limited energy supplies), the need for most of them was generally demonstrated (although adequate detail supporting this need was not always provided in the EISs). This need was particularly apparent for ETSA's Ardrossan project, and Transport's Blanchetown Bridge project. In the former case, the population of Lower Yorke Peninsula in South Australia relied on a single 33kV transmission line for their electricity, but because this line was located near the coast, it was suffering corrosion problems and was unreliable. Because there was no alternative supply, an upgrade was clearly needed. Similarly, the rationale for the Blanchetown Bridge project was unequivocal, because an existing bridge over the River Murray (South Australia's water 'life-line') had major structural faults which may have resulted in its collapse under extreme conditions. The no-go option to this project could result in major safety impacts, hence the need for the project was also clear.

The need for the Adelaide-Crafers, Cherry Gardens, and Tailem Bend projects was also clearly demonstrated, but it was less immediate or urgent when compared to the Ardrossan and Bridge projects, and details supporting this need tended to be lacking in the EISs. The Adelaide-Crafers project was essentially proposed for reasons of safety and improved accessibility, and this was indicated in part by a high accident rate and strong community pressures to improve the road (refer Appendix 17). Although there was some local opposition to the project, the community need for the project was demonstrated by the overwhelming public support for the project that was demonstrated in the media following its construction because of the safety and convenience the road provided. Thousands of people turned out for its official opening in early 2000, and it was turned into a big celebratory event for Adelaide. Whilst there was no community pressures to build ETSA's Cherry Gardens and Tailem Bend transmission projects,

the projects were aimed at improving the electricity network to the south of the Adelaide metropolitan area, and were also part of a broader interconnection programme with the south-eastern parts of Australia to facilitate 'opportunity exchanges' of electricity and to improve efficiency of supply.

In contrast, the need for Transport's Runway Extension and Expressway projects was not as strong. The Runway Extension project was proposed because Adelaide's international runway was the shortest in Australia, and was considered insufficient for fully-laden freighters and some international passenger flights at full loads. As a result, freight had to be transported to other Australian airports resulting in greater costs. The government's aim to extend the runway was based on the potential State economic benefits, but the actual reasoning behind these benefits and the data used in the EIS were highly ambiguous. For instance, an earlier government report (prior to the project being officially proposed) indicated that the runway length was in fact adequate (refer Appendix 17). There was no evidence in the EIS that international airlines would support the project by making greater use of the airport to transport more freight. The project did not guarantee an increase in international air traffic and economic activity. A report assessing costs and benefits on which the rationale in the EIS was premised, was not made available to the public, and because the method of calculation for the cost-benefit analysis was not specified in the EIS, several assumptions were made about the project benefits (*eg* time frames over which the benefits would accrue).

The need for Transport's Expressway project was justified in the EIS because it would meet increasing traffic demands in the south of Adelaide, facilitate economic and tourism development, reduce travel times, and improve safety. However, despite being one of the largest project case studies, the rationale in the EIS was very brief, the road simply duplicated existing access, and there were some ambiguities in the traffic data used to support the need for the project. Research by Sim (1996) also indicated that the benefits of the Expressway were not significant enough to justify the magnitude of the project, and it was evident that the Expressway was primarily a political decision. Originally the Expressway was committed to by the Labor government in the mid 1980s, but in the late 1980s was withdrawn due to budgetary problems (Sim 1996). It subsequently became a major political issue when, at the 1993 State election, the opposition party promised the 'forgotten south' that they would construct the road (Sim 1996). As a result many of the southern electoral seats changed their vote, and the opposition party won the election (Sim 1996). It has been stated in research by Sim:

'I believe that the government actually knows that the freeway will not solve any transport problems for the South, that I believe the decision is purely political and its a fulfilment of an election promise to build something for the South. It [the government] believes that building the Southern Expressway will catch votes and its interesting that the next election will come while the freeway is being built before people who use it find out that its not going to actually solve any problems' (Interview 18 in Sim 1996: p69).

9.2.3 The EIA Process

Although there were signs of resistance to EIA in the 1970s and 1980s at the cultural level (Chapter Eight), there were no indications of resistance in terms of the project case studies assessed in this research. Because of the large-scale of the projects and due to prior experience in the EIA process, both organisations pre-empted the possible need for an EIS, and voluntarily approached the then Department of Environment and Planning (DEP) before an EIS was officially required (*ie* for Transport's Adelaide-Crafers project, and ETSA's Cherry Gardens and Taillem Bend projects). Three of ETSA's projects (Cherry Gardens; Taillem Bend; Ardrossan) and two of Transport's projects (Adelaide-Crafers; Runway Extension) triggered the formal EIS process under State EIA legislation (all were assessed under the Planning Act except for the Runway Extension which was subject to the Development Act). Two of Transport's projects (Adelaide-Crafers; Runway Extension) also triggered the Commonwealth EIA process because the projects involved Commonwealth funding.

Those projects which did not trigger the formal EIA process under legislation included ETSA's Hummocks project, and Transport's Expressway and Blanchetown Bridge projects. The latter was a relatively small project (*ie* replacing an existing bridge), and underwent Transport's internal EIA process (the EIA was integrated into a 'Working Report'). Given the large-scale nature of the Expressway, a formal EIS was initially required under the Planning Act (when the project was known as the Third Arterial Road), but this requirement was later withdrawn because the DEP considered that the Department's internal EIA processes were sufficient (refer Appendix 17) (the EIA findings were documented in an 'Environmental Report'). Preliminary work undertaken on the project such as the compulsory acquisition of houses to make way for the road, had also reduced the overall impact of the project by the time it reached the EIA and final decision-making stages (this tended to assume the project would proceed in this location even prior to EIA). Plans to require an EIS for ETSA's Hummocks project were also withdrawn on the basis that ETSA prepare a less formal Public Environment Report (PER) and conduct a two-staged public consultation process.

All of the EIS documents (or equivalent) in the case studies were prepared by teams of interdisciplinary consultants and subconsultants given that both organisation's lacked the expertise and resources to conduct the EIA for such large projects, which was due in part to organisational downsizing (refer Chapter Six), and given that in ETSA's case, the aim was to present an image of independence in the process (refer Chapter Seven). The contents of each EIS (or equivalent) are summarised in Appendix (18), including the proportion of focus on particular tasks (such as the project description, assessment of alternatives and focus on mitigation). Given that three of the Transport projects were assessed (or reactivated) in the 1990s, Environmental Management Plans (EMPs) and Environmental Management

Implementation Plans (EMIPs) were also prepared to control the construction stage (as defined in Chapter Seven). EMPs were not prepared for the ETSA projects because most were assessed in the 1980s at a time when knowledge was not as advanced, and the need for EMPs was not as well recognised

The EISs (or equivalent) underwent a formal period of public review ranging from four weeks (Expressway project) to eight weeks (*eg* Cherry Gardens) (time periods were not clear for the Blanchetown Bridge project, but there appeared to be two weeks for comment via a telephone 'hotline'). The numbers of formal public submissions, which were not high,² were not necessarily a reflection of the degree of community interest in the projects (refer also Harvey 1996), and high levels of local controversy were evident about most of the projects. This is addressed further in Section (9.7), which evaluates internal and external influences on EIA outcomes.

All of the project case studies were approved after the EIA process was completed, and have since been constructed (see Table 9.1). The majority of the projects were externally assessed in the EIA process by the Department of Environment and Planning (DEP) (or by DHUD after the DEP was disbanded). The ETSA projects were also assessed by local councils and the South Australian Planning Commission (SAPC) (under Section 7 of the Planning Act), whilst the Transport projects were assessed by an external Public Works Committee (PWC) which involved a public hearing (although this was not technically a part of the EIA process). In most cases, the projects were supported by the DEP, but extensive recommendations about environmental management requirements were usually attached to this support. In three of ETSA's projects, the DEP also recommended alternative transmission line alignments, one of which involved a significant change to ETSA's preferred option and this was partly in response to community pressure (the Cherry Gardens project). The DEP also amended ETSA's preferred alternative in the Tailem Bend project, and reached a compromise alternative in the Ardrossan project (refer Volume II), which clearly indicated the important role of both public and evaluative control in the formal EIS process.

This level of external evaluative control was not as obvious for ETSA's Hummocks project, and the Transport projects assessed internally by the Transport department. For those Transport projects assessed under the formal EIS process, the DEP appears to have been constrained by higher political decisions in its assessments (refer also Section 9.5.2). In Transport's Adelaide-Crafers project, for instance, the DEP originally supported an alignment option (corridor A) that Transport was not willing to adopt because of the high costs involved. The DEP eventually recommended that Transport's preferred option (corridor C3 which was a modified version of

²The number of public submissions ranged from 14 (Tailem Bend) to 61 submissions (Runway Extension) and the numbers are summarised in Table (9.1) presented earlier.

Transport's original preferred option) be adopted because the better option was unlikely to be funded by the Commonwealth government, and because the extra \$50 million required to fund the 'better' alternative was not justified (refer Appendix 17). This economic problem is further emphasised later.

9.3 EIA COMPLIANCE

9.3.1 Criteria & Summary

As indicated above, all of the projects underwent EIA, but to what extent did the organisations comply with the EIA procedures and decisions? This is one of the most basic indicators of organisational change as a result of EIA: that is, whether or not the proponent complies with a policy/legal requirement. Further evidence of organisational change as a result of EIA may be demonstrated if the organisation is willing to expend additional resources to go beyond the minimum requirements of the policy and procedures. If unreceptive to EIA, then one could assume that both organisations would simply devote minimal effort by maintaining base compliance. The evaluation of compliance to the EIA process by both organisations was based on four criteria, comprising the degree of:

- legislative or procedural compliance (criterion 1.1);
- compliance with project-specific guidelines (*ie* scoping document) (criterion 1.2);
- compliance with the final decision (criterion 1.3); and
- going 'beyond' compliance (criterion 1.4).

The results are illustrated in Figure (9.1) and Table (9.2), although it should be noted that there was generally insufficient information to evaluate compliance to the final decision. Figure (9.1) indicates that *overall* compliance to the EIA process was satisfactory (B grade), and was similar in both organisations, although slightly stronger in Transport. As indicated in Table (9.2), the average grade for the majority of projects was satisfactory (around the B grade), except for ETSA's Hummocks project which was between 'just satisfactory' and 'satisfactory'.

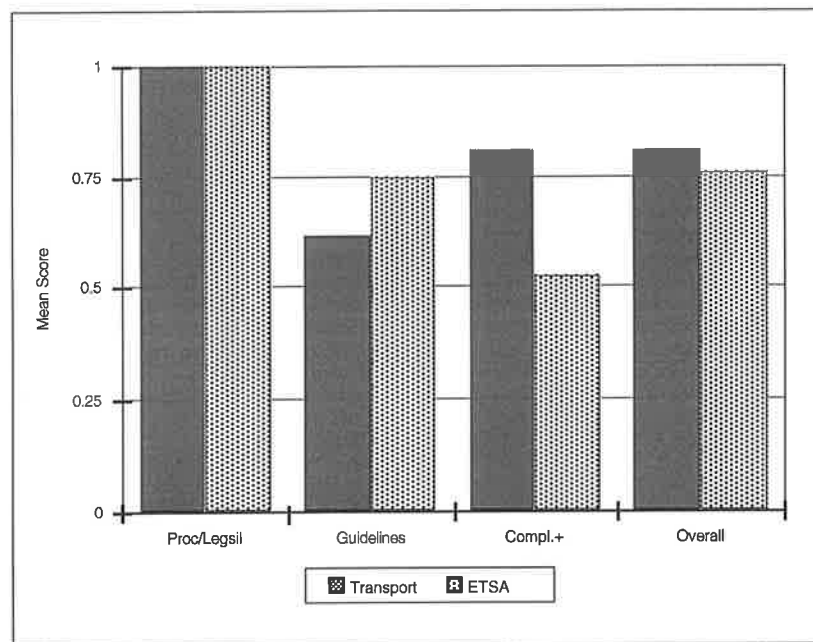


Figure 9.1: Overall performance in EIA Compliance: Average grade for each criterion

Key: 1=excellent compliance (A); 0.75=satisfactory compliance (B); 0.5=just satisfactory compliance (C); 0.25=limited compliance (D); 0=not attempted or poor compliance (E)

Table 9.2: Individual grades in EIA Compliance

CRITERIA	TRANSPORT					ETSA				
	A-C	BRID.	EXP	EXT	AVG.	T-C	T-T	A-D	H-W	AVG.
1.1 Leg-Proc'd. Compliance	A 1	A 1	A 1	A 1	1	A 1	A 1	A 1	A 1	1
1.2 Guidelines Compliance	C 0.5	NA	B 0.75	C-B 0.63	0.62	B-A 0.88	B-A 0.88	B 0.75	C 0.5	0.75
1.4 Beyond Compliance	B-A 0.88	C-B 0.63	B-A 0.88	B-A 0.88	0.81	B 0.75	C 0.5	C 0.5	D-C 0.37	0.53
Average	0.79	0.81	0.87	0.83	0.83	0.87	0.79	0.75	0.62	0.76

9.3.2 Procedural/Legislative Compliance

The degree of compliance to EIA procedures and legislation was excellent in all cases (grade A). The high degree of compliance for those projects undergoing the formal legislative process was not surprising given the lack of proponent discretion in the procedures (despite the substantial opportunity for government discretion noted in Chapter Five). It was also in the interests of both organisations to maintain good working relations with the Department of Environment and Planning (DEP) (later DHUD) given that, as noted earlier, this authority could have a significant influence on the project outcomes (in ETSA's case particularly). The internal procedures of EIA established within Transport were also complied with for the Blanchetown Bridge and

Expressway. Despite not being a legal requirement, procedural compliance was also not surprising given the bureaucratic nature of the organisation. As noted in Chapter Two, compliance with documented procedures tends to provide employees with a form of protection against external challenge. In other words, any faults or weaknesses in the process and EIA outcomes can be blamed on the procedures, and not on individuals or groups within the organisation.

9.3.3 Project Guidelines Compliance

Compliance with the EIS guidelines was stronger in ETSA than in Transport, with a satisfactory grade in ETSA (B grade), and between 'just satisfactory' and 'satisfactory' for Transport. It is difficult to explain Transport's weaker performance in compliance to guidelines (relative to EIA procedural steps), but it may in part be attributable to the lack of explicit mechanisms for the DEP (later DHUD) to enforce compliance with guidelines (refer Chapter Five). Some of the guideline requirements were also not always significant issues for particular projects, which is why some issues may have been omitted in the EISs. In the ETSA projects for instance, the guidelines were very similar for each project and appeared to be generic requirements rather than specifically tailored to each project and its region (which tends to defeat the purpose of the scoping process). Despite a requirement to include an assessment of impacts on fauna and Aboriginal heritage in the Ardrossan project, for instance, ETSA did not consider these to be significant issues and did not include them in the impacts section of the EIS. Nonetheless, performance was still very good. Weaker performance in Transport may be explained by the fact that some guidelines requirements were simply unable to be met, particularly in terms of baseline data (see Section on EIS quality).

9.3.4 Final Decision Compliance

Given the lack of information available for assessing compliance to the final decision, this criterion was unable to be graded, but some comments can be made about ETSA's performance. As was the case with the EIS guidelines, compliance to the final decision was not enforceable under the EIA process for Crown developments, and the role of EIA in decision-making was advisory rather than compulsory at the time the project case studies underwent EIA (refer Chapter Five). This discretion was reflected in the outcomes of two of ETSA's projects (Ardrossan and Taillem Bend) whereby the final recommended routes which emerged as a result of the EIA process were not adopted. The final route adopted by ETSA for this project was inconsistent to the recommended route in two ways (at the northern and southern ends), one of which may have entailed a greater impact on native vegetation. The lack of compliance to the final route decision was further checked with an ETSA employee, who stated that these route

changes were made after the EIA process had been completed, and following informal discussions with the local community (Interview 4 2000).

Compliance to the approved route for ETSA's Taillem Bend proposal was also questionable, and although the majority of the recommended route was adopted, an amendment to the transmission line alignment which was recommended by the DEP does not appear to have been adopted. This amendment aimed to protect native vegetation, but caused ETSA some concern because it was a less direct option (and hence more costly and technically difficult). Following the DEP's recommendation, ETSA compared the DEP's proposed amendment (*ie* a parallel route) with another route (*ie* a direct route), and found that the DEP's parallel route was the best option, but ETSA also suggested that the direct route could be presented as environmentally acceptable. The DEP disagreed with this argument, but whether or not the parallel route was adopted by ETSA is unclear given variations in maps of the transmission network. Maps released to the public in July 1988 indicated that the DEP's parallel option was adopted, but a later map produced by ETSA in 1996 indicated otherwise. This clearly highlights the discretionary nature of the EIA process and decision for Crown developments (unlike for private developments where the final decision was compulsory: refer Chapter Five).

9.3.5 Going Beyond Compliance

Despite some weaknesses in compliance to the EIS guidelines and to the final decision, both organisations demonstrated evidence of going beyond compliance to the EIA process and legislative requirements, although the distinction between grades was difficult to make.³ Performance was particularly good and satisfactory in Transport's case, whilst performance in ETSA was only just satisfactory. Going beyond compliance was most prominent in terms of the public consultation process, and some of the initiatives are summarised later in Section (9.5) which evaluates proponent 'openness'. These initiatives are indicative of early consultation (prior to the draft EIS), use of a wide range of consultation techniques (*ie* beyond submissions and formal public meetings), personal interviews with affected individuals, and several workshops/small group meetings.

The use of EMPs by Transport also demonstrated evidence of going beyond compliance given that they were not required by law, but this did not influence the overall grades due to problems of comparability with ETSA and the different assessment time frames noted previously (*ie* three

³Caution should be adopted with this criterion given that the EIA procedures for some of the projects were different. For example, Transport's internal EIA procedures involved a two-staged consultation process, whereas the legislative process only involved one stage. Thus, the Adelaide-Crafers project which involved a two-staged consultation process was graded higher (because it was not required by law) when compared to the Blanchetown Bridge project which also involved a two-staged process (*ie* this practice was simply complying to Transport's procedures). In this respect, the grades do not necessarily reflect good EIA performance, but rather, indicate whether or not the proponent went beyond their minimum procedural requirements which applied to the project.

of the ETSA projects were assessed at a time when EMPs were not used by either organisation). However, Transport's greater commitment to mitigation in the Draft EISs was included in the evaluation grading. Transport demonstrated extensive and active commitments to landscaping and rehabilitation, particularly in the Adelaide-Crafers project (which was assessed at a similar time-frame to the ETSA projects), whereas ETSA adopted a more passive approach via the facilitation of regeneration (*ie* encouraging regrowth rather than active landscaping). ETSA did sometimes supply trees for rehabilitation, but only at the request of landowners. It was also noted by ETSA regarding the Hummocks projects, that '*minimum requirements only should be met*' in terms of meeting environmental obligations for screening of the transmission line. Thus, the overall grade was reduced for this project, and even though ETSA conducted a two-staged consultation process for this project, this was a requirement of the EIA process which had been negotiated with the DEP (thus they were simply complying rather than demonstrating initiative).

9.4 EIS QUALITY

9.4.1 Criteria & Summary

Another key indicator of organisational change as a result of EIA is the quality of the EIS (or equivalent document). A good quality EIS does not necessarily mean better decisions, but it does indicate an organisation's willingness to devote effort towards integrating environmental factors into the organisation's decision-making processes. Liroff notes that '*...impact statements might be assessed on numerous criteria of adequacy and such an assessment could provide one measure of an agency's willingness and ability to fully and objectively evaluate the environmental consequences of its actions*' (Liroff 1976: p115). Similarly, Glasson (1999: p128) notes that the '*important role of the EIS in the process should not be ignored. Whilst there is much more to EIA than the formal EIS report, its quality can be a useful proxy for....other criteria (e.g. fairness, flexibility, scope)*'. Thus, there is some overlap with the evaluation dimensions of organisational 'openness' and 'responsiveness' in EIA.

As noted in Chapter Four, the quality of the EISs (or equivalent documents) produced by both Transport and ETSA were evaluated based on eight categories of information (a modified version of Lee and Colley's 1992 review package). These categories comprised the: project-policy framework (category 2.1); description of the environment (category 2.2); impact assessment (category 2.3); consideration of alternatives (category 2.4); outline and description of mitigation measures (category 2.5); outline of monitoring strategies (category 2.6); communication and presentation of the EIS (including methods, layout, presentation and emphasis) (category 2.7); and degree of public and government controversy about the EIS (category 2.8. Table (9.3) summarises the grades for the criteria under each of these categories,

whilst Figure (9.2) illustrate a comparison of mean grades between the organisations. Given that the Blanchetown Bridge proposal did not entail a separate environmental assessment document, some of the more stringent criteria for EIS quality were not applied.

Despite variations in length and presentation of the EISs (which generally performed well), Figure (9.2) illustrates that the *overall* quality of the EISs was very similar in both organisations, and was slightly below the 'just satisfactory' mark. Trends were similar between each project (refer Table 9.3), and the average performance was less than satisfactory for all projects with the exception of Transport's Expressway project and Blanchetown Bridge project (which were just satisfactory) (the latter was probably higher on average because some of the more stringent criteria were not assessed).

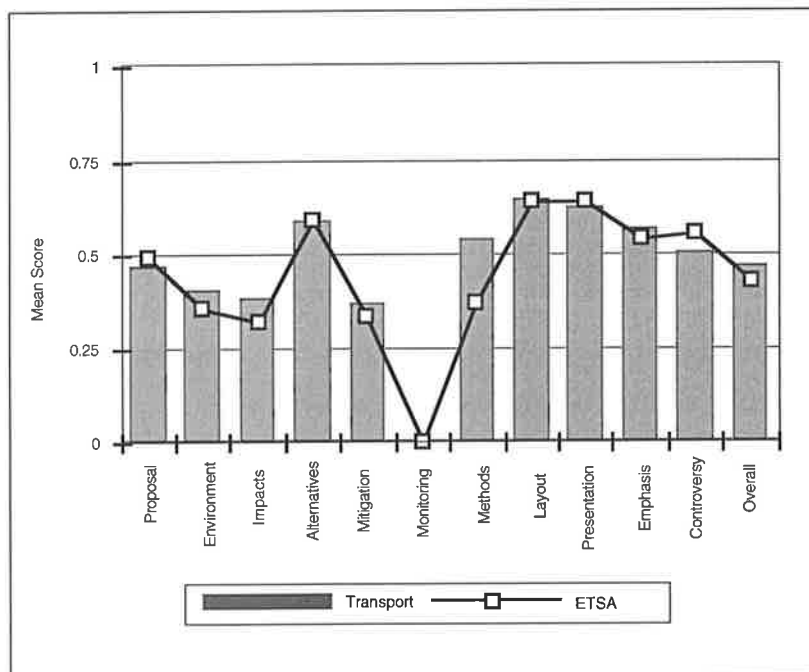


Figure 9.2: Performance in EIS Quality: Average grade for each category

Key: 1=excellent quality (A); 0.75=satisfactory quality (B); 0.5=just satisfactory quality (C); 0.25=limited quality (D); 0=not attempted or poorly done (E)

Table 9.3: Grades in EIS quality for all projects

CATEGORY	CRITERIA	TRANSPORT					ETSA				
		A-C	Bridge	Exp	Ext	Avg	T-C	T-T	A-D	H-W	Avg
2.1 Proposal-Policy	2.1.1 Project Rationale*	C 0.5	B 0.75	D 0.25	D-C 0.37	0.46	C 0.5	C 0.5	B-A 0.88	D-C 0.37	0.56
	2.1.2 Project Description*	B 0.75	E-D 0.12	C 0.5	D-C 0.37	0.43	D-C 0.37	B 0.88	B 0.88	B 0.88	0.75
	2.1.3 Policy Framework	C 0.5	-	B-A 0.88	D 0.25	0.54	D 0.25	D 0.25	E-D 0.12	E 0	0.15
2.2 Environment	2.2.1 Environ. Referred to?*	A 1	B 0.75	A 1	A 1	0.93	A 1	B 0.75	C 0.5	B-A 0.88	0.78
	2.2.2 Environ. Detail	D 0.25	-	B 0.75	D 0.25	0.41	D 0.25	E 0	E 0	E 0	0.06
	2.2.3 Future & Conclusions	E 0	-	E 0	E 0	0	E 0	E 0	E 0	E 0	0
	2.2.4 Env. Boundary	C-B 0.63	E 0	E-D 0.12	E 0	0.18	B 0.75	B-A 0.88	B 0.75	E-D 0.12	0.62
2.3 Impact Assessment	2.3.1 Impacts Referred to*	B 0.88	C 0.5	A 1	A 1	0.84	B 0.88	A 1	C 0.5	B 0.75	0.78
	2.3.2 Impacts Detail	C-B 0.63	-	C-B 0.63	C 0.5	0.58	C 0.5	C 0.5	C 0.5	C 0.5	0.5
	2.3.3 Indirect Impacts	E 0	-	E 0	E 0	0	E 0	E 0	E 0	E 0	0
	2.3.4 Evaluation Significance	E 0	-	E 0	E 0	0	E 0	E 0	E 0	E 0	0
2.4 Alternatives	2.4.1 Alternatives Descrip.*	A-B 0.88	C-B 0.63	B 0.75	B 0.75	0.75	B 0.75	C-B 0.63	B 0.75	C 0.5	0.65
	2.4.2 Ranking Alternatives*	D 0.25	B 0.75	C 0.5	D 0.25	0.43	C-B 0.63	C 0.5	C 0.5	D 0.5	0.53
2.5 Mitigation	2.5.1 Mitigation Identified?*	C 0.5	D 0.25	B-A 0.88	A 1	0.65	C 0.5	A 1	B 0.75	C 0.5	0.68
	2.5.2 Mitigation Detail	E 0	-	E 0	E 0	0	E 0	E 0	E 0	E 0	0
2.6 Monitoring	2.6.1 Monitoring Identified?*	E 0	E 0	E 0	E 0	0	E 0	E 0	E 0	E 0	0
	2.6.2 Monitoring Detail	E 0	-	E 0	E 0	0	E 0	E 0	E 0	E 0	0
2.7 Communication & Presentation	2.7.1 Field Work and Methods	D 0.25	-	C 0.5	D 0.25	0.33	D 0.25	D 0.25	D 0.25	D 0.25	0.25
	2.7.2 Information Sources	B 0.75	-	B 0.75	B 0.75	0.75	C 0.5	C 0.5	C 0.5	C 0.5	0.5
	2.7.1 All relevant Sections?*	B 0.75	B 0.75	B 0.75	B 0.75	0.75	B 0.75	C 0.5	B 0.75	id	0.66
	2.7.2 Arrangement	C 0.5	B 0.75	C 0.5	C 0.5	0.56	C 0.5	C 0.5	B 0.75	B 0.75	0.62
	2.7.1 Readability*	C 0.5	B 0.75	B 0.75	B 0.75	0.68	C 0.5	B 0.75	B-A 0.88	B-A 0.88	0.75
	2.7.2 Integrated whole?*	i/d	B 0.75	B 0.75	B 0.75	0.75	B 0.75	B 0.75	C 0.5	B 0.75	0.68
	2.7.3 Length*	C 0.5	C 0.5	C 0.5	C 0.5	0.5	C 0.5	C 0.5	D 0.25	B 0.75	0.5
	2.7.1 Information Emphasis*	C 0.5	B 0.75	C-B 0.63	C 0.5	0.59	C 0.5	B 0.75	B 0.75	D 0.25	0.56
	2.7.2 Concl. Emphasis*	D 0.25	B 0.75	B 0.75	C 0.5	0.56	D 0.25	B 0.75	C-B 0.63	C 0.5	0.53
2.8 Controversy	2.8.1 Public Controversy	E-D 0.12	A 1	C 0.5	D 0.25	0.46	E-D 0.12	B-A 0.88	A 1	D-C 0.37	0.59
	2.8.2 Government Controv.	E-D 0.12	A 1	D-C 0.37	B 0.75	0.59	D 0.25	D-C 0.37	C 0.5	A 1	0.53
Average	Evaluation (1)	0.4	0.6	0.49	0.42	0.47	0.4	0.47	0.46	0.4	0.43
	Evaluation (2)	0.56	0.58	0.63	0.59		0.56	0.65	0.62	0.59	

In terms of the specific evaluation categories (Figure 9.2), trends were also very similar between the organisations, with the exception of the Methods section in the EIS, where performance was slightly better on average in Transport, and in the impact assessment section and description of environment section (again, Transport performed slightly better on average).

Overall however, there were no major differences in EIS quality performance between Transport and ETSA.

A key strength in both organisations which should be highlighted was the identification and description of alternatives which is a crucial component of the EIA process (criterion 2.4.1). According to the United States' Council on Environmental Quality, alternatives form the '*heart of the environmental impact statement...*' (cited in Wood 1995: p102). Performance was satisfactory in Transport (B grade) and between 'just satisfactory' and 'satisfactory' in ETSA (C-B grade). The range of alternatives considered in each EIS are summarised in Table (9.4), and illustrated in Figures (9.3) to (9.6). In all of the projects (except for the Ardrossan project), the no-go option was explicit in the EISs, and broader alternative schemes were also presented in most of the EISs (*eg* reference to energy demand management or public transport).

Although the description of alternatives was relatively strong for the projects, there were some weaknesses. With the exception of the Ardrossan project, in all cases a preferred alternative was identified by both organisations which suggested that important decisions about location had already been made prior to public and government input. The broader options such as public transport were also not serious considerations, and the focus of the EISs was generally on the more specific alignment and site options. This focus on alignment locations rather than broader alternatives is consistent with research by others (Mostert 1995; Ridgway 1995; Barker and Wood 1999), and Mostert notes that proponents generally prefer narrow aims and a limited range of alternatives.

Both organisations were also constrained in the broader alternatives that they could assess in reality by external factors. This is because, as also suggested in Chapter Eight:

- there were strong political commitments by the State government to a predefined project with predefined objectives (which immediately excluded broader alternatives) (*ie* Expressway; Runway Extension; Cherry Gardens; Tailem Bend);
- Transport was subject to external funding by the Commonwealth government and thus the Commonwealth government had control over the financial viability of the alternatives adopted; and
- as noted in Chapter Eight, some of the broader alternatives were outside the organisation's mission and sphere of influence (*ie* public transport was privatised in the late 1990s).

Table 9.4: Consideration of alternatives and rationale in the EISs

TRANSPORT	ETSA
<p>Adelaide-Crafers</p> <ul style="list-style-type: none"> included no-go alternative broader alternative schemes (eg public transport; road upgrade rather than new alignment) extensive number 'technically feasible' alignment alternatives (30) assessment of 8 corridor options in 'minimum impact area' focus in EIS on four corridor options rationale was clear for alternative corridors and based on environmental factors (with the exception of the initial 30 alternatives). 	<p>Tungkillo-Cherry Gardens</p> <ul style="list-style-type: none"> included no-go alternative broader alternative schemes (eg demand management, use of alternative energy sources, alignment approaches) four alignment corridors identified within preferred scheme focus of EIS on two corridor options decision-making for schemes was transparent but based on cost and technical factors and not environmental factors; rationale for the selection of corridor options was clear and included environmental factors.
<p>Blanchetown Bridge</p> <ul style="list-style-type: none"> broader schemes (upgrade of existing bridge) 5 alternative bridge locations presented clear rationale, including environmental factors, was provided for the alternatives assessed which included environmental factors. Decision making process leading to the initial selection of these options was also explicit. 	<p>Tungkillo-Tailem Bend</p> <ul style="list-style-type: none"> included no-go alternative no attempts to present broader alternative schemes (eg demand management), but broad schemes relating to upgrade from single to double circuit line, and undergrounding presented three alignment options assessed environmental factors not significant in justification against broader schemes, factors for more specific corridor options were clear and included environmental factors not all options considered as demonstrated by the late alternative proposed by the DEP.
<p>Southern Expressway</p> <ul style="list-style-type: none"> included no-go alternative broader alternative schemes (eg public transport, road upgrade) 6 specific alignment alternatives but focus on one preferred route alternative rationale for broader options clear but based on accomplishment of project goals rather than environmental factors; rationale for more specific route options clear and included environmental factors, although no reference to earlier decision-making process and factors leading to choice of six route options. 	<p>Ardrossan-Dalrymple</p> <ul style="list-style-type: none"> no-go option not explicit no broader alternatives presented (eg demand management), but 2 broad schemes presented (construct second 33kV line or construct new 132kV line) selection of one corridor option, and focus on two alignment alternative within corridor also proposed alternative construction and design approaches rationale for route options clear and based on environmental factors; but lack of environmental factors involved in justification at broader scheme level.
<p>Runway Extension</p> <ul style="list-style-type: none"> included no-go alternative 1 broader alternative (eg airport relocation) 11 specific alternatives relating to location of runway extension and to required road deviation focus of EIS on two options rationale was clear and included environmental factors as basis for decision of alternatives. 	<p>Hummocks-Waterloo</p> <ul style="list-style-type: none"> included no-go alternative four alternative schemes (eg new line versus upgrade, alternative energy sources, undergrounding) three specific corridors proposed within preferred scheme focus in PER on one corridor only good transparency for broader schemes and options, but cost and technical focus rather than environmental justification; transparent decision making regarding route selection which included environmental factors, but lack of detail on all options which made decision-making more difficult.

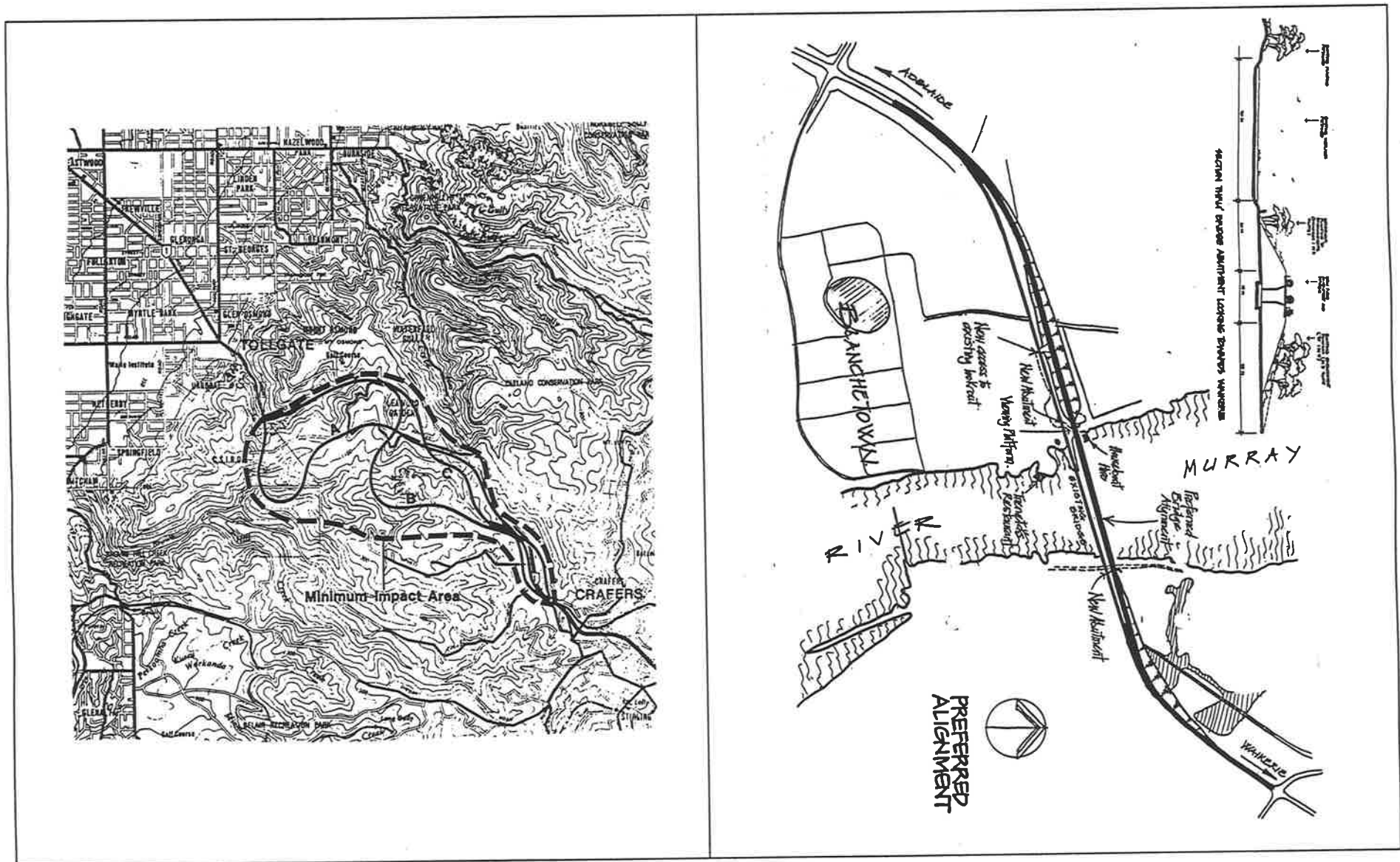


Figure 9.3: Adelaide-Crafers alternatives and Blanchetown Bridge proposal
 (Highways February 1987: p5; Transport date unknown, Public Information Brochure No. 2)

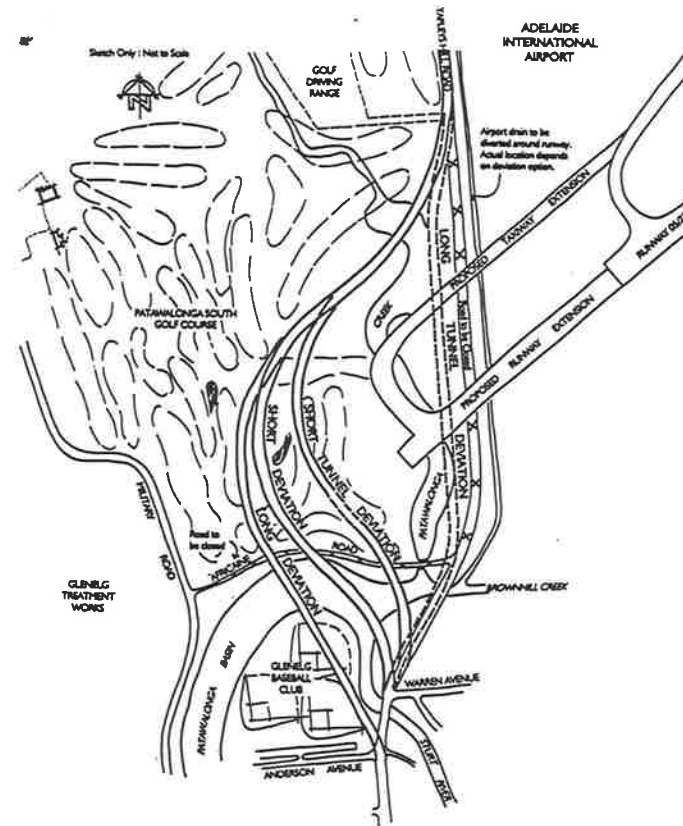
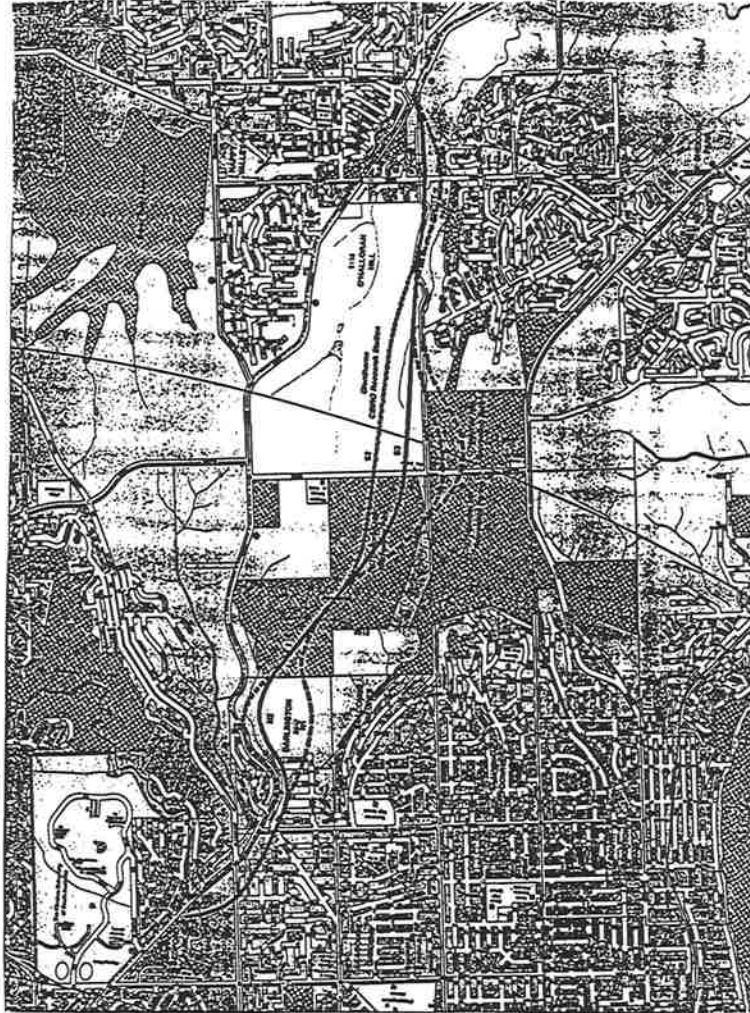


Figure 9.4: Southern Expressway alternatives and Runway Extension alternatives
(DoT November 1995; DoT May 1996)

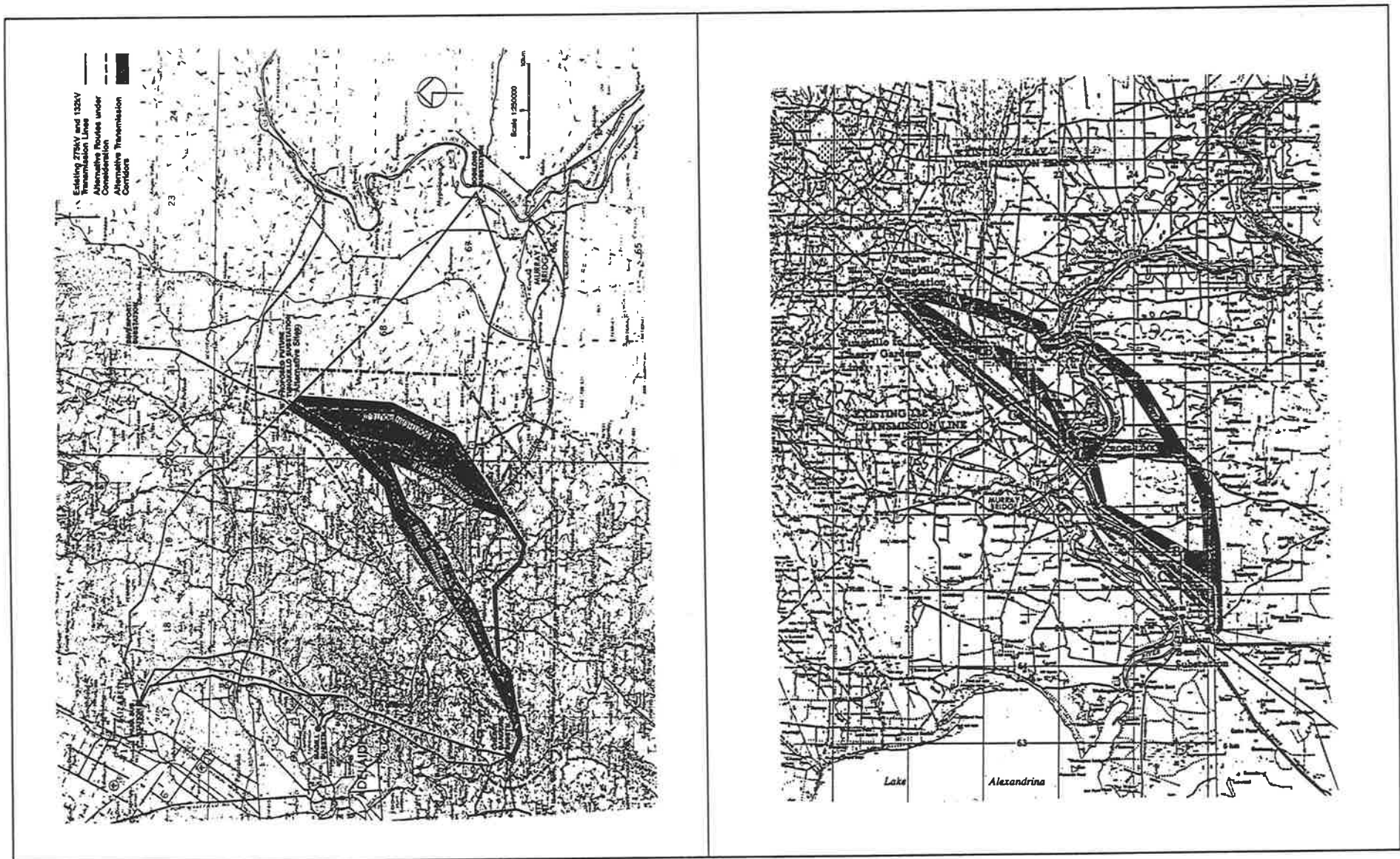


Figure 9.5: Alternatives for the Cherry Gardens transmission line and the Tailem Bend transmission line (ETSA April 1986; ETSA November 1986)

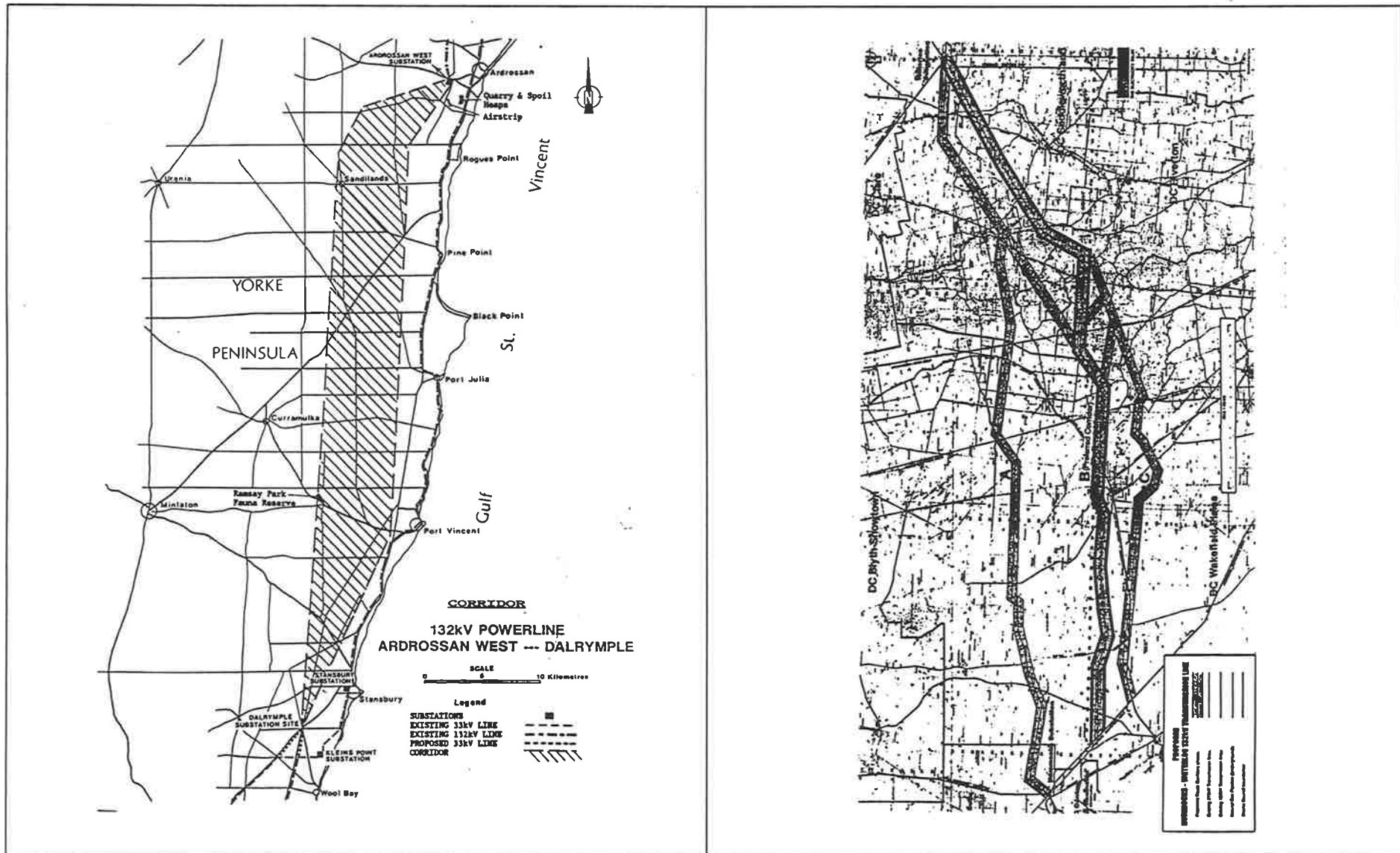


Figure 9.6: Corridor for the Ardrossan transmission line and alternatives for the Hummocks transmission line (ETSA May 1989; ETSA September 1994)

In particular, ETSA's Cherry Gardens and Taillem Bend projects were locked in by government decisions to interconnect two states for energy transmission (*ie* the South Australian and Victorian governments). In Transport's Runway Extension project, political commitments to the project were evident when the State government stated in a letter to the community: *'You would appreciate...that my Government is determined to secure every possible business opportunity that is of advantage to restoring the State's financial position and increasing its performance'* (refer Appendix 17). The limited influence of EIA in considering broader alternatives was also highlighted by the fact that construction works which were indirectly related to the project commenced prior to environmental clearance. There was an assumption by participants in this respect, that the project would proceed: *'we didn't start the project with a fear that it wasn't going to get through'* (Interview 57 1999).

The strong government commitment to the Expressway project as part of an electoral promise also constrained Transport from seriously considering broader options, including the no-go option, but there are indications that the Transport department actually advised the government not to construct the Expressway (Interview 12 in Sim 1996). However, research by Sim (1996) found that:

'For this government the consideration to re-evaluate alternative transport options was not deemed necessary because it was accepted that the Liberal and Labor governments of the early and mid 1980s had considered this and chosen the road, and while it was not constructed due to financial difficulties the only decision this government undertook was the decision to commit itself to providing financial support for the project so it could be constructed' (Interview 4: Sim 1996: p56).

Thus, Transport was immediately restricted in what it could do in the EIA process. If, as Mostert (1995) and Ridgway (1995) suggest, the proposal aims were broader and more flexible (*ie* to improve transportation capacity rather than to build a road), then a broader range of alternatives could be seriously assessed by both organisations in the EIA process. This further highlights the need for SEA at an earlier and broader level, although again, this may be beyond the organisations' sphere of influence given that policy and commitments to projects such as the Expressway are made by government and not by the organisations themselves. The overall grade for alternatives in the EISs (Figure 9.2) was also reduced because of a relatively poor performance in the ranking of alternatives (criterion 3.4.2).

It is important to describe alternative options, but it is also important to explicitly and systematically rank the options to identify which option may be the 'best' one in environmental terms relative to other factors such as cost or technical issues. This approach demonstrates transparency to both the community and to the decision-makers about how the proponent reached and justified their proposal or preferred option (if one is identified). This does not necessarily mean the inclusion of complicated cost-benefit analyses or formula. As noted in Glasson (1999), decision makers:

'may be suspicious of any attempt to wrap up a set of complex arguments in favour, or against, the granting of planning permission, by resorting to indices, or the ranking and weighting of social, economic and environmental parameters, using statistical formulae. They are likely, however, to welcome clear statements of the potential economic costs and benefits of pursuing alternative courses of action, as long as they can see the environmental trade-offs which these imply....simple summary tables, or frameworks, which group together environmental impacts and economic costs and benefits can be helpful in ensuring that all the critical issues are reviewed' (Glasson 1999: p127).

Nonetheless, performance in the Transport projects was unsatisfactory, whilst performance was just satisfactory for ETSA (refer Appendix 17).

Overall, however, performance was very good in both organisations in terms of (refer back to Table 9.3):

- basic reference to environmental categories in the 'description of environment' section (criterion 2.2.1);⁴
- basic reference to key environmental impacts in the 'impact assessment' section (criterion 2.3.1);⁵ and
- communication in terms of EIS layout, presentation and emphasis (criteria 2.7.1-2.7.9), although there were some weaknesses specific to some projects such as over-use of design terminology in Transport's Adelaide-Crafers EIS, and inconsistent conclusions about 'best' options with EIS information in ETSA's Cherry Gardens EIS and Transport's Adelaide-Crafers EIS (refer Appendix 17).

ETSA also performed relatively well in terms of 'project descriptions' within the EISs (criterion 2.1.2), and in the definition of 'environmental boundaries' for the EIA investigations (criterion 2.2.3). Transport's relatively poor performance in the project description section reflected weaknesses found in Baker and Wood's (1999) research on EIS quality in the European Union (*eg* weak details about project-induced wastes).

There were a number of other weaknesses in the EISs for both organisations which should be highlighted for improvement, which are consistent with those already documented in the literature (some of which were referred to in Chapter Three). The most obvious weakness for both organisations, which was indicated in Figure (9.2), was the limited performance in monitoring (criteria 2.6.1-2.6.2), and very few explicit commitments to monitoring programmes were made in the EISs (refer Volume II). This poor performance is consistent with findings by Glasson and Salvador (2000) who found weaknesses in monitoring in Brazil

⁴This criterion assessed whether or not key environmental categories were referred to and did not address the adequacy of detail.

⁵This criterion assessed whether or not key environmental impacts were referred to and did not address the adequacy of detail.

and the United Kingdom, and Nixon (1998) who investigated monitoring commitments in EIA within South Australia (or lack thereof). Other areas which required improvement in most of the EISs (refer Table 9.3) included the:

- 'project rationale' section (criterion 2.1.1) which was described earlier;
- 'policy framework' section, particularly in ETSA (criterion 2.1.3) (*ie* the degree to which the project is consistent with the broader planning framework and other environmental requirements) ;
- limited detail in the 'description of the environment' section (criterion 2.2.2);
- limited detail in the 'impact assessment' section (criteria 2.3.2-2.3.4);
- limited detail in the 'mitigation' section (criterion 2.5.2); and the
- limited detail in the description of methods (criterion 2.7.1) (which is consistent with EIS weaknesses found in Baker and Wood's 1999 research).

The particularly poor performance in the 'policy framework' in ETSA suggests that Transport was more interested in placing the project within its broader legislative/policy context and using the EIS as a compliance tool. However, it should be noted that ETSA's projects were assessed at a time (in the mid 1980s) when the notion of compliance was not as significant as it became in the 1990s when the Transport projects were assessed (*ie* with criminal liability under the Environment Protection Act) (refer Chapter Seven). Thus, the need to place the project within the broader legislative/policy context may have had less urgency for ETSA.

The main problem in the 'description of the environment' sections was a lack of detail (although judgements about detail adequacy are very subjective). The level of detail was particularly poor in the ETSA projects. For example, only 38% of environmental categories adopted in the evaluation framework for this research (*eg* description of existing vegetation, description of fire risk zones, or soil erosion hotspots) had adequate detail in ETSA's Ardrossan project (refer Appendix 17). The key weaknesses in most of the EISs included a lack of original baseline data, particularly in Transport's projects (*eg* water or air quality), irrelevance of some information, and assumptions made (refer Appendix 17). The importance of baseline data for measuring impacts is well emphasised by Noble (2000: p101), and a lack of baseline data was also found for EISs on road projects in the United Kingdom (Byron *et al* 2000). Other limitations in the 'description of environment' sections within the EISs included the limited reference to environmental significance or capacity to absorb impacts; the limited reference to future environments (without the project proceeding); and the limited attempts by Transport to define environmental boundaries for the EIA investigations. Overall, this section of the EISs was purely descriptive and rarely related directly to the 'impact assessment' sections, which is consistent with Noble's (2000) findings in EIA research.

The level of detail for the 'impact assessment' sections was slightly better than the 'description of environment' sections, and was considered just satisfactory in both organisations. Weaknesses in detail could often be related back to the minimal detail in the description of the environment with the lack of baseline data. The main areas in this section of the EIS requiring improvement included the limited reference to cumulative impacts, indirect impacts (*eg* associated with the 'wide road syndrome'), and impact interrelationships. In this latter case, impacts were frequently treated as separate and isolated entities and the interrelations between such things as construction timing (*eg* wet weather), the timing of vegetation removal, the associated potential for erosion and runoff, and the impacts on water quality were not addressed in the Adelaide-Crafers project. In this project, inadequate detail and lack of information on mitigation measures (in addition to steep terrain), resulted in erosion problems during the construction phase for this project which made media headlines. Fragmentation of issues in EIA was also a point made by Noble (2000).

The other area of weakness in the 'impact assessment' section were the limited attempts to define or evaluate the 'significance' of direct environmental impacts (average grade of E for both organisations) which is consistent with findings on EIS quality in Europe (Baker and Wood 2000). This also relates to the poor treatment of alternatives 'ranking' (criterion 3.4.2) which was noted earlier. Significance of impact is often very difficult to define, but the nature of the impact will provide some insight into the level of significance; for example, the magnitude of impact or geographical extent of impact. Significance of impact was evaluated using 10 sub-criteria which related to spatial-temporal significance (sub-criteria 1-4), alleviation-probability of impact (sub-criteria 5-7) and impact thresholds-certainty of impact (sub-criteria 8-10) (refer Appendix 17). Rather than referring to such things as impact 'reversibility' for instance, significance was frequently only implied by both organisations, with the use of terms such as 'minimal' impact. Those areas which were frequently ignored in the definition of impact 'significance' within the EISs included reference to:

- duration and frequency of impact;
- reversibility of impact;
- thresholds of non-acceptability/acceptability of impact (this may have been difficult because there was a lack of thresholds for impact acceptability in both the legislative EIA system and Transport's EIA system) (refer Chapters Five and Seven);
- levels of certainty about impact; and
- public-government concerns levels.

Noble (2000) also found that temporal boundaries of EIA received little attention in EIA because of their complexity. Performance was however, stronger in terms of reference to impact magnitude and direction of impact. Another point to note was that magnitude or significance of

impact was often determined, not by deviation from baseline conditions, but relative to alternative corridor alignments (*ie* which corridor performed best?). This makes it difficult to determine what the absolute level of impact significance would be, and tended to suggest that the choice was between the best of the alternatives presented, rather than the no-go option.

In the 'mitigation' section in the EISs, mitigation measures were identified for most impacts (refer Appendix 17), but like the previous sections, detail was lacking. Mitigation measures at least referred to included most of those encapsulated within the mitigation acronym defined for this research: TRANSCEND:

- Transfer of impact (*eg* waste disposal);
- Rehabilitate (*eg* landscaping);
- Avoid (*eg* alignment options);
- Natural Regeneration (facilitate) (*eg* mulching; weed removal, barriers);
- Screen (*eg* landscaping buffers);
- Confine/Compensate;
- Educate (*eg* inform construction people about sensitive sites and issues);
- Negotiate (*eg* acceptability of impact; land access); and
- Design (*eg* mitigation measure such as drainage schemes).

The fact that performance was higher than the 'just satisfactory' mark in the identification of mitigation measures further supports EIA's role as a management tool and reflects an assumption by both organisations that any impacts can be adequately managed (refer Chapters Seven and Eight). The effectiveness of EIA as a management tool was, however, comprised given the omissions of some mitigation measures (refer Appendix 17), and the lack of detail about how the mitigation measures would be implemented. There was, for instance, no or limited detail about mitigation difficulty, mitigation expense, the effectiveness of the mitigation measure, or certainty of mitigation outcome (refer Appendix 17). Again, this is consistent with Baker and Wood's (1999) and Byron *et al's* (2000) findings about limited detail on mitigation implementation and effectiveness. The lack of mitigation detail was highlighted with environmental management problems which emerged during construction for most of the projects (*ie* Blanchetown Bridge, Adelaide-Crafers; Runway Extension; Cherry Gardens; Tailm Bend). Many of the weaknesses were being overcome with the adoption of EMPs, although a Transport employee believed that they still lacked adequate detail and contained 'motherhood' statements about environmental protection (refer Appendix 17; Runway Extension project).

Although the EISs demonstrated weaknesses, it needs to be noted that the evaluation criteria adopted for assessing EIS quality were highly academic in nature (*ie* this is what an ideal EIS

should look like). Yet a simple EIS which fails to perform well in some of the more complex criteria, may in fact be adequate for an informed assessment. Thus, a second evaluation of EIS quality was conducted which omitted some of the more stringent criteria (and which also made the Blanchetown Bridge project more comparable) (refer back to Table 9.3). The results in Table (9.3; evaluation 2) indicate a just satisfactory performance in all cases which contrasts with the more complex evaluation where the EISs for most projects were unsatisfactory (the criteria which were included in the second evaluation are highlighted with an asterisk in Table 9.3). Performance was the highest in Transport's Expressway project (mean grade of 0.68) and ETSA's Tailem Bend EIS (mean grade of 0.65). This different evaluation outcome highlights the importance of criteria selection in the evaluation framework. Clearly, the types of criteria included, or omitted, will influence the final grade, and the evaluation process is thus very subjective and open to manipulation.

Although not an absolute indicator, the levels of both public and government controversy about a proponent's performance will also give some indication about the quality of the EIS, and also about the proponent's degree of openness and responsiveness. The use of government attitude as an indicator is supported by Mostert (1995), Schweitzer (in Glasson 1999), and Liroff (1976). Liroff in particular suggested that:

'The search for readily quantifiable indicators of agency response to NEPA might lead one to utilize EPA (Environment Protection Authority) review comments on impact statements as a basis for assessing the adequacy of agency environmental impact analysis' (Liroff 1976: p107).

Caution should nonetheless be adopted with this indicator given that in the projects assessed in this research, community outrage tended to be locally-based rather than State-wide. Comments were made by those directly affected by the projects, and hence, by people who may understandably have a bias against *all* aspects of the project. In other words, some controversy about the EIS quality may be evident simply because of outrage about the project itself, rather than being a reflection of *actual* quality. Evidence of controversy may also not be documented in the organisation's files, but this does not necessarily mean that there was no controversy.

Overall, the controversy levels about EIS quality were similar for both organisations, but *public* controversy was slightly higher for the Transport projects whereas *government* controversy was slightly higher in the ETSA projects (where lower scores represent higher levels of controversy). Projects with low *public* controversy about EIS quality (Tailem Bend, Ardrossan, Blanchetown Bridge) were relatively straightforward in nature, whilst those projects with high controversy tended to be those that:

- adopted a preferred option which was not the community's preference (Adelaide-Crafers; Cherry Gardens; Hummocks). Controversy may have been alleviated if a preferred option

- was not identified and an equal assessment of alternatives was presented which demonstrates greater flexibility (as was the case in the Ardrossan project);
- were biased in their conclusions and did not reflect the data presented in the EISs (Adelaide-Crafers, Cherry Garden, Hummocks);
 - focused on economic factors (Adelaide-Crafers; Cherry Gardens);
 - made assumptions without adequate supporting information (*eg* cost-benefit analysis in the Adelaide-Crafers project; the noise assessment in the Runway Extension project; boundary assumptions in the Cherry Gardens project).

The main public concerns are presented in Appendix (17), and tend to reflect many of the inadequacies in the impact assessment noted earlier, including concerns about proponent bias, inadequate project rationales, inadequate cost-benefit analyses, and irrelevance and inaccuracy of some information. Public controversy levels about EIS quality were particularly high for both Transport's Adelaide-Crafers EIS and ETSA's Cherry Gardens EIS.

Government controversy tended to be less emotive than public controversy, was more specific in nature, and did not always reflect the level of public controversy (*eg* low public controversy but high government controversy in the Ardrossan project; high public controversy but low government controversy in the Runway Extension and Hummocks projects). However, government controversy about EIS quality (particularly from the DEP) was high for those projects which had the highest community controversy (*ie* the Adelaide-Crafers and Cherry Gardens projects). The DEP in particular, criticised the method of cost-benefit analysis in the Adelaide-Crafers project, and noted in its Assessment Report that '*...the approach of attempting to quantify non-economic costs and values does not assist in the assessment of this project*' (DEP November 1987: p67). Other negative (and positive) points made by the DEP and other government agencies for all of the projects are summarised in Appendix (17).

9.5 PROPONENT OPENNESS

9.5.1 Criteria & Summary

Another indicator of change in Transport and ETSA is the way in which the organisation's conduct the consultation process, and their degree of openness to considering alternatives and suggestions from other parties, such as the local community, other government agencies, and the assessing authority (particularly given that both organisations had minimal public consultation processes prior to EIA). Research by Brendecke and Ortolano (1981) found substantial evidence to indicate that a two-way process of communication between the proponent and the public is more likely to lead to environmentally-sensitive alternatives, and a

greater influence of environmental information on proposal changes. The evaluation of openness also relates to Handler's concept of 'constructive dialogue':

'Constructive dialogue refers to a dialogue in which both parties are looking for solutions that will benefit both sides, where parties attempt to develop an empathetic understanding of divergent viewpoints or of divergent goals and where this understanding involves goodwill, the willingness to listen and discretion' (Handler 1988 in Papadakis 1996: p4).

Papadakis adds to this by stating that:

'If a political or bureaucratic system is not open to constructive dialogue and to exploring new ideas, it is more likely than not to develop arrogance or complacency or both. It more easily adopts a bureaucratic mind-set: in other words, it responds to new challenges or ideas with statements like 'we have always done things this way' or 'we've never done it this way', or 'this sets a precedent' (Papadakis 1996: p4).

This clearly relates to the concept of groupthink referred to in Chapter Three, and the indications of a remnant 'arrogance' which were evident in Chapter Eight.

Four categories were used to evaluate proponent 'openness' comprising (i) attitude towards consultation, (ii) timing and integration of EIA and public consultation; (iii) approach to consultation; and (iii) controversy levels about proponent openness and the consultation process. Proponent openness is also indicated in part by how flexible the organisation's resources and time frames are for the EIA process. If inflexible, then unforeseen environmental issues which may be picked up in the EIA process cannot be dealt with adequately. The results are illustrated in Figure (9.7) and Table (9.5). Unlike the assessment of EIS quality it was more difficult to assign grades and they are thus considered crude comparative indicators only. The techniques used in the consultation process are summarised in Table (9.6). Overall performance in both organisations was similar and slightly above the 'just satisfactory' mark. Trends in four of the criteria were similar between both organisations (genuineness, openness, integration of EIA with design, low levels of government controversy), and performance was particularly limited for both organisations in terms of proponent 'openness', and integration of EIA at the project conception stage and the project construction stage.

There was little to distinguish between the projects in terms of mean scores (Table 9.5), but performance was slightly better in Transport's Blanchetown Bridge project and ETSA's Ardrossan project. These two projects also happened to be the least controversial and political of the projects, which may explain the higher grade. In other words, there was greater flexibility to be open to suggestion and change, but this was not necessarily required due to low community pressure. Also of interest is that the Hummocks project, which was a small-scale proposal and had a low level of assessment (*ie* the PER), was the worst performer despite the fact that ETSA believed they had achieved greater consultation practice than in previous projects.

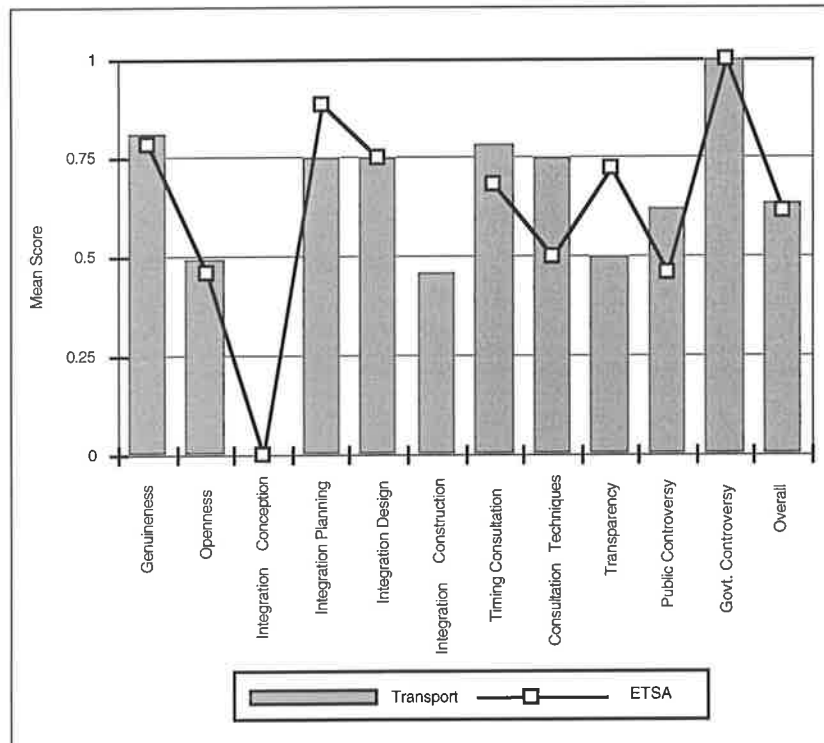


Figure 9.7: Performance in the Openness Dimension: Average grade for each criterion

Key: 1=excellent performance (A); 0.75=satisfactory performance (B); 0.5=just satisfactory performance (C); 0.25=limited performance (D); 0=not attempted or very poor performance (E)

In this case, limited openness (criterion 3.1.2), high community controversy (criterion 3.4.1) and limited transparency (criterion 3.3.2) reduced the grade for this project. It should be noted that there is some overlap between this criterion and the evaluation of proponent responsiveness. However, this 'openness' criterion merely seeks to demonstrate whether or not the proponent was open to alternatives and to suggestion from external parties and the EIA information, not whether or not they actually adopted this suggestion. The key points to note in proponent openness are that:

- both organisations demonstrated a genuine desire to consult with the community (criterion 3.1.1), which was demonstrated in part by their willingness to go beyond compliance, particularly in Transport. Performance was satisfactory for both Transport and ETSA (B grade), although there were some indications that it was more about 'selling' the project rather than a two way constructive dialogue in Transport's Adelaide-Crafers, Runway Extension and the Expressway projects (refer Appendix 17).

Table 9.5: Individual Grades for each project in the 'Openness' Dimension

CATEGORY	CRITERIA	TRANSPORT					ETSA				
		A-C	BRIDGE	EXP	EXT	AVG	T-C	T-T	A-D	H-W	AVG
3.1 Attitude	3.1.1 Genuine	B-A 0.88	B 0.75	B-A 0.88	B 0.75	0.81	B-A 0.88	B 0.75	B 0.75	B 0.75	0.78
	3.1.2 Open to Suggestion	C 0.5	B 0.75	D-C 0.37	D-C 0.37	0.49	D-C 0.37	C 0.5	C-B 0.63	D-C 0.37	0.46
3.2 Timing	3.2.1 Integration Conception	E 0	E 0	E 0	E 0	0	E 0	E 0	E 0	E 0	0
	3.2.2 Integration Planning	B 0.75	A 1	C-B 0.63	C-B 0.63	0.75	B-A 0.88	B-A 0.88	B-A 0.88	B-A 0.88	0.88
	3.2.3 Integration Design	B-A 0.88	B-A 0.88	B-A 0.88	B-A 0.88	0.88	B 0.75	B 0.75	B 0.75	B 0.75	0.75
	3.2.4 Integration Construction	D-C 0.37	D-C 0.37	C 0.65	ID	0.46	D-C 0.37	ID	ID	ID	
	3.2.5 Timing Consultation	B 0.75	B 0.75	B-A 0.88	B 0.75	0.78	B 0.75	C 0.5	B 0.75	B 0.75	0.68
3.3 Approach	3.3.1 Consultation Techniques	B 0.75	B 0.75	B 0.75	B 0.75	0.75	C 0.5	C 0.5	C 0.5	C 0.5	0.5
	3.3.2 Transparency	C 0.5	B 0.5	C 0.5	C 0.5	0.5	B-A 0.88	B 0.75	B-A 0.88	D-C 0.37	0.72
	3.3.3 Resource, Timetables	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
3.4 Controversy	3.4.1 Public Controversy	C 0.63	A 1	D-C 0.37	C 0.5	0.62	E-D 0.12	C 0.5	B-A 0.88	D-C 0.37	0.46
	3.4.2 Govt. Controversy	A 1	A 1	A 1	A 1	1	A 1	A 1	A 1	A 1	1
Average		0.62	0.69	0.61	0.6	0.63	0.59	0.61	0.7	0.57	0.61

Key: AVG=Average; ID=Insufficient Data; NG=Not Graded

- both organisations demonstrated only a 'just satisfactory' performance (C grade) in their openness to suggestion and to considering alternatives (criterion 3.1.2). Although both organisations were open to alternative alignments and modified designs proposed by the community in most cases (see Appendix 17), as noted earlier, Transport and ETSA were constrained in the alternatives that they could consider seriously. Transport and ETSA were also adamantly opposed to considering the 'best' alignment due to economic costs in the Adelaide-Crafers project and the Cherry Gardens project. Openness was also conditional, and as noted by Transport for the Runway Extension '*...consultation does not imply explicit power or influence over the decision making process*'⁶ (refer Appendix 17).

⁶Hidden footnote.

Table 9.6: Public Consultation Initiatives

TRANSPORT	ETSA
<p>Adelaide-Crafers</p> <ul style="list-style-type: none"> • 2 phased consultation process: consultation prior to release of EIS including public review of three corridor options, personal interviews, hotline, press releases, correspondence, roadside user survey, public exhibitions at five locations, and 6 public meetings and workshops; • longer formal public review period (8 weeks compared to 6 weeks legislative requirement); • Value Management Study conducted with representatives from one local community group; • public meeting after approval with local groups about issue of access, in addition to briefings to councils and other stakeholders including landowners; • publication of several information brochures during construction, in addition to briefing centre, display of project model; • access to project manager (very visible in the media). 	<p>Tungkillo-Cherry Gardens</p> <ul style="list-style-type: none"> • consultation initiated prior to completion of EIS; • 2 public meetings; • extensive questionnaire survey of community issues which included personal interviews with 100s individuals prior to EIS; • receipt of informal correspondence (outside formal submissions); • personal interviews with landholders after approval for more detailed alignment and design phase.
<p>Runway Extension</p> <ul style="list-style-type: none"> • consultation prior to release of EIS including early scoping workshop and late preliminary workshops; • Value Management Study included representatives from recreational and resident groups; • extended period for public submissions (8 weeks); • 15 workshops/meetings held in addition to formal public meeting; 	<p>Tungkillo-Tailem Bend</p> <ul style="list-style-type: none"> • second public review period on alternative proposed late in the EIA process (although this was at DEP's request); • personal interviews prior to preparation of the EIS Supplement; • personal interviews with landholders after approval for more detailed alignment and design phase; • but no ETSA initiated public meetings.
<p>Southern Expressway</p> <ul style="list-style-type: none"> • release of 4 public information brochures early in the planning process (prior to EIS) (but limited information); • extensive negotiations with Aboriginal communities prior to the EIS; • 2 focus workshops and consultation workshops with community groups; • continuation of public consultation during construction with public meetings and exhibitions, Expressway Newspaper and information bulletin, radio broadcasts and telephone hotline; 	<p>Ardrossan-Dalrymple</p> <ul style="list-style-type: none"> • 2 public meetings initiated prior to EIS release; • receipt of late public submissions outside of formal review period; • personal interviews after release of the EIS; • personal interviews with landholders after approval for more detailed alignment and design phase.
<p>Blanchetown Bridge</p> <ul style="list-style-type: none"> • stakeholder interviews, council meetings, public meeting and questionnaire; • second phase included correspondence, brochures, billboards, media, public information display, telephone information, and formal submissions, meetings with stakeholders and another public meetings; 	<p>Hummocks-Waterloo</p> <ul style="list-style-type: none"> • extended periods for formal submissions (2 months); • attendance at community group meetings; • personal interviews with landholders; • but no ETSA initiated public meetings.

ETSA was also constricted by its controlling legislation (*Electricity Trust of South Australia Act 1946*) which required that ETSA operate in an efficient manner. In other words, there are inherent contradictions in legislation which limits ETSA's flexibility, whereby their own legislation suggests that they should adopt the most efficient option, yet the EIA process suggests that they should adopt the most 'environmentally-friendly' option (which is frequently the more expensive option).

- the integration of EIA (criteria 3.2.1-3.2.4) was generally good with the planning phase (of alternative alignments) (B grade in Transport, B-A grade in ETSA), and the design phase (B-A grade in Transport and B grade in ETSA), but was very weak at the project conception stage, which again suggests that key decisions had already been made prior to the EIA process. Performance was below the 'just satisfactory' mark in Transport in terms of information transfer from EIA to the construction stage, given impacts which occurred at this phase for some of the projects. However, it was improving with the use of EMPs (there was insufficient information to assess performance in ETSA for this criterion).
- the timing of public consultation in the EIA process (criterion 3.2.5) was satisfactory in Transport (B grade), and just below a B grade in ETSA. The timing of public involvement was very similar in all of the projects (except Adelaide-Crafers and Tailem Bend) and was initiated prior to the release of the Draft EIS (or equivalent). As noted earlier, this went beyond the legal requirements which only required consultation to occur *after* the Draft EIS was released. The main problem was that, like the EIA process, consultation was undertaken after broad concept studies and key decisions had already been made (*ie* as noted earlier, 'selling' a defined project).
- performance in the levels of consultation adopted (which give greater or lower power to the community) and consultation techniques used was satisfactory in Transport (B grade), and only slightly above 'just satisfactory' in ETSA. Generally, techniques which gave greater power to the community were not adopted (*ie* with the creation of review boards or community advisory committees), but performance was generally good in terms of use of structured workshops (in Transport, formal public meetings, personal interviews with the affected community, receipt of formal public submissions, and use of the media and telephone hotlines (particularly in Transport) (refer Table 9.7).
- performance in the transparency of information was stronger in ETSA with a grade close to B, whilst in Transport, performance was only 'just satisfactory' (C grade), which reflects the careful control of information noted in Chapter Eight, and several internal reports were not publicly released (*eg* Value Management Study, EMPs). Generally transparency of information went beyond legal requirements (*eg* with information brochures, road signage,

newsletters), but there was a lack of transparency and detail in some of the EISs (*eg* about corridor options in ETSA's Hummocks project, and about the cost-benefit analysis and economic evaluation in Transport's Adelaide-Crafers project and Runway Extension project).

- the flexibility of resources and time frames in EIA was very difficult to evaluate because information was often not available, and they were thus not graded. Both organisations were flexible enough to increase budgets for the EIAs where necessary (refer Appendix 17), but resource inflexibility was evident for some projects because as noted earlier, the more expensive, but environmentally 'better' options, were not adopted due to the high costs involved (Adelaide-Crafers, Runway Extension, Cherry Gardens). Flexibility in project timetables was highly limited, and in Transport resulted from pressures to meet financial year funding deadlines (*ie* need to spend a certain amount by the end of the financial year or future budgets may be reduced), and because meeting timetables was sometimes critical to getting Commonwealth funding (*eg* Adelaide-Crafers project). Both organisations were also required to work backwards from an inflexible construction date which was frequently determined by political pressure, and due to short-cutting, this resulted in some impacts at the construction stage for ETSA's Cherry Gardens project (refer Appendix 17).

The level of *government* controversy about both Transport's and ETSA's consultation process and openness in EIA was virtually non-existent (or at least not documented). Both organisations received a mean grade of 1 (A grade) for *government* controversy. In contrast to government controversy, the level of *public* controversy about proponent openness was much higher. The overall degree of public controversy was slightly lower for the Transport projects (where lower scores means higher controversy). Controversy was particularly high for ETSA's Cherry Gardens and Hummocks project (refer back to Table 9.5), and Transport's Expressway project, and was particularly low for ETSA's Ardrossan project, and virtually non-existent for the Blanchetown Bridge project (or at least controversy was not documented). Details of public concerns are presented in Appendix (17) (for example, criticisms that consultation was a '*joke*' in the Adelaide-Crafers project, and a '*public relations*' exercise with lack of public debate opportunities in the Expressway, Runway Extension, and Cherry Gardens project). There were, however, some positive comments made (refer Appendix 17).

Table 9.7: Levels of Public participation techniques adopted (based in part on Westman's 1985 five-scale participation model and Glasson *et al* 1994)

Approach	Public Power	Participation Techniques	TRANSPORT				ETSA			
			A-C	Ext.	Exp	Brid.	T-C	T-T	A-D	H-W
Delegated Authority	High	Review boards								
Joint Planning	Moder.	Comm. Advisory Committees								
		Structured Workshops								
Consultation	Low	Formal public meetings								
		Personal Interviews*								
		Formal public submissions				?				
		Questionnaires								
		Informal Correspondence								
Information	Nil	Telephone Hotlines								
		Public Displays								
		Media Notices								

9.6 PROPONENT RESPONSIVENESS

9.6.1 Criteria & Summary

Merely being open to change is not the same as *responding* to the various influences in EIA and improving decision-making. Thus, proponent responsiveness is treated as a separate dimension and indicator of change, but as noted earlier, there is some overlap with the openness dimension. The question about whether a 'better' project emerges is of fundamental importance in EIA. As noted by Andrews:

'The effectiveness of ...[EIA] (or of any new policy mandate) must ultimately be measured not by the policies, procedures, and organizational structures through which it is translated, but by its influence upon the substantive activities that are those organization's outputs' (Andrews 1976c: p137).

Performance is illustrated in Figure (9.8) and in Table (9.8). As was the case for the 'openness' dimension, the grades for this evaluation dimension are very crude indicators for comparison only given the high subjectivity involved in grading performance. *Overall* performance was similar in both organisations (Figure 9.8), and was between 'just satisfactory' and 'satisfactory (C-B grade).

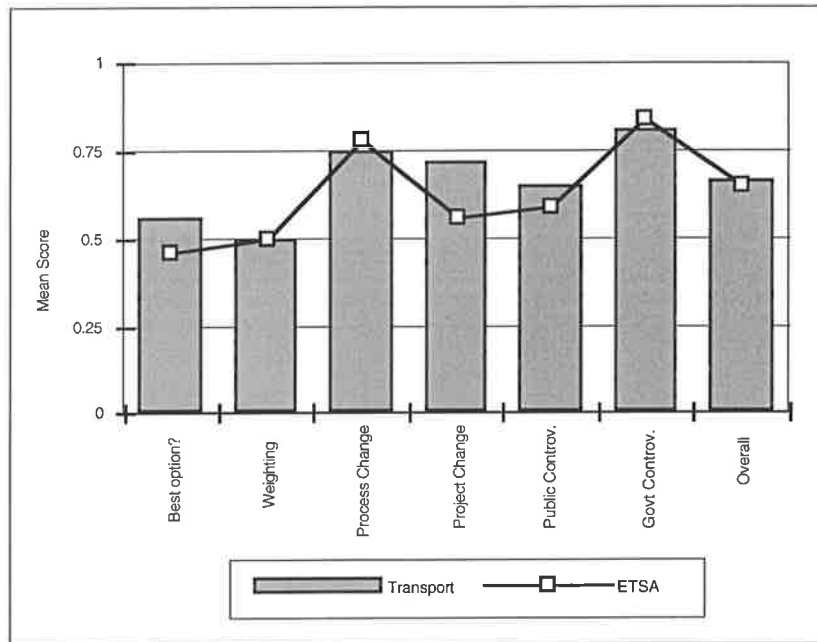


Figure 9.8: Performance in Proponent Responsiveness: Average grade for each criterion
 Key: 1=excellent performance (A); 0.75=satisfactory performance (B); 0.5=just satisfactory (C); 0.25=limited performance (D); 0=not attempted or very poor performance (E)

Table 9.8: Grades for Proponent Responsiveness

CATEGORY	CRITERIA	TRANSPORT					ETSA				
		A-C	BRIDGE	EXP	EXT	AVG	T-C	T-T	A-D	H-W	AVG
Alternatives-Weighting	4.1.1 Best option?	D 0.25	B 0.75	C-B 0.63	C-B 0.63	0.56	E-D 0.12	C 0.5	B 0.75	D 0.5	0.46
	4.1.2 Environmental Weighting	D 0.25	C 0.5	B 0.75	C 0.5	0.5	E-D 0.12	C 0.5	B-A 0.88	C 0.5	0.5
Procedural & Substantive Change	4.2.1 Process Changes?	B 0.75	B 0.75	B 0.75	B 0.75	0.75	B-A 0.88	B 0.75	B 0.75	B 0.75	0.78
	4.2.2 Project Changes?	D-C 0.37	B-A 0.88	B-A 0.88	B 0.75	0.72	D-C 0.37	B-A 0.88	B-A 0.88	D-C 0.37	0.62
	4.2.3 Broader Learning*	I/D	B 0.75	I/D	I/D	-	A 1	A 1	I/D	I/D	-
Controversy	4.3.1 Public Controversy	C 0.5	C 0.5	B 0.75	B-A 0.88	0.65	D 0.25	B-A 0.88	A 1	D 0.25	0.59
	4.3.2 Govt Controversy	C 0.5	A 1	B 0.75	A 1	0.81	C 0.5	A 1	A 1	B-A 0.88	0.84
Average		0.43	0.73	0.75	0.75	0.67	0.46	0.75	0.87	0.54	0.65

KEY: AVG=Average; ID=Insufficient Data

*This criterion was not included in the overall average given that information was only available for two projects.

There were however, some minor differences in the individual criterion, with a slightly stronger performance in Transport in terms of project changes as a result of the EIA and the consultation process, and adoption of the 'best' option. For both organisations, performance was satisfactory (around the B grade) in terms of changes to the EIA process, and the relatively low levels of government controversy. Relative to proponent 'openness', there was a wider variation in performance between the projects (Table 9.8), and Transport's Adelaide Crafers project, and ETSA's Cherry Gardens project were again below the 'just satisfactory' mark. The majority were satisfactory (B grade), with the highest performance in proponent responsiveness evident with ETSA's Ardrossan project.

The first criterion in the responsiveness dimension asks whether or not the organisation's adopted the 'best' option in environmental terms as a result of the EIA process. Determination of which alternative was the 'best' option in each of the projects was difficult to evaluate because information on each alternative was sometimes insufficient. The best option also depends on one's perspective, and on how the 'environment' is defined in the first place. Unlike in Western Australia where the EIA process is focused on biophysical impacts, in South Australia, the definition of environment is very broad and incorporates social factors which makes it difficult to balance. From a proponent's perspective, economic costs must play a role in the decision-making and planning process. Thus the best option will often be the cheapest and most direct route. What may be the 'best' option for the community may not necessarily be the best in biophysical terms. For the biophysical environment, the 'best' option may be one that avoids native vegetation, but this may conflict with the community's 'best' option because it means that a corridor will have to traverse productive land to avoid the native vegetation (as was the case in ETSA's Ardrossan project).

Mostert (1995) also notes the difficulty of determining the 'most environmentally friendly' option because its rare for a an alternative to perform well in all environmental criteria. It was also difficult to know whether or not to include broader alternatives in this criterion. Should options such as travel or electricity demand management, or improved public transport be included as realistic options? If so, all of the projects would have failed this criterion given that these broader alternatives were justified against because they were outside of the project scope, and would not result in an immediate solution to the particular problem. For instance, the:

'Southern Expressway was chosen because it is the cheapest option and less time-consuming than bothering to develop a co-ordinated, balanced transport strategy that incorporates public transport, demand management, non-automobile travel and land use planning' (Sim 1996: p72).

Given the restricted scope and authority of both organisations because of political commitments to a project, it was decided to assess this criterion based on the alignment options presented within the project scope and EISs (or equivalent documents).

Overall performance for adopting the 'best' option was 'just satisfactory' in the Transport projects and slightly below 'just satisfactory' for ETSA's projects (refer Figure 9.8). Performance was good for most of the projects (around the B grade), but the mean grades were reduced due to poor performance in Transport's Adelaide-Crafers project (below satisfactory), and ETSA's Cherry Gardens (below satisfactory) and Hummocks projects (just satisfactory). In the Cherry Gardens project, for reasons noted earlier (*ie* economic), ETSA was adamant about adopting the second best option. The better corridor option was eventually adopted by ETSA, but this was forced upon them by government and based on the DEP's recommendation. In the Adelaide-Crafers proposal, the best option from an environmental and local community perspective was clearly corridor A, and this was even acknowledged by Transport and the DEP (refer Appendix 17). Yet Transport was forced to choose the second-best option (corridor C) because of Commonwealth funding issues. This corridor was, however, modified and improved later in the EIA process in response to community submissions (and hence the grade was increased slightly).

The next criterion refers to the weighting of environmental factors in the EIA and decision-making process. The evaluation of environmental weighting in the EIA process was also difficult to judge for the same reasons as those noted for the previous criterion. However, it was assumed in evaluating this criterion that environmental factors must be considered *at least equally* to economic and/or technical factors. Performance was the same in both organisations and was 'just satisfactory' (grade of C) (refer back to Table 9.8), and performance for each project is presented in Appendix (17). The importance of economic factors were evident throughout all of the EISs, particularly in Transport's Adelaide-Crafers project and ETSA's Cherry Gardens project, which is a reflection of performance in the previous criterion (*ie* adoption of the 'best' option), and is probably one reason why high levels of public and government controversy emerged about both of these projects. A key point to note is that the weighting between environmental and economic factors tended to vary at different stages in the EIA and planning process. Environmental factors were usually a major component in the selection of alternative alignment options, but were rarely a consideration in the consideration of broader alternatives. Rather, the focus was on technical or cost factors, and whether or not the broader option would provide an immediate and direct solution to the problem, which was rarely perceived to be the case.

Although environmental factors were important in influencing the types of alternatives assessed in the EIS for the Adelaide-Crafers project, the factors in the selection of the preferred option, which was the critical decision, were economically and technically based, and it was noted by an Departmental employee that the road was essentially an engineering and geotechnical solution to a safety problem (Interview 50 1999). Transport was explicit about the higher level of

importance attached to the environment for this project, with a 60% weighting given to economic factors, 15% to social factors, 14% to engineering factors, and 11% to environmental factors.* Several attempts were made by Transport in the Draft EIS to justify the economic emphasis:

'In the present economic climate, the cost issue must be a prime consideration... The choice between an apparently preferred option and alternatives up to \$50 million (*ie* one-third) cheaper in capital cost necessitated the most careful scrutiny of the relative merits of social/environmental issues by comparison with purely financial ones before the selection of an option could be made. The importance of economic factors became greater in the light of this considerable cost difference between the options' (Highways February 1987: p3-3).

Thus, economic factors were the crucial factor in the EIA and decision-making process, and performance in this criterion was limited. A higher weight was also given by ETSA to economic factors in the Cherry Gardens project, despite significant environmental impact (and despite the fact that the economic costs were not as high as in the Adelaide-Crafers project). An ETSA employee stated prior to the EIA process that the '*...shortest and most economic route should be pursued as the most favoured and every effort be made not to stray too far from this route*'.⁷ It was also noted by ETSA's consultants that '*whilst the environmental impacts of a route in the "parallel" corridor appear to be less than route in the "direct" corridor, cost factors weight the balance in the other direction.*'⁸ Importantly, planning of both of the Adelaide-Crafers project and Cherry Gardens project was commenced shortly after an economic depression which may have influenced this emphasis on costs. However, performance in four of the other projects was 'just satisfactory' (Blanchetown Bridge, Runway Extension, Taillem Bend, Hummocks), and 'satisfactory' or above in the two remaining projects (Expressway, Ardrossan), with varying emphases on economic and environmental factors at different stages of the EIA process (refer Appendix 17).

The proponent's willingness to make procedural changes to the EIA *process* (*eg* provision of further information or consultation) and substantive changes to the *project*⁹ where necessary is also indicative of their responsiveness to the EIA requirement, and also indicates the degree of EIA's influence on planning outcomes. Performance was very good and similar between both organisations (B grade) in terms of procedural changes to the EIA and/or consultation process. Where required, changes to the process were made with, for instance, the provision of further information, conduct of further surveys (*eg* noise, Aboriginal heritage, fauna), assessment of additional alternatives, re-assessment of previous alternatives in response to community

*Highways (January 1987) Evaluation of Corridors; Identification of Options.

⁷Hidden footnote.

⁸Hidden footnote.

⁹As for the 'best' option criterion, project changes were assessed in the context of the project's scope (*ie* to construct a new road or transmission line) rather than in terms of broader alternatives such as whether or not public transport or demand management should have been adopted as a change. If this was incorporated into the evaluation, the grades would have been substantially lower.

requests, extensions on the formal public review periods, and conduct of further community consultation (refer to Appendix 17 for details on each project). ETSA was particularly responsive in procedural areas for the Cherry Gardens project, and this was probably an attempt to appease the extensive public controversy which was emerging.

More substantive changes to the projects during the EIA process were less frequent than procedural changes. Performance was slightly better in Transport with just below a B grade, whilst in ETSA, performance was just above a C grade. Where generally feasible (*ie* not too costly), both Transport and ETSA made changes to the project where a need became evident (see Appendix 17), although as noted previously, both organisations were constrained in the decisions they could make due to government commitments to their projects. The Supplement Reports (*ie* the proponent's response to public and government submissions) whilst being responsive, tended to be superficial and sometimes failed to adequately respond to community concerns. More often than not, the Supplements reiterated information and actions already presented in the Draft EIS, which is why a higher grade was not given for the projects.

The numbers of project changes ranged from 3 (Expressway) to 6 changes (Taillem Bend), with 5 changes made in three of the projects (Adelaide-Crafers, Blanchetown Bridge, Ardrossan). This amounts to an average of 4.4 changes per project, which is higher than findings by Baker and Wood (1999) who found an average of 2.2 changes per project in the United Kingdom and Spain, and 3.7 changes per project in Germany in the EIA process. However, 75% of the changes in the United Kingdom were of major importance whereas in this research, the changes were of minor-medium significance, and are more comparable to the findings in Germany where the changes were of a minor nature. It should also be noted that the number of changes to a project is not necessarily a good indicator of proponent responsiveness in EIA. High numbers of changes may mean that the project was poorly designed and that the EIA process was effective in rectifying any limitations, but low numbers of changes could either mean that the proponent was not responsive, or that the 'rule of anticipation' was at work. That is, the project was planned and designed appropriately in the first place. In this respect, several of the changes were made in the projects *prior* to the formal EIA process, with the selection and rejection of alternative schemes, and thus the proponents and government were anticipating the environmental impacts in the initial design of their project.

Changes as a result of EIA may also occur at a broader organisational level (criterion 4.2.3). In other words, learning from the EIA process with changes to procedures and/or policies is another useful indicator of change and improvement within the organisations. Like many of the other criteria, this was difficult to assess given a lack of information. Although some lessons were learned in the Ardrossan project, and the Blanchetown Bridge project, more often than not, the organisations did not systematically review the EIA process, decisions and/or

management outcomes for individual projects. Both organisations were however, beginning to conduct environmental audits during construction, as noted in Chapter Seven. The most significant demonstration of learning and changes at a broader level were made by ETSA when they undertook a major post-implementation review of their interconnection programme (which included the Cherry Gardens and Taillem Bend projects). Areas of learning related to project management, property restoration, the way in which alternatives were presented in the Draft EIS (*ie* not to champion a particular route), public consultation (*ie* establishment of direct contact people, representation at public meetings), and the need to select contractors based on their levels of environmental awareness.¹⁰

It was also noted that if a greater emphasis had been placed on environmental issues in the Cherry Gardens project, there might have been less financial costs associated with restoration after contractors damaged property (\$1 million damage costs) (ETSA 1990b) (see Appendix 17). Some of the lessons do not, however, appear to have been consistently adopted in future projects undergoing EIA. Thus, lessons learned are not always maintained and behaviour may relapse in the change process, which was also a point made in Chapter Two. Clearly, there is need for better feedback and learning mechanisms in both organisations, and with greater resources dedicated to auditing and monitoring, this should occur in the future.

Unlike for EIS quality, public controversy about proponent responsiveness was not as high for any of the projects, except for ETSA's Cherry Gardens project and the Hummock's project. Indications of adverse public reactions to proponent responsiveness were indicated for example, by a community beliefs that they were being 'disregarded' and 'ignored' in the Adelaide-Crafers, Cherry Gardens and Hummocks projects, and a belief that the Runway Extension EIS was simply a justification for a project that had already been decided upon (refer Appendix 17). In the midst of some negative comments, there were however, some very positive comments made about ETSA's responsiveness in the Ardrossan project and the Taillem Bend project, which are noted in Appendix (17). *Government* controversy about proponent responsiveness was less than public controversy, and the differences between public and government controversy may be attributable to the fact that there was usually strong government commitment to the projects (and hence it is unlikely that the government would criticise the proponent's response if they were working within the scope defined by government). The issues were also less emotive for government, whereas the projects were being constructed in the community's 'backyard' which is likely to cause more emotion. There was however, some government controversy about ETSA's responsiveness in the Cherry Gardens project and in Transport's Adelaide-Crafers project, and the DEP emphasised ETSA's lack of responsiveness to public opinion about the 'best' alignment option in the Cherry Gardens project (refer Appendix 17).

¹⁰Hidden footnote.

9.7 INTERNAL & EXTERNAL INFLUENCES ON EIA OUTCOMES

Given the importance of the internal and external models of reform in EIA in understanding change, it is important to highlight the relative roles of internal staff and external parties on the EIA outcomes and to supplement the perceptions about these roles which were explored in Chapter Eight. To reiterate, Chapter Eight revealed that Transport's environmental staff were perceived to have a high influence on EIA whereas in ETSA, their influence was perceived to be less (but still high overall). The internal organisation and management structure for most of the projects is presented in Appendix (17), although the focus here is on the influence of environmental staff. In Chapter Eight, the influence of external parties such as the general public was perceived on average to be lower than that of internal groups, yet in practice their actual level of influence on the ETSA projects was high (see below).

9.7.1 The Influence of Internal Environment Staff

The intricacies of environmental staff involvement in the project was not as apparent as was the case in Chapter Eight due to a lack of documented information, but the findings appear consistent with the perceptions noted in Chapter Eight. The environment staff in Transport did have some influence due in part to their presence throughout the project delivery process, and through their formal environmental clearance role in two of the projects (Expressway, Blanchetown Bridge). Their influence was primarily related to refining the projects. For instance:

- in the Adelaide-Crafers project, environmental staff were involved in vegetation removal requests (in their formal role of vegetation removal clearance), in air quality studies, and were also present at several critical meetings in the project delivery process (*eg* Value Management Study);
- in the Runway Extension project, an environment officer was considered to be the project co-ordinators' *right hand person*' from the beginning of the EIA process. The environment officer was also an official member of the 'Off-Airport Control Group', and was involved in an audit on one element of the project's construction;
- in the Expressway project, there did not appear to be an environmental staff member as an 'official' member of the planning team, but the environmental unit did play a major role in Aboriginal heritage negotiations, and at the environmental clearance stage of the project because the project was assessed internally; and
- in the Blanchetown Bridge project, the role of environmental staff was extensive and, in addition to the formal environmental clearance role, an environmental officer was involved early in and throughout the planning process which was indicated by their attendance at several project meetings. Through this process, the environment unit had an evaluative role

in improving the quality of planning reports and requesting further details on environmental management.

The main weaknesses appeared to be the lack of 'official' membership on planning teams, but this is consistent with low numbers of staff to achieve this which was noted in Chapters Seven and Eight. Similarly, ETSA's environment staff were not 'official' members of the planning team and appeared to have less of an influence than the Transport staff because they were brought into the planning and EIA process at a late stage. The lateness of their involvement was of concern in the post-implementation review noted earlier. For instance:

'The [environmental] Branch's involvement did not start until the EIS had been prepared and issued. Given the post EIS requirements to carry out quite detailed and sensitive environmental work, and given the capability of the Branch to do this with success...it would seem that ETSA in-house environmental personnel should be aware of such exercises before EIS preparation, and have the opportunity to participate in discussion with SADEP, consultants, earlier in the project...This is not a claim to usurp the proprietary role of Transmission Department for the Environmental Clearance Procedure for Transmission lines. It is rather, a proposal that in long-running projects in-house environmental staff can (and do) supply services which cannot cost-effectively be supplied by the main Environmental Consultants...It is also a proposal for efficient use of ETSA in-house skills' (refer Appendix 17).

This may have been one reason why ETSA's environment staff were involved earlier in the subsequent Ardrossan project, with involvement in the assessment of vegetation prior to the release of the EIS, commenting on EIS quality, and negotiating with the DEP about the centre-line of the accepted route. Fuller environmental staff involvement was also evident in the Hummocks project, although as noted in Chapters Seven and Eight, they did not have a formal environmental clearance role as was the case for Transport's environment staff. Their increasing involvement was also becoming evident for current projects which were not assessed in this research, and their influence, as was the case in Transport, was about refining projects within the overall context of the organisation's development agenda.

9.7.2 The influence of the Public

The external influence of the DEP in assessing the projects has already been briefly noted, and the focus here is on the public's influence. As a result of controversy about most of the projects informal opposition and political lobbying outside of the formal public consultation process became evident which was not always successful (except in two of the ETSA projects, and a moderate-sized change in Transport's Runway Extension project). In summary:

- informal lobbying by community groups resulted in a more expensive alternative being adopted that was not ETSA's preferred option in the Cherry Gardens project (see also text below);

- arguments between a government vegetation authority and the local agricultural community resulted in a compromise alignment in the Ardrossan project that appeared to satisfy all parties involved, and indicated that ETSA was responding to high levels of external pressures;
- localised controversy and lobbying in the Hummocks project (*ie* push for an upgrade to an existing line rather than constructing a new line) was unsuccessful because the community lacked political clout and 'decibel rating' (refer Chapter Eight);
- a community group opposed to the preferred option in the Adelaide-Crafers project and which supported the 'best' option (Corridor A), was also unsuccessful in getting their preferred option;
- resident groups were vocal about the noise issue in the Runway Extension project but failed to get mitigation measures in place. However, recreational groups (which comprised a larger number of people) were influential in getting modifications to a road re-alignment (*ie* Tapleys Hill road deviation);
- lobby groups (*eg* People Before Transport, Southern Transport Community Coalition) which opposed to the Expressway project were unsuccessful in getting public transport options on board because their critical mass, level of organisation, decibel rating and resources do not appear to have been sufficient to raise any major hurdles to the development. There was very little opposition to the project at a Public Works Committee hearing, and this was believed to be a result of either community apathy, acceptance of the project's inevitability or lack of process understanding (refer Appendix 17). Continued opposition during construction rarely made media headlines, and Transport believed that community acceptance of the project was generally high.

The Tailem Bend and Blanchetown Bridge projects were relatively uncontroversial, although some opposition was evident from parts of the community.¹¹ The influence of the public on minor changes to all of the projects however, was notable, as most of the project changes noted earlier were undertaken after the community consultation period in the EIA process and following pressure from the community (*eg* an amended alignment option and creation of a new diversion road noted for the Adelaide-Crafers project; replacement of local access road in the Runway Extension project).

ETSA's Cherry Gardens project was particularly notable in terms of external community influence on project and EIA outcomes, because it resulted in the adoption of a more expensive route which was not ETSA's preferred option. ETSA was keenly aware of the potential impacts of this public controversy and noted that even '*...if the proposed programme is met, outside*

¹¹For example, issues of multiple easements on properties were a concern in the Tailem Bend project; whilst impacts on businesses and safety was of some concern in the Blanchetown Bridge project.

influences from public or the Government could still jeopardise the project'.¹² The DEP noted that ETSA's preferred direct corridor alternative would not be supported in the Assessment Report because of these public (and other government agency) concern.¹³ The external pressures from the public in the Cherry Gardens project were not united in their stance, and two different pressure groups emerged for the two different alternatives (direct and parallel corridors). Neither group wanted the alternative in their backyard, and the NIMBY (not in my backyard) syndrome appeared strong given the lack of State-wide interest in the proposal. Again, the effectiveness of public pressure related to the 'decibel' rating of the different groups (eg the level of organisation and resources, the timing of formation and action, the level of media attention, and the level of support from influential members in the community. The '*People Before Powerlines*' action group which was formed in response to ETSA's preferred direct route, clearly had the loudest decibel rating. They were:

- formed early in the EIA process (shortly after the first public meeting);¹⁴
- organised with representations to government over several months;¹⁵
- had raised resources of \$5,000 for their campaign;¹⁶
- their submissions were highly detailed and well written;
- organised a petition with large numbers of signatures (around 2,000);¹⁷
- they received significant media attention;¹⁸
- and their stance was supported by influential community members such as the then Shadow Minister for Environment and Planning; the Mt Barker Council (the Mayor lived on ETSA's preferred route) and other politicians.¹⁹

The group noted: '*we...have to raise...the biggest outcry possible to destroy ETSA's confidence.*'²⁰

In contrast, local communities on the parallel route were at a disadvantage. Given the emphasis by ETSA on the direct route in the Draft EIS, the sense of urgency was not evident and there was significantly less response from residents in the early stages of the EIA process. Late in the process, when the possibility of the parallel route was realised (also called the Southern Route), a '*Southern Powerline Route Action Group*' was formed and a petition was presented to the

¹²Hidden footnote.

¹³Hidden footnote.

¹⁴Newspaper Article (12 December 1984) 'No, no, no, to E.T.S.A. power-line plans', Mt Barker Courier: p5).

¹⁵Newspaper Article (date unknown) 'Powerline Petitions...signed and delivered'. Courier?

¹⁶Hidden footnote.

¹⁷Newspaper Article (date unknown) 'Powerline Petitions...signed and delivered'. Courier?

¹⁸Hidden footnote.

¹⁹Hidden footnote.

²⁰Hidden footnote.

Minister for Environment and Planning.²¹ In a letter to the Minister for Environment and Planning, they argued:

‘...the majority, on having read the EIS has assumed the direct route would be taken and had not been aware the Southern Route was therefore being seriously considered. Therefore we have had little time to organise publicity to counteract the biased and uninformed press coverage being given to ‘People Before Powerlines’. We trust that you sir, are far better informed and capable of giving an objective decision without bowing to political powermongering’.²²

However, the *People Before Powerlines* group won the battle. Years after the EIA process, some officers within ETSA acknowledged the value of the final alternative adopted, which demonstrates responsiveness beyond the context of the immediate project:

‘Initially, ETSA may not have been pleased with the Minister’s final decision to approve the southern route and to recommend the use of triple circuit towers. However, in retrospect it was probably the wisest decision. I doubt whether the action group, People Before Powerlines, would have ever accepted a decision to use the northern route...’²³

Overall, the influence of the public was high in making major changes to ETSA projects, and less significant changes to the Transport projects.

9.8 SUMMARY AND CONCLUSIONS

In Summary, Figure (9.9) compares performance in each of the four evaluation dimensions, whilst Figure (9.10) illustrates the mean performance in each project. The *overall* performance in EIA practice for both organisations was ‘just satisfactory’ (grade of C). Figure (9.9) illustrates that for both organisations, performance was generally better on average in terms of EIA compliance (B grade), whilst EIS quality was the weakest area in both organisations and below the ‘just satisfactory’ mark. This did not, however, mean that the organisations were not open or responsive in the EIA process, and both organisations performed between ‘just satisfactory’ and ‘satisfactory’ in both of these areas. In terms of the broader criteria in the CCP framework, EIS quality was deemed as ‘not addressed’, whilst the remaining three criteria were considered ‘partly addressed’.

These broad grades do not, however, take into account the variations in detail, and in all cases, Transport performed slightly better in the four evaluation dimensions. Figure (9.10) illustrates that the best performance overall was evident in Transport’s Expressway project and ETSA’s Ardrossan project, whilst the weakest performance was evident in Transport’s Adelaide-Crafers project and ETSA’s Cherry Gardens project. This is consistent with many of the points made about these two projects throughout this Chapter including the high levels of public and

²¹Hidden footnote.

²²Hidden footnote.

²³Hidden footnote.

government controversy. However, the project which was the weakest performer was ETSA's Hummocks project, and the overall score was lowered due to limited compliance, particularly to the PER guidelines.

Overall, performance in EIA varied between projects even within the same organisation, and this relates in part to the project's location, its rationale, its public visibility, and the power of the community (see Chapter Ten). Of interest is that high compliance did not necessarily mean equivalent performance in proponent openness, responsiveness, or EIS quality, and this was particularly evident in the Cherry Gardens project. In fact, ETSA's very good performance in compliance for this project did not result in a good outcome for them, and because of strong evaluative and public control, ETSA was forced to adopt an option that they believed was more costly and technically inferior. Thus, compliance with the EIA requirements, and even going beyond compliance, does not guarantee a good outcome for developers. It should also be noted that lower compliance does not necessarily mean that the proponent will be less open or responsive, and this was demonstrated in the Ardrossan project where compliance was lower than most of the projects, but responsiveness was even higher. Unlike performance in the Cherry Gardens project, ETSA appeared to be particularly good at compromising between the different parties in this project. The main factors in understanding project outcomes related more to public visibility of a project and prior political commitments to a project.

Relatively poor EIS quality in all of the projects also did not mean that the EIA process was ineffective. In fact the EIA process worked in that:

- a better alignment was adopted for the Cherry Gardens project as a result of the EIA process (despite opposition from ETSA);
- a compromise alignment was adopted in the Ardrossan project which satisfied all parties, and this occurred as a result of the EIS process;
- a modified alignment was adopted in the Tailem Bend project as a result of EIA;
- and less significant modifications were made in the Transport projects as a result of the EIA process (eg amended corridor in the Adelaide-Crafers project).

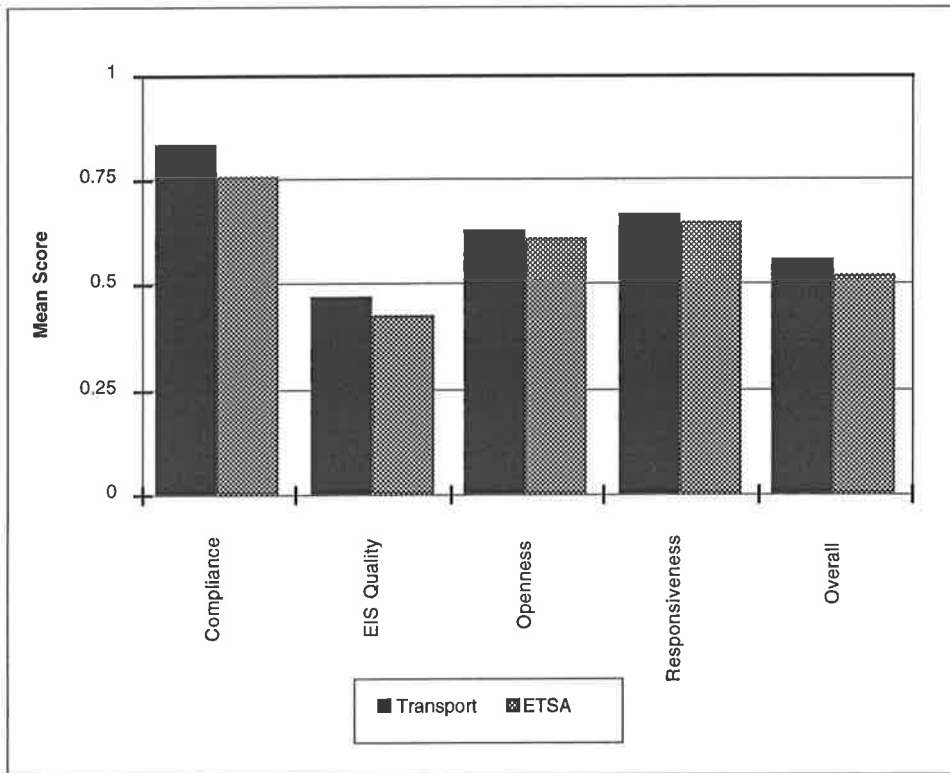


Figure 9.9: Overall performance in the four evaluation dimensions

Key: 1=excellent performance (A); 0.75=satisfactory performance (B); 0.5=just satisfactory performance (C); 0.25=limited performance (D); 0=not attempted or very poor performance (E)

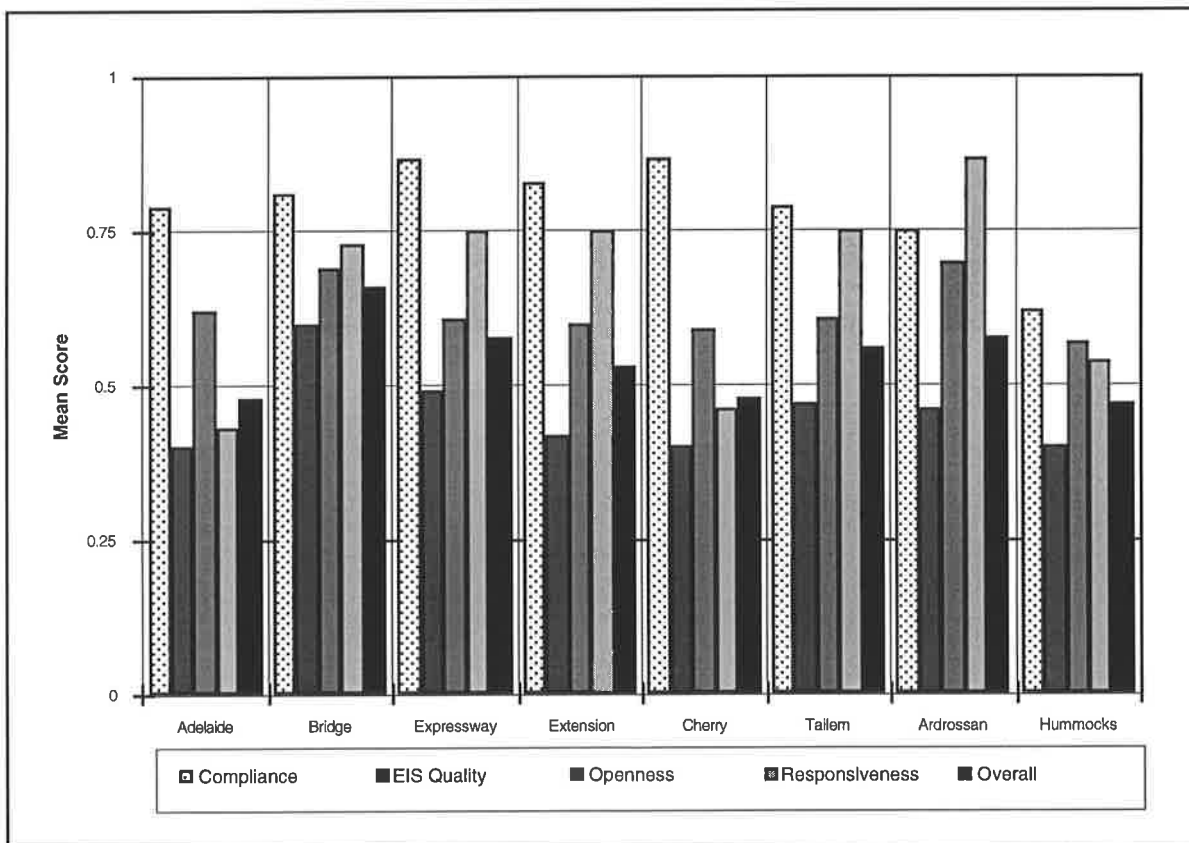


Figure 9.10: Overall performance for each project

Key: 1=excellent performance (A); 0.75=satisfactory performance (B); 0.5=just satisfactory performance (C); 0.25=limited performance (D); 0=not attempted or very poor performance (E)

This effectiveness was primarily a result of strong evaluative and public control, and the organisation's reaction to this pressure. However, there were some constraints to the EIA process (and hence organisational change), and these constraints were strong themes throughout the evaluation of EIA performance. That is:

- the pressures on the organisations to construct a project where the objectives and scope had already been predefined by government (for five of the projects);
- the reliance of Transport on external parties to fund the 'best' alternative, which was not forthcoming (*eg* Adelaide-Crafers); and
- broader alternatives were usually outside the organisation's missions but may have been more appropriate solutions to the problem in the longer term.

Thus, the degree of flexibility in considering alternatives in the EIA process was limited to corridor or route options at the planning stage (rather than broader alternatives at the project conception stage). Overall, both organisations were open and responsive to the extent that they had power over a decision, and where the alternative did not impose significant costs or technical inferiority. Moreover, true 'constructive dialogue' as defined in the openness dimension was not occurring in any of the case studies, and communities only had a moderate level of power in the formal decision-making process (and high levels of power in informal lobbying for some of the projects). If higher levels of consultation (*eg* joint planning committees) had been used by the organisations, then a stronger two-way interaction would have been evident.

Two other points are worth re-emphasising: the failure to comply with the final decision (in ETSA's case), and the inflexibility of construction dates. Inflexible construction dates were a major weakness in the EIA process which resulted in the short cutting of planning and construction staging, and in ETSA's case, indirectly caused impacts during the construction stage for the Cherry Gardens project. The apparent failure to comply with the final decision in the Ardrossan project and the Taillem Bend project also highlights the weaknesses associated with a discretionary decision-making process in EIA, and tends to challenge the utility of the formal EIA process. A long process of environmental studies and consultation was undertaken for these projects, yet ETSA was still able to change the final decision (although it is likely that this was done in consultation with the DEP at a more informal level).

What this highlights is a lack of public accountability and certainty. In the absence of formal transparency mechanisms, how are the public and other parties able to find out if the proposal was constructed as recommended in the EIA process? This problem became particularly evident when attempting to identify the degree of decision compliance for each project. There was simply insufficient information available to evaluate this criterion for most of the projects, and

there clearly needs to be better mechanisms for public follow-up in South Australia's EIA process. The following Chapter now endeavours to draw together the main points from all previous Chapters in defining and explaining patterns of change in Transport SA and ETSA.

Chapter Ten

DISCUSSION & CONCLUSIONS

10.0 INTRODUCTION

The overriding aim of this thesis was to develop a systematic framework for evaluating 'effective' organisational change and behaviour in the EIA context, and to apply this framework to two government organisations within South Australia. Given the lack of evaluation frameworks at this level of analysis in EIA, a fundamental prerequisite for this research was the identification of key factors which characterise 'effective' organisational change in the EIA context. This was achieved from a synthesis of organisational change, policy implementation, and EIA theories in Chapters Two, Three and Four. Three dimensions or broad indicators of organisational change emerged from this review encapsulating an organisational *capability* to implement EIA (Chapter Seven), an organisational *culture* for EIA (Chapter Eight), and the level of EIA *performance* (Chapter Nine). These three indicators of change were set within the context of the EIA system in South Australia, which was evaluated using the *system-evaluation* framework (Chapter Five), and the histories and social-political contexts of both case study organisations (Chapter Six).

This Chapter now draws together the key points from the preceding Chapters, and summarises and evaluates the patterns and degree of organisational change achieved in both Transport and ETSA in the three dimensions of change. Are patterns of change similar to those experienced in the United States? Have the organisations met all or most of the criteria for 'effective' organisational change as a result of EIA, and in particular, is there a match between the organisation's capability and culture to implement EIA, and EIA performance in practice (*ie* the CCP match)? The remainder of this Chapter analyses the reasons behind the organisational responses to the EIA requirement. This analysis is structured around a model of 'contextual filters' which presents four levels of context for understanding EIA and change outcomes. Also encapsulated within this section are recommendations for improving EIA at both the

organisational and at the legislative level. Finally, conclusions are made about the value of the evaluation frameworks, the models of reform and change outcomes with Transport and ETSA.

10.1 PATTERNS OF CHANGE

As noted in Chapter One, organisational responses to EIA can take a number of forms including complete avoidance of EIA, attempts to dampen its impact and carry on as usual, comply in a *pro forma* manner, or the development of procedures which herald a complete change in business operations. Moreover, Chapter Three indicated that there were distinct phases in the EIA and change process in the United States, including an 'awareness and interpretation' phase, a 'compliance and procedural' phase, an 'integrated' phase and a 'programmatic' phase which are similar to those defined in general and greening change models noted in Chapter Two. Clearly, both of the organisations studied in this research did not avoid the EIA requirement, and the phases of change were similar to those in the United States, although there were some slight differences. The following summarises and discusses patterns of organisational change in both Transport and ETSA in terms of Wichelman's (1976) four phases of change defined in Chapter Three. Trends are comparatively illustrated in Figure (10.1), although it was difficult to define exact boundaries for each stage. The trends are more appropriately viewed as a continuum of change, with indistinct transitions (and relapses) between the phases.

10.1.1 An Interpretation Phase (early-late 1970s)?

When EIA was first introduced in 1974, change was immediate in both Transport and ETSA, but as was the case in the United States for many agencies, it was essentially an interpretation phase, limited in scope and did not involve fundamental alterations to the organisation's existing operational climate. As noted above, it is difficult to pinpoint an exact boundary to this phase, but its approximate end appears to have been signalled by Transport's development of more refined EIA procedures in 1977, which is three years after the EIA requirement. As was also the case in the United States, resistance to EIA was evident in South Australia both at a formal organisational level and at a less formal cultural level. This was because EIA was a process that was imposed by an external party, because of the heavy workloads implied by the requirement, and because it was believed by the organisations that there would a loss of control and autonomy and decision-making (*ie* EIA-related decisions would take priority over decisions made as a part of the organisations' "legitimate" work).

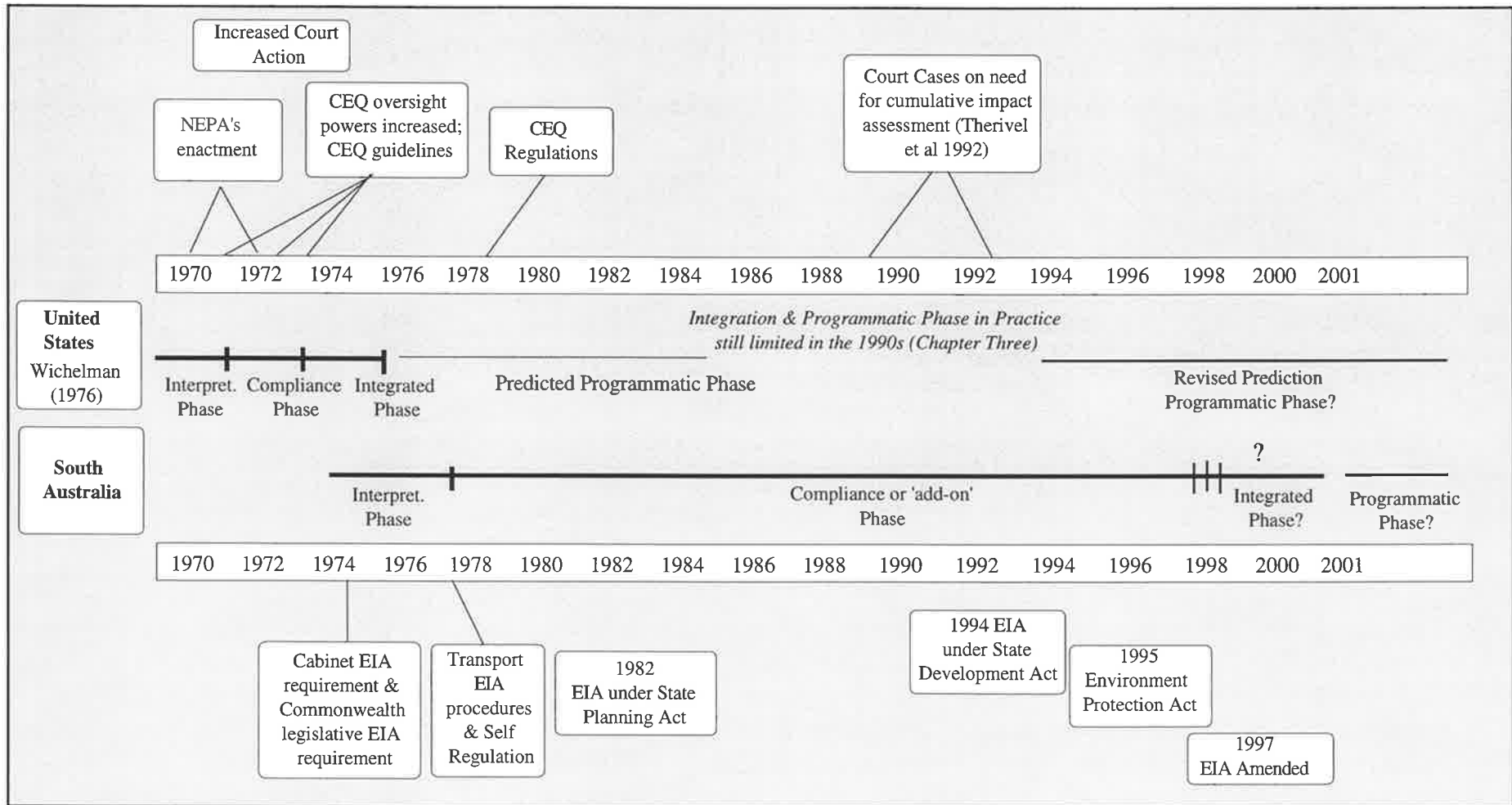


Figure 10.1: Patterns of organisational change in the United States and in South Australia as a result of the EIA requirement

This organisational resistance to EIA was not unique to the South Australian context, and although there has been a paucity of research on this topic in Australia, Formby (1987) found evidence of resistance to EIA in bureaucracies around Australia at the Commonwealth and the State level, with the main concerns about the powers of the Department of Environment to intervene into the realms of other department's authorities (Formby 1987). Formby noted:

'Underlying some of the stated concerns of departments about [EIA] was a sense of impatience with environmental matters and with the possible reduction in ministerial and departmental autonomy... The strong opposition to [EIA] and avoidance of its provisions by some departments, at times ignored or condoned by ministers, greatly retarded the process of acceptance and implementation of [EIA] during its critical early years' (Formby 1987: p220).

At the Commonwealth level, the 'routinisation' of EIA was thus slow, and compliance 'uneven' (Formby 1987: p222). Few EISs were required and those EISs that were prepared were usually of poor quality (Formby 1987).

In contrast to the Australian Commonwealth level, resistance in South Australia did not mean non-compliance (or at least 'visible' non-compliance such as failure to prepare an EIS). Resistance at the formal organisational level also did not appear as significant in South Australia when compared to many government agencies in the United States. For instance, both Transport and ETSA had immediately commenced discussions with the then Department of Environment (DoE) and developed Memoranda of Understanding about the EIA process requirements. Moreover, unlike many agencies in the United States, Transport developed preliminary EIA procedures in the same year that EIA was introduced, whilst ETSA demonstrated initiative in public consultation, and the creation of an Environment Committee for the first EIS to be called under State EIA requirements (the Northern Power Station). Although neither organisation developed environmental goals in response to the EIA requirement, or employed permanent environmental staff specifically for EIA during this interpretation phase, both were considered at the forefront of agency behaviour in South Australia, with ETSA '*leading the pack*' and Transport the '*exemplar*' of how an agency responded to EIA (Chapter Seven).

This trend at the visible organisational level in South Australia differed to the less visible cultural level. As noted in Chapter One, public agencies have a mix of attitudes with similar constituencies of interest groups inside, to those existing outside of the organisation (Fairfax and Andrews 1979). Following some initial resistance, both organisations were visibly demonstrating compliance (at the 'organisational' level), but the initial perceptions and resistance towards EIA at the individual/group cultural level varied (Chapter Eight). There were some groups which were completely responsive and supportive of the principles of EIA (*ie* the 'whole-hearted supporters'); there were others who were public and 'neutral administrators' or harmless 'jokers' about the process; there were other groups which were supportive of EIA

principles, but not of the time and resources that EIA required (the 'sympathetic, but' grouping), and then there was a minority group in both organisations which believed that EIA was a 'nuisance' and a 'waste of time'.

These fears and resistance at the cultural level may have arisen because the notion of 'groupthink' (eg pride and illusions of invulnerability) was being challenged, which was also the case in the United States during this interpretative phase. Because the minority and resistant groups had a 'lot of clout' in both Transport and ETSA during the early years of EIA's operation, EIA outcomes could be bypassed or ignored in practice within both Transport and ETSA (Chapter Eight). Thus, EIA at a 'hidden' level was not being complied with on the ground, and the impact of EIA at a cultural level was less than at the formal more visible organisational level of compliance. This trend continued during the compliance phase.

10.1.2 A Compliance Phase (late 1970s-mid 1990s)?

As was the case in the United States, there appeared to be a procedural compliance phase in the change process. In the United States, this was characterised by compliance to EIA, some remnant resistance, and was facilitated by new CEQ guidelines and court action which increased policy legitimacy, enforceability and specificity. During this phase, the process was still an 'add-on' to existing operations rather than fully integrated (*ie* 'grafting' behaviour defined in Chapter Two). Unlike in the United States, the compliance phase in South Australia (or perhaps more aptly termed the 'add-on' phase) lasted much longer.¹ There was also no court influence in South Australia to provide incentive for compliance, and as a result, the phase was not characterised by 'volume outweighing substance' to fulfil legal requirements and to avoid court action. Yet similar to experience in the United States, this phase in South Australia was characterised by a gradual increase in formal capability to implement the EIA process in both organisations (Chapter Seven), such as the development of training courses on EIA, the employment and expansion of permanent environment staff to support the EIA process (the first permanent officer was employed in 1976 in ETSA and in 1979 in Transport), the creation of environmental groups (1979 in ETSA; 1986 in Transport), the development of environmental goals, and the continued compliance to the requirement at a 'visible, organisational' level during the late 1970s and 1980s.

Despite the expansion of organisational capability for EIA during this phase, the numbers of environment staff were still low in both Transport and ETSA which inhibits the operation of the internal model of reform (thus further highlighting the preconditions necessary for this model to operate in practice) (refer Chapter Three). Low staff numbers meant that environment staff

¹From the late 1970s to the mid-late 1990s in South Australia (approximately), compared to 1971 to 1973 in the United States.

were unable (and are still unable) to be 'active' planning members for all projects. 'Lone deviants' also find it difficult to facilitate change as they gradually conform to the dominant *status quo* in a process of socialisation (refer Chapter Three). Although environmental officers within Transport had more sources of power and ability to influence the planning process because of their formal environmental clearance role during the 1980s and 1990s, they lacked the critical mass to follow through on all projects; and although ETSA had higher numbers of environment staff, they lacked power sources and the formal environmental clearance roles to have major influence on the project delivery process (Chapters Seven and Eight). This is consistent with experience in the United States, where the numbers of environment staff, although higher than in Transport and ETSA, were considered insufficient to adequately implement or oversee the EIA process, and were sometimes separated from the planning process due to EIA roles and structural location (Chapter Three).

Indications that EIA was an 'add-on' to normal planning and decision-making processes (despite EIA's increasing status at the formal capability level) was demonstrated in the interviews (Chapter Eight) and in the project case studies (Chapter Nine). Even during the 1980s, remnants of the 1950s and 1960s 'cowboy' culture in both organisations were evident; public participation was still limited (and indications of agenda control were evident); higher levels of EIA could be bypassed in Transport; and EIA outcomes continued to be ignored by construction engineers in both organisations. Thus, although visible compliance at the organisational level for specific projects was relatively high (refer Chapter Nine), non-compliance still continued at a 'hidden' cultural level (particularly in Transport due to its reliance on internally-based EIA procedures). EIA policy/procedural requirements were complied with, but not to the extent that they fundamentally altered project decision-making, primarily because compliance occurred at a late stage in the project delivery process (Chapter Eight and Nine). This was the case for both organisations.

The 'best' project alternatives in environmental terms were also not always adopted (*ie* Adelaide-Crafers, Cherry Gardens), and economic factors tended to outweigh environmental factors in some cases. Moreover, because of the discretionary nature of the EIA decisions, ETSA failed to comply with the final decisions on two of the project case studies (Taillem Bend and Ardrossan projects). EIS quality was also generally poor for all of the project case studies, and limitations were similar to those noted in Chapter Three. In short, there was no questioning of project objectives, and EIA was more of a project refinement and management tool, or, in the words of Ortolano and Shepherd (1995), an *ex post facto* rationalisation tool, which is consistent with experience in the United States during this stage of the change process. Moreover, even though there was a belief by many that EIA was a useful compliance tool, the results in Chapter Nine indicate room for improvement in this area, with limited reference in the EISs to other legislative requirements or standards, particularly in ETSA.

Nonetheless, there was no overt resistance demonstrated in the project case studies assessed (Chapter Nine and Appendix 17). Both organisations had pre-empted the EIS requirement for the Adelaide-Crafers, Cherry Gardens and Tailem Bend projects, and there was opportunity for the EIA process to at least influence the site selection stage (whereas in some cases, EIA can have no influence at all because all important decisions including project locations are already made; refer Ortolano 1993). In this respect, there was evidence of substantive changes to the projects in both organisations during the 1980s,² and both organisations demonstrated levels of openness and responsiveness in the EIA process which were slightly above the just satisfactory mark (although performance was relatively low for Transport's Adelaide-Crafers project, and ETSA's Cherry Gardens project which reduced the overall average grades).

10.1.3 An Integrated Phase (late 1990s onwards)?

As was the case in the United States, there is some question about whether Transport and ETSA entered (or are entering) an 'integrated' phase in EIA behaviour. Government organisations in the United States were, according to Wichelman (1976) entering the 'integrated' phase of EIA implementation in 1973. But because full integration of EIA into organisational planning processes was still not evident in research which postdated Wichelman's research, it may perhaps be more appropriate to term this phase a 'routinisation' phase. That is, where EIA had become routine practice with evidence of substantive improvements to projects, but where EIA was still not fully integrated into existing decision-making processes at an early stage (*ie* project conception). The move into this phase in the United States was facilitated with increasing experience in EIA, learning from court action, and because of the realisation that EIA would not prevent the organisations from pursuing their original missions.

In South Australia, the project case studies which underwent EIA in the mid 1990s (Expressway, Runway Extension, Blanchetown Bridge, Hummocks) demonstrated that EIA was still essentially an add-on for major projects (but was now 'routine' practice). For instance:

- there was no clear evidence that performance had improved in EIA practice over time in the project case studies assessed in this research;
- EIA was still focused on the alternative site selection phase rather than the project conception stage;
- there was still some minor evidence of agenda control and limited transparency in public communication in Transport due to a residual 'arrogance' associated with being the 'experts' (Chapter Eight), and because decisions by government prevented the release of some

²This was demonstrated in the project case studies which underwent EIA during the 1980s (Adelaide-Crafers, Cherry Gardens, Tailem Bend, and the Ardrossan project).

documents (eg refer Runway Extension project). However, the culture was gradually changing in this respect. Because the public were not involved on 'joint planning committees', 'constructive dialogue' was sometimes limited despite genuine attitudes towards the consultation process in both organisations (Chapters Eight and Nine);

- the timing of public consultation was good (and early in the EIA process), but still initiated after key decisions about a project's objectives and means of achievement had been made;
- the emphasis in EIA was on impact mitigation and still focused on project refinement;
- and there was no evidence that a project had ever been rejected in either organisation for environmental reasons (although projects were modified substantially in ETSA, and at a lesser level in Transport).

Employee perceptions about environmental commitment at the organisational level also indicated that, during the late 1990s, commitment in *practice* was still lower than commitment in *theory* at the organisational level (*ie* the rhetoric) (Chapter Eight).

At the same time, there were signs at a cultural level that EIA was becoming more integrated, and Transport in particular, was demonstrating evidence of going beyond compliance to the EIA process. With experience in EIA (and other factors explored later), the organisational cultures for EIA had changed dramatically in the 1990s relative to the 1970s, and all of those surveyed within the organisations valued the environment at least equally with other technical and economic issues. According to the interviews, some employees (but not all) were also beginning to think about environmental issues upfront, rather than as an add-on which signals entry into a more integrated phase of operation, although the exact date for this (if there is one) is unclear. Resistance to EIA at the cultural level was also isolated to a very small minority in both organisations, and virtually non-existent in ETSA except for continued concerns about time frames in the EIA process. Although there were also some communication problems in the EIA process within Transport due in part to functional group tensions and due to the presence of groupthink (Chapter Eight), this may improve with increasing experience in the project management approach which was adopted in the 1990s.

Marked changes at the organisational capability level had also been made in both organisations in the late 1990s during this 'integrated' or 'routinisation' phase, although not directly as a result of the EIA requirement. This was characterised by the increasing status and higher structural locations of environment groups in both organisations, and the development of more complex and coordinated environmental management systems. Figure (10.2) illustrates the broadening nature of the environmental management arena in both organisations from 'reaction' to 'compliance' to 'best practice', which tends to reflect the greening models defined in Chapter Two (although ETSA appeared to be relapsing back to a compliance rather than a best practice phase, due in part to its fragmentation and privatisation in the mid-late 1990s). Transport's

internal EIA system had also improved since the 1970s, but as was the case in the United States, lacked substantive goals about upfront expectations on project 'acceptability' levels.

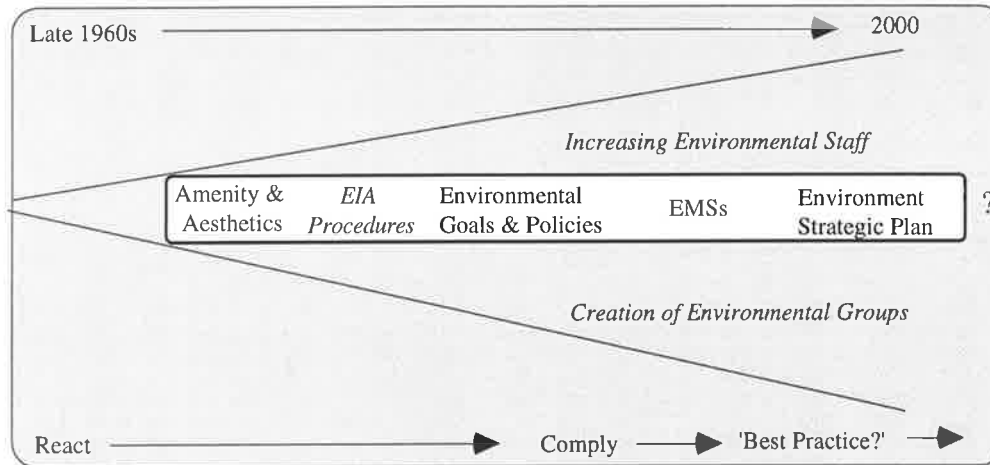


Figure 10.2: Expanding environmental focus from reaction to best practice in Transport and ETSA (although ETSA appears to have returned to the compliance phase despite being at the forefront in the 1980s)

10.1.4: A Programmatic Phase?

In the United States, Wichelman's predicted 'programmatic' phase³ did not appear to occur until the 1990s, and is still evolving. One of the main triggers for this increasing 'programmatic' focus in the United States was a number of court cases between 1988 and 1991 which highlighted the need for cumulative analysis (Therivel *et al* 1992; Therivel 1993; Webb and Sigal 1992; NAPA 1998).⁴ In South Australia, however, there was no incentive for programmatic EIA (or Strategic Environmental Assessment), and problem resolution in both organisations remained focused on the 'quick fix' and incremental solution such as the construction of a new road to resolve a transport problem, or of a new transmission line to improve energy supply, efficiency and reliability. Although demand management and higher strategies were being implemented in both organisations, they had still yet to be adequately integrated with environmental considerations, and Strategic Environmental Assessment was all but unheard of. The examples of quick fixes to a problem exemplified in most of the project case studies on EIA practice is consistent with the traditional construction cultures of the

³In other words, the practice of Strategic Environmental Assessment of higher policies, plans and programmes as opposed to the project level of decision-making.

⁴For example, in the early 1990s, public groups sued the Department of Energy to force it to prepare more comprehensive EISs (NAPA 1998).

organisations, and is also consistent with the way in which many cultures are socialised into thinking. As noted by Senge, it is difficult to visualise problems in a holistic sense:

'From a very early age, we are taught to break apart problems, to fragment the world. This apparently makes complex tasks and subjects more manageable, but we pay a hidden, enormous price. We can no longer see the consequences of our actions; we lose our intrinsic sense of connection to a larger whole. When we then try to "see the big picture," we try to reassemble the fragments in our minds, to list and organise all the pieces. But, as physicist, David Bohm says, the task is futile - similar to trying to reassemble the fragments of a broken mirror to see a true reflection. Thus, after a while we give up trying to see the whole altogether' (Senge 1990: p1).

The introduction of Strategic Environmental Assessment and seeing a more 'holistic' picture would indicate entry into Wichelman's programmatic phase. As noted in Chapter Seven, Transport was making a start in the right direction, with the drafting, at the time of this research, of a systematic policy development framework which made brief reference to environmental considerations. However, ETSA (in particular Electranet), did not have any control over the broader policy process, because ETSA had been fragmented into different subsidiaries, each with a different and separate role related to the supply and transmission of electricity, and the broader picture was lost. ETSA could however, instigate programmatic EIA for such things as programmes of vegetation control under transmission lines, or site-wide EISs to evaluate 'geographically contiguous actions', as was occurring in the United States Department of Energy (NAPA 1998: p5). Nonetheless, the lack of SEA in Transport and ETSA was not unique to South Australia, and SEA has been limited throughout the State and in Australia (see McCarthy 1995; 1996).

10.2 THE CCP MATCH & DEGREE OF CHANGE

At the time of this research, the *CCP evaluation* framework was particularly useful in highlighting the ways and areas in which the organisations had changed by the late 1990s, and where there was still room for improvement. Performance for both organisations in capability, culture and EIA performance were summarised at the end of Chapters Seven, Eight and Nine respectively. The combined results are summarised in Figure (10.3) which indicates that *overall* performance, and the response to EIA, was very good in both organisations and slightly stronger in Transport with 88% of criteria at least 'partly addressed', which compares to 77% of criteria at least partly addressed in ETSA.

The most important point to note, however, is the slight mismatch between *capability*, *culture* and EIA *performance* in practice. Performance for both organisations was strongest in terms of the *capability* or the rhetoric to implement EIA with more criteria 'addressed' (55% in Transport and 52% in ETSA). This compares to a weaker performance in the *culture* dimension with 28% and 21% of criteria 'addressed' for both Transport and ETSA respectively, and most of the

criteria in the *culture* dimension were 'partly addressed' (64% for both organisations). This was also the case for the EIA *performance* dimension in EIA with 75% of criteria 'partly addressed' in both organisations (compliance, openness and responsiveness) and 25% of criteria 'not addressed' or generally of unsatisfactory quality (EIS quality). As noted in Chapter Nine, however, these broad scores for EIA performance do not take into account variations in performance between the evaluation categories and between different projects, which were evident within the supporting detail in Chapter Nine and in Appendix (17).

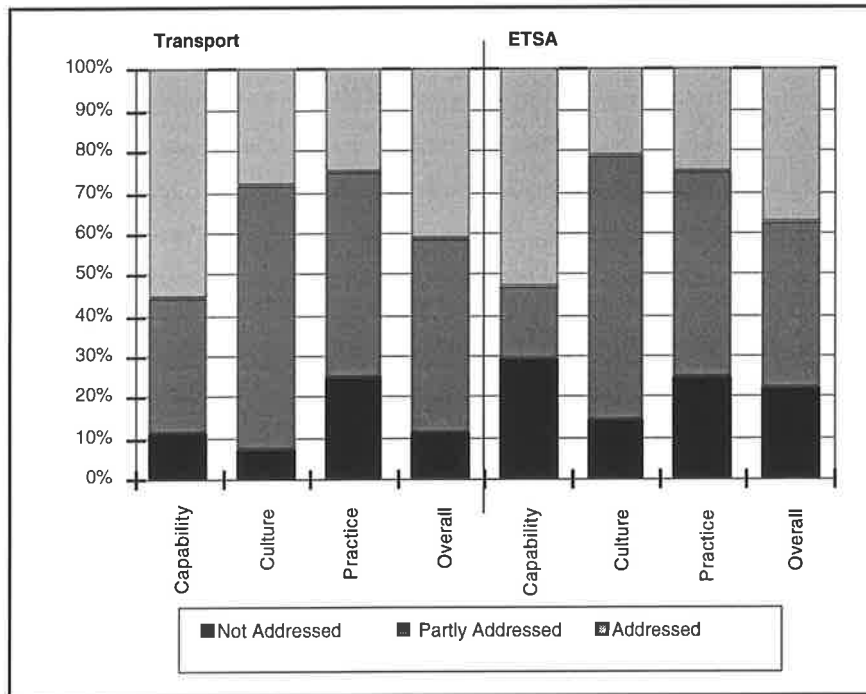


Figure 10.3: Overall performance in the Capability, Culture, Performance dimensions of change in Transport and ETSA

Although the organisational capability for EIA was initially slow to develop in the early years of EIA (Chapter Seven), overall, the surface *capability* changes were faster and more pronounced than *cultural* changes, and the *cultural* changes and perceptions about EIA outcomes were more consistent with the realities of EIA *performance*.⁵ But formal capability changes did appear to influence cultural change. By the time that Environmental Management Systems had been developed and the environment was 'mainstreamed' in the 1990s, the attitudes of many

⁵Most of those surveyed in Transport and ETSA believed that EIA was 'moderately effective', and while the evaluation of practice in Chapter Nine indicated that overall performance on average was slightly above the 'just satisfactory' mark, the mean scores were reduced by poor EIS quality. In fact, EIA compliance, and proponent openness and responsiveness were moderately effective (between the 'just satisfactory' and 'satisfactory' marks) which reflects employee perceptions). It is, however, interesting to note some discrepancies between perceptions and practice, whereby ETSA believed that the public had a relatively low influence on EIA and decision-making (Chapter Eight), whereas in practice, the public had quite a high influence for all of the case studies except for the Hummocks project (Chapter Nine).

employees towards EIA and towards environment staff had become more supportive in both organisations. In other words, attitudinal change appeared to *follow* behavioural change for many employees, rather than the other way around. As noted in Chapter Two, attitudinal change is often cited as the major target of change, but others believe, which is consistent with the findings in this research, that changed roles and behaviour 'forces' new attitudes (eg Beer *et al* 1990; Petts *et al* 1998). The notion of 'professional control' in this sense was becoming more pronounced in both organisations. However, as indicated in Chapter Seven, EIA performance was confounded by the realities of political, time and resource constraints which explains the relatively low EIA performance.

Although change is a dynamic process, it was possible to gain a snapshot measurement of the degree of change in both Transport and ETSA according to some of the categorical change models defined in Chapter Two.⁶ Appendix (18) summarises four scales of change defined by Dunphy and Stace (in Senior 1997) which included 'fine tuning' (level 1), 'incremental' change (level 2), 'modular transformation' (level 3), and 'corporate transformation' (level 4). Between the 1970s and 1990s, change in both organisations at a broader level (*ie* beyond EIA) was major with 'modular transformations' during the 1970s and 1980s, and 'corporate transformations' during the 1990s. However, changes in the EIA and environmental management arena related more to 'fine tuning' and 'incremental' change, or in other words, 'single loop' learning (refer Chapter Two). In this respect, there were no radical or fundamental changes to values in the organisations, and 'fine tuning' was characterised by ongoing improvements to the match between strategy, structure, people and processes (eg creating new specialist units, refining procedures and policies). However, the difference between 'fine tuning' and 'incremental' change was not clear cut in this model.

The organisational approach to EIA and environmental management in Transport and ETSA was also broadly placed within the context of Hunt and Auster's (in Hass 1996) five stage environmental typology of corporations defined in Chapter Two (refer Table 10.1). In terms of environmental practice (*ie* the degree which a programme reduces environmental risk), both Transport and ETSA fell between the categories of '*fire fighter*' (stage 2) and '*concerned citizen*' (stage 3), which suggests between minimal and moderate environmental protection, and which is consistent with the evaluation of EIA performance in Chapter Nine. Although strong efforts were being devoted by both organisations to minimise environmental impacts, environmental damage did occur on the ground during the construction phase for most of the projects. With the adoption of, and increasing experience with, Environmental Management

⁶It was, however, difficult to place the degree of change into any one particular category. For instance, the degree of change in both Transport and ETSA could fit into each of the four scales of change defined by Dunphy and Stace (1993 in Senior 1997) (see Appendix 18).

Plans and monitoring, this may change in the future with a move into 'pragmatist' or even 'proactive' stages of behaviour.

Performance was judged to be higher in Hunt and Auster's other categories relating to resource commitment, support and involvement of top management and public relations. In these categories, both Transport and ETSA fell between the '*concerned citizen*' (stage 3) and '*pragmatist*' (stage 4). In terms of managerial mindsets, both organisations appeared to be in the 'pragmatist' stage (*ie* environmental management is considered an important business function), whilst in terms of integration, ETSA was in the 'concerned citizen' stage (*ie* minimal interaction of EIA with other departments), whilst Transport was in the 'pragmatist' stage (*ie* moderate integration of EIA with other departments). In terms of performance objectives (the rhetoric), Transport was again at a more advanced stage and appeared to be moving towards the 'proactivist' category (stage 5) (*ie* actively manage impacts), whereas ETSA was in the 'pragmatist' category of change (*ie* minimise negative impacts). These trends in Transport indicate moves towards 'double loop' learning (refer Chapter Two), with more extensive changes, and review of organisational value systems.

Table 10.1: Continuum of environmental performance in Transport and ETSA based on modified version of Hunt and Auster's model (in Hass 1996: p68) (shaded boxes represents performance in Transport and ETSA)

	BEGINNER	FIRE FIGHTER	CONCERNED CITIZEN	PRAGMATIST	PROACTIVIST
Degree programme reduces environmental risk	no protection	minimal protection	moderate protection	comprehensive protection	maximum protection
General mindset of corporate managers	Environmental management unnecessary	Environmental issues should be addressed only as necessary	Environmental management is a worthwhile function	Environmental management is an important business function	Environmental management is a priority item
Resource commitment	Minimal resource commitment	budgets for problems as they occur	consistent, yet minimal budget	generally sufficient funding	Open-ended funding
Support and involvement of top management	No involvement	Piecemeal involvement	Commitment in theory	Aware and moderately involved	Actively involved
Performance objectives	None	Resolve problems as they occur	satisfy corporate responsibility	(ETSA) Minimize negative environmental impacts	(Transport) Actively manage environmental matters
Integration with company	Not integrated	Involved with other departments on piecemeal basis	(ETSA) Minimal interaction with other departments	(Transport) Moderate integration with other departments	Actively involved with other departments
Involvement with public relations	None	None	Moderate	High	Daily

Another key point to note is that the degree of change and the balance between *capability*, *culture* and *performance* varied over time. This was demonstrated in part by the project case studies assessed in this research, where EIA performance for individual projects varied over a span of two decades even within the same organisation (and the reasons for this are noted later). According to Wandesforde-Smith and Kerbavaz:

'...the impact assessment process is not self-sustaining and self-regulating. In the real world that is inhabited by people involved in impact assessment, learning and improvement cannot be taken for granted by virtue of the process used in analysing and making choices' (Wandesforde-Smith and Kerbavaz 1988: p190).

What became apparent was that, although environment staff were socialised into the dominant norms of the organisations (and they needed to be 'moderate' in their behaviour), the continued prompting of environment staff in the project delivery process was necessary to ensure that environmental factors continued to be incorporated in the midst of multiple other requirements and pressures. The internalisation of environmental values within engineers and project managers does not necessarily guarantee the full integration of environmental issues into project development, nor that these attitudes will be maintained, because of the multiple demands placed on the planning and design process. As suggested throughout this thesis, political, time and budget constraints all place immediate pressures on those responsible for project delivery, particularly at a time when economic factors dominate the government's concerns.

The changing CCP balance is difficult to identify, but can be visualised using a preliminary and deliberately simple model which was developed by Petts *et al* (1999) to represent changing compliance patterns to environmental requirements within private sector organisations (Figure 10.4). Figure (10.4) illustrates that a company's mean compliance to an environmental requirement (line a) is dependent on fluctuations in an organisation's climate (*ie* its capability to comply such as economic factors, people, knowledge resources, and understanding of the requirement), and its culture (*ie* internal attitudes towards change and compliance). According to Petts *et al*, these factors in turn, are affected by external market and social pressures. Line (c) in Figure (10.4), which reflects organisational climate, is open to greater variation and is more vulnerable to non-compliance (symbol X), than when compared to an organisation's culture (line b) which is more enduring (Petts *et al* 1999: p26).

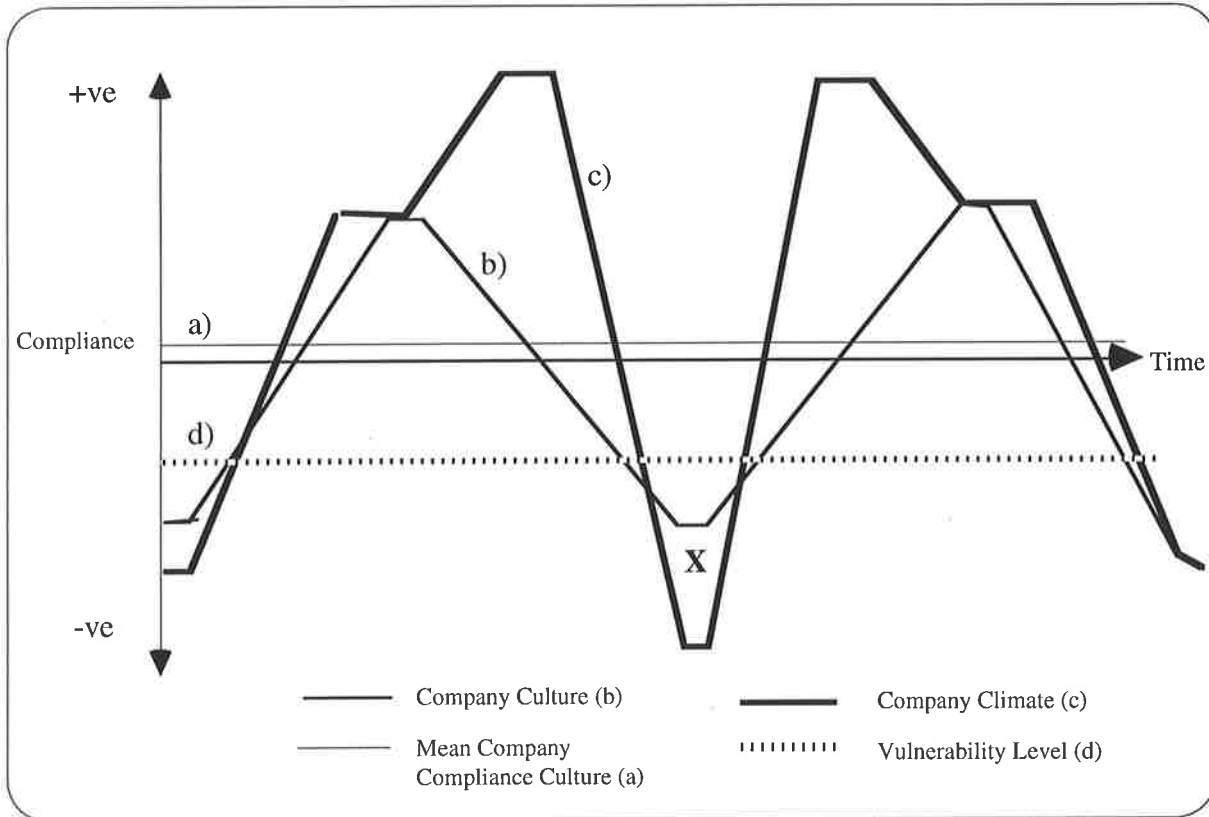


Figure 10.4: Hypothetical representation of the compliance state of Business Co. Ltd (Petts *et al* 1999: p26)

10.3 EXPLAINING CHANGE OUTCOMES: THE CONTEXT

What factors were particularly relevant to explaining the organisational responses to EIA in the South Australian context? Understanding how and why change occurred, and the degree of change in both Transport and ETSA is a highly complex process because there are so many variables which will affect the change and policy implementation process. Chapters Two and Three sought to provide a sound basis for understanding some of these different influences. In an attempt to account for the multitude of influences, a 'contextual filters' model is proposed which contains four levels through which EIA outcomes are filtered (refer Figure 10.5). From broadest to most detailed, these filters entail:

- Filter (1): the broader social, economic, political and environmental context;
- Filter (2): the nature of the EIA requirement;
- Filter (3): the organisational context; and
- Filter (4): the project context.

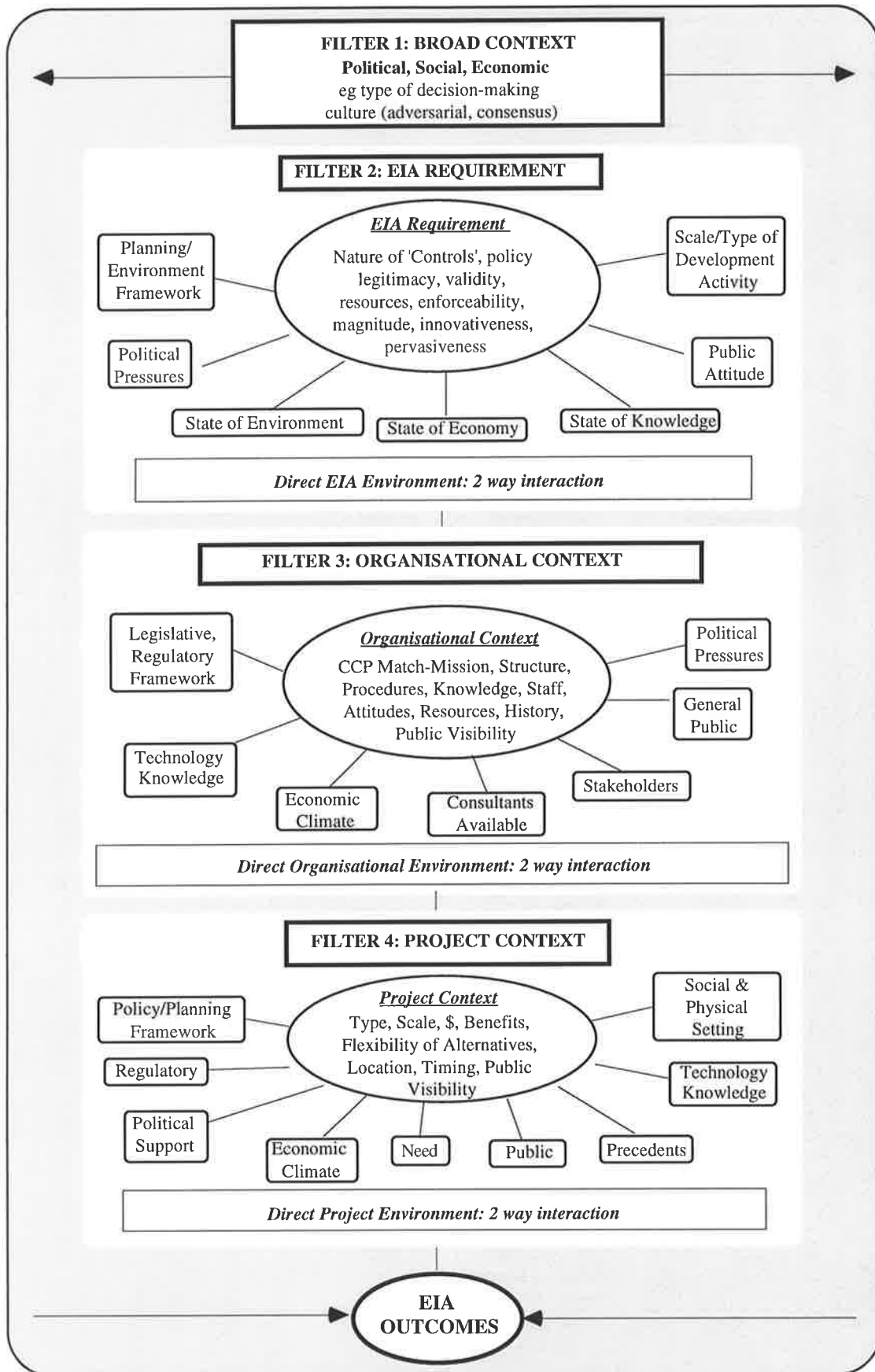


Figure 10.5: Contextual Filters model for understanding and explaining organisational change and EIA outcomes

The filters are not mutually exclusive and are a simplistic representation of a complex web of interactions. Moreover, not all of the variables will be relevant to a particular context, but they are useful for highlighting the factors which may potentially influence EIA outcomes. Brown (1999: p69) also refers to the potential for environmental policies to be '*filtered*' through *unique political systems of 'layers'*.' Similarly, Marsden (1998) refers to the importance of context in understanding EIA outcomes, in terms of social/political context, environmental/economic context, and legal/administrative context. In particular, Marsden notes that '*contextual frameworks are necessary to enable comparisons to be made; without them it is unrealistic to expect that what is learnt in one country may be applied in another*' (Marsden 1998: p261). This research adopts a slightly different approach to Marsden's approach, with more contextual variables. Each contextual filter and how it has affected EIA and organisational change is briefly discussed below.

10.3.1 Filter (1) & (2): Broad context & EIA Requirement

As noted by Marsden (1998: p263), '*without a democratic government there are no opportunities for the public to shape the passage of legislation, and the likelihood of the environment being considered alongside the economy in decision-making will be slim.*' EIA in South Australia was set within the context of a liberal democracy and an open, consensus-based decision-making culture, as opposed to an adversarial one which is reliant on the courts (as was the case in the United States; refer Chapter One) (filter 1). Filter (2) in Figure (10.5) indicates a number of factors which will influence the nature of the EIA requirement in a particular jurisdiction including the existing planning/environment protection framework, political pressures and support, the state of the economy and the environment, and public attitudes among other things. In the South Australian context:

- when EIA was introduced, it enjoyed strong political support in a time of increasing social and 'democratic' reform in many arenas;
- the state of economy was relatively good at the time of EIA's introduction, but declined over the years during its implementation. Given the declining state of the economy and slowing of development activity, there were strong political pressures to encourage development in the State during the 1990s (and hence streamline the EIA process and increase State government control over outcomes, with greater political discretion, flexibility and stronger evaluative control in the EIA system);
- at the time of EIA's introduction, public concerns and pressures were strong about the declining state of the environment, and although conflict declined in the 1990s, public pressures continued to be high throughout EIA's implementation which influenced organisational responses, and which increased public accountability/control mechanisms in the EIA system;

- the state of knowledge about the environment and EIA was initially low, but South Australia had forewarning about EIA from experience in the United States and at the Commonwealth level, which enabled the government to learn from experience and to adopt greater caution about how the EIA process was going to operate in practice (*ie* it took nearly ten years to enshrine EIA into legislation); and
- the planning and environmental protection framework was integrated when EIA was first introduced, but fragmented in later years with the separation of the Department of Environment and Planning. However, environmental protection and development control legislation became increasingly stringent and co-ordinated in the 1990s, which strengthened the validity of the EIA process as a compliance tool, and directly linked EIA with the environment protection system (*ie* the Environment Protection Act).

The key point to note, however, is that environmental awareness and environmental initiatives were becoming stronger on all fronts from the late 1960s onwards (particularly with the Environment Protection Act 1993). Thus, decision-making within both organisations is likely to have improved even in the absence of EIA. But what EIA did provide was a systematic means of incorporating and *coordinating* a comprehensive range of environmental issues and requirements into the existing planning process. As noted by Bartlett:

'EIA imbeds procedural ecological rationality in political institutions. By establishing, continuously reaffirming, and progressively legitimating environmental values and ecological criteria as standards by which individual actions are to be structured, chosen, and evaluated, EIA institutionalizes substantive ecological rationality... It exhibits considerable potential as a device for negative feedback.. Its **coordinative capabilities** are substantial. It is modestly robust and is proving to be surprisingly flexible... It changes patterns of relationships among organizations. It creates power incentives, formal and informal, that thereafter force a great deal of learning and self-regulation upon individual and organizational actors' (Bartlett 1990: p91; highlight added).

Without the EIA process, the integration of environmental factors into planning and decision-making may have been more *ad hoc*, focused on isolated issues without coordination with other environmental issues and requirements,⁷ and lacking in formal and consistent provisions for public consultation and transparency.

What were the particular features of the EIA system in South Australia which triggered organisational change? Using the *system-evaluation* framework, Chapter Five evaluated the strengths and weaknesses of the EIA requirement in South Australia in terms of 'controls' and 'principles' in EIA. It was found that the South Australian EIA system did not meet all of the criteria associated with an 'ideal' system, particularly in terms of judicial control and formal public-agency control. Why then did the organisations change despite the lack of judicial

⁷For example, focused only on vegetation impacts in response to native vegetation regulation requirements.

control in practice, which was so important in the United States? Moreover, why did the initial overt resistance towards EIA appear less in South Australia than when compared to many agencies in the United States (*ie* EIA procedures were developed immediately in Transport, public consultation initiatives were conducted in ETSA)? What factors were facilitating the transition into integrated EIA?

Some of the differences in organisational responses between South Australia and the United States can be explained in part by differences in the EIA system 'controls' (*ie* filter 2), which in turn can be related to many of the concepts defined in Chapter Two (*ie* policy specificity, magnitude). In particular, the lack of judicial control in triggering organisational change in the early and critical years of EIA's introduction in South Australia, was balanced by a number of other influential factors which were not present in the United States. First, although the EIA system in South Australia lacks an upfront environmental policy, the *specificity* and *procedural control* of the EIA requirement was much clearer than in the United States, partly because as noted above, South Australia was forearmed with knowledge about the EIA process from the United States' experience. This specificity and procedural control was increased in 1978 in South Australia with the creation of a detailed handbook on EIA, although procedural control and detailed guidance on the process did decline in later years (see Chapter Five). Nonetheless, procedural control and specificity were strong in the critical early years of EIA, and as noted in Chapter Two, higher policy specificity is predicted to enhance the chances of compliance to a new policy requirement. In contrast, when EIA was first introduced in the United States, the process was highly ambiguous, there were uncertainties about who was to oversee the process, and the interpretation of the process was left to agency discretion (Chapter Three). Thus, the potential for compliance was reduced. However, once more detailed guidelines were prepared in the United States, and policy specificity improved, compliance was enhanced in the United States.

Second, the degree of *magnitude* and *pervasiveness* of the EIA requirement in South Australia was less than in the United States. EIA was still a 'revolutionary departure' from existing behaviour in South Australia (Evans 1976), but it did not apply to *all* agency actions such as policies or programmes, whereas in the United States, EIA could encapsulate higher levels of decision-making such as policies and programmes (*ie* the programmatic or SEA level). The Australian Commonwealth EIA process, which applied to Transport, could technically encapsulate broader policies and programmes, but this requirement has tended not to be interpreted literally, and the focus has remained on the project level of EIA. The magnitude and pervasiveness of change also appeared to be less in ETSA than in Transport (and this may also explain slightly lower levels of resistance in ETSA). Unlike in Transport, ETSA's projects were less likely to trigger the Commonwealth EIA process (*eg* projects did not usually require Commonwealth funding or involvement as did many of Transport's projects), and hence the

workload was less. The EIA process also affected lesser numbers of staff in ETSA than in Transport, hence the EIA requirement was of lower pervasiveness, which means less potential for resistance (Chapter Two).

Third, although EIA in South Australia initially had no legislative or court backing, the presence of *evaluative control* and *administrative control* was much stronger in South Australia than in the United States (and hence policy *legitimacy* was also strong). The EIA process could be enforced by the then Department of Environment (DoE) (and its Minister), which had an oversight and administering role, and, although resources were limited, the EIA Branch could 'make or break a project' (Chapter Five). Unlike in the United States, the DoE and its Minister could control when an EIS was required, could review the quality of EISs and request further information, and could make recommendations in the final decision. Moreover, the Transport department was affected by the Commonwealth EIA process which had an administrative authority with similar powers to the State's DoE. But more importantly, the Commonwealth government had control over the funding of most of Transport's projects, and this is a form of *instrumental control* (refer Chapter Two). Thus, the incentive for Transport to comply in the early and later years of EIA was further enhanced to ensure funding was obtained. In contrast, the CEQ as an EIA oversight body in the United States, had no enforcement or funding authority, and the decision to prepare an EIS and the final decision based on EIA outcomes was at the proponent agency's discretion. This greater external and evaluative control in South Australia increased the potential for compliance, and may be another reason for explaining why both Transport and ETSA changed, despite the lack of court enforcement. As noted by Ortolano (1993), like judicial control, evaluative control can also increase the levels of EIA effectiveness.

Moreover, the very lack of judicial control in South Australia may also explain (i) why there was less 'overt' resistance at the organisational level; (ii) why there was less of a focus on 'volume' as opposed to 'substance' in EIA, and (iii) why the compliance or add-on phase appeared to last longer in South Australia than in the United States. That is, court action in the United States increased the opposition of some agencies to EIA (although they complied to avoid legal attacks). The lack of delays associated with court action in South Australia (and the DoE's attitude that they were there to 'help not to hinder') meant that there were less impediments for agencies in South Australia to carry on with missions as usual (hence less resistance). As suggested earlier, the lack of court action also meant that agencies in South Australia did not have to focus as much on compliance to the letter of the law (particularly given that EIA was not enshrined into law until 1982, and Transport was exempt from planning legislation). As noted by Ridgway (1995), an EIA system which is more process-oriented (such as in Victoria), results in the better integration of EIA into the engineering and design process, as opposed to a more legalistic and prescriptive system (such as in New South Wales).

Finally, the court action (or threat of court action) in the United States was, according to Wichelman (1976) partly responsible for moving organisations into the compliance phase (refer Wichelman 1976). Without judicial review, Wichelman found that the transition into the 'compliance' phase would have been less rapid. As noted earlier, court action may also be responsible for moving agencies in the United States towards the 'programmatic' phase of change. In this respect, the lack of court action as incentives for change in South Australia may explain why Transport and ETSA were slower to move out of the 'compliance' phase and into the later 'integrated phase'. In essence, there was no incentive to do so, and it was not until later in the 1990s, with the 'third wave' of environmentalism and the development of increasingly stringent environmental legislation such as the Environment Protection Act, that both organisations (Transport in particular) appeared to be moving towards the 'integrated' phase of EIA.

A number of additional factors associated with the EIA system can explain organisational responses to EIA in South Australia in terms of resistance to, and adoption of, EIA requirements:

- as was the case in the United States, the EIA policy requirement lacked *resources* for its implementation (except for technical advice from the DoE). As noted in Chapter Two, a lack of resources may hinder compliance to a new policy, and this may also partly explain the initial resistance to EIA in South Australia;
- the DoE as oversight authority in South Australia had less numbers of organisations to deal with when compared to the 70 agencies which fell under NEPA's jurisdiction in the United States. Although staff numbers were initially low in the DoE (6), the smaller numbers of government agencies to work with meant that closer working relations could be developed, and this may have reduced the potential for resistance. As noted in Chapter Seven, ETSA believed that if they worked closely with the DoE, they could gain the support of the DoE in the EIA process;
- resistance to the EIA requirement was probably less that it could have been in South Australia given that the final decisions emerging from the EIA process for Crown developments were non-binding (and only in exceptional circumstances was a formal EIS called in Transport);
- the influence of the formal EIA system on the organisations was indicated in part by the fact that some of the omissions in the State EIA system were reflected in both organisations, including a lack of monitoring provisions and Strategic Environmental Assessment

(although monitoring was developed later in the organisations at a time that was close to, but predated, the new EIA monitoring provisions under the Development Act amendment 1996);

- *public-agency control* was initially limited in South Australia, but this improved over subsequent Acts which contained the EIA process. As was the case in the United States, this improved the potential for the external model of reform to operate and influence organisational behaviour (although at the same time, extensive *informal* public lobbying in the project case studies reviewed in Chapter Nine, indicated weaknesses in the *formal* public control process); and
- finally, it is highly likely that the *validity* of EIA (*ie* observable links and consistency between desired outcomes and actual outcomes) was low in the early years because there was a lack of feedback and follow-up mechanisms in the EIA system (and hence there was a lack of follow-up mechanisms in the organisations). Most employees involved in EIA within Transport and ETSA did not follow through to the construction and follow-up stage of EIA. In fact, what EIA planners in both agencies saw at an informal level, during the 1970s and 1980s, was construction engineers ignoring EIA outcomes - thus the links between desired outcomes and practice were not there.

This latter problem is significant given that, as noted in Chapter Two, low policy validity is expected to reduce compliance and to increase resistance to a new policy, particularly at a cultural level. It is, however, quite possible that policy validity was becoming stronger with the introduction of increasingly stringent environmental legislation such as the Environment Protection Act, because there were more visible links between behavioural change and the 'desired outcome' (*ie* EIA was being used as a compliance tool to other legislative requirements, particularly in Transport). This link between EIA behaviour and effective procedural *compliance* is easier to identify than EIA behaviour and the *degree of environment protection* achieved in practice. Moreover, *follow-up control* in the EIA system improved in the Development Act Amendment Act with new provisions for monitoring, and this coincided with the creation of EMPs in both organisations to facilitate the transfer of information from EIA to construction, which may in the longer term further increase policy validity.

The initial resistance at the overt organisational level was also likely to have declined in Transport given that the department managed to regain control over their decision-making process when responsibility for the majority of EIA cases was given to them in the late 1970s (refer Chapter Seven). This was partly because of the limited resources of the then DoE to assess all projects of environmental significance, Transport's apparently '*sensible attitudes and responsible approach to environmental issues*' (Shepherd 1980: p27), and Transport's exemption from normal legislative planning processes (Goodall 1982). While there was less

evaluative control and *public/agency control* in Transport's EIA system relative to the State EIA system, it was in the interests of Transport to maintain this arrangement, and this in turn, provided an incentive for good performance. Any lapse in EIA performance could potentially lead to a return to greater external regulation by the DoE (and its Minister) and loss of self-regulation. Thus, the DoE and its Minister provided an indirect form of evaluative oversight control because of the *threat* of external regulation.

Clearly, the nature of the EIA policy and system (filter 2) can have a marked affect on the way in which organisations change and respond to the EIA requirement. But given that EIA in South Australia still falls short of an 'ideal' system, a number of recommendations to improve the system are made in Table (10.2) relating to legislative-administrative control, judicial control, procedural control, public/agency control, evaluative control, and follow-up control. The recommendations essentially encapsulate the weaknesses identified in the *system-evaluation* undertaken in Chapter Five, and some may not harmonise with the government's aim to attract development to the State because of an unhealthy economic climate. Nonetheless, changes in these areas may further encourage organisational responsiveness in the EIA process, because of greater accountability and specificity in the EIA requirement.

Table 10.2: Recommendations to improve the EIA system in South Australia

RECOMMENDATION
<p>1. Legislative Control</p> <p>1.1 incorporate provisions for Strategic Environmental Assessment of broader policies, plans, and programmes;</p> <p>1.2 ensure that the central agency responsible for administering the EIA process is more independent from government (as is the case for the EPA in Western Australia), particularly given that many infrastructure projects have strong political support (and hence evaluative control may become constrained);</p> <p>1.3 clarify environmental objectives to be achieved in the EIA process, with a focus on substantive environmental outcomes rather than process.</p>
<p>2. Judicial Control</p> <p>2.1 re-establish provisions for judicial review and create appeal mechanisms for (i) the level of assessment undertaken, (ii) the recommendations of the administering authority, and (iii) the final decision;</p> <p>2.2 if these judicial and appeal provisions are established, develop detailed guidelines about the process requirements which are understandable to the 'layperson' and to avoid the jargon of legislation.</p>
<p>3. Procedural Control</p> <p>3.1 improve the level of detail in generic procedural guidelines to improve the certainty for proponents about the expectations in the EIA process. This needs to cover existing omissions in the generic guidelines such as:</p> <ul style="list-style-type: none"> - 3.1.1 proposal need; - 3.1.2 means of project financing and insurance (and guarantees of financial viability); - 3.1.3 the consideration of alternative actions and sites; - 3.1.4 reference to cumulative effects, irreversibility of impacts, indirect effects, significance of impact; - 3.1.5 details of public consultation undertaken <i>during</i> document preparation; - 3.1.6 reference to the effectiveness of mitigation measures; and - 3.1.7 details about monitoring and contingency measures in the event mitigation fails.

Table 10.2 Continued

4. Public-Agency Control

- 4.1 create mechanisms which enable the public to refer proposals for consideration which have 'escaped the EIA net' (as occurs in Western Australia);
- 4.2 create a public scoping committee which has input into the EIS guidelines, and which is consulted throughout the EIA process (as occurs in Victoria);
- 4.3 establish a mechanism which requires proponents to initiate preliminary public consultation *during* the preparation of their EIS or PER (which creates a sense of public 'ownership' and may reduce levels of controversy and need for public involvement later);
- 4.4 increase the time period for public submissions on projects of major significance to 6-8 weeks (45 days is required in the United States);
- 4.5 for projects of major significance, improve public follow-through with mechanisms for the public to have input onto a *draft* assessment report before the final assessment report is submitted for decision (as occurs in Tasmania);
- 4.6 where there is significant public controversy, establish discretionary provisions for a public panel inquiry into the proposal (*after* the proponent's response to submissions) (as occurs in Victoria);
- 4.7 establish a 'decision' report which clearly and publicly outlines the final decision, the conditions attached to this decision, and the justification for this decision (as occurs in the United States);
- 4.8 where requested, provide public access to monitoring reports (although this is highly unlikely given commercial confidentiality).

5. Evaluative Control

- 5.1 use the existing lists of projects of environmental significance contained within the Development Act to automatically trigger the EIA process (with provisions for exemption where appropriate), and maintain the discretionary criteria for triggering EIA;
- 5.2 establish written upfront expectations and proposal acceptability levels at the scoping stage, including requirements of other relevant legislation (a 'one-stop shop');
- 5.3 clarify expectations about what a 'good quality' EIS is within documented guidelines, including the criteria used by the EIA branch to assess EIS quality;
- 5.4 create formal and more explicit mechanisms for the EIA branch to prevent the release of inadequate EISs and to enforce compliance with project guidelines.

6. Follow-Up Control

- 6.1 create formal mechanisms which require proponents to prepare more detailed Environmental Management Plans (EMPs) prior to construction;
- 6.2 establish *compulsory* mechanisms for the Minister to require proponents to submit regular monitoring reports;
- 6.3 allocate formal monitoring roles (and resources) to officers within the EIA Branch so that involvement does not cease once the project has been approved;
- 6.4 establish regular reviews of the EIA process to identify outcomes and weaknesses emerging from particular assessments.

10.3.2 Filter (3): The Organisational Context

As highlighted in Chapter Two, the characteristics of the organisation implementing the policy can also have a major bearing on the policy implementation process, and in turn, the direct economic, social and political context can have a major bearing on the implementing organisations (Van Meter and Van Horn 1975). This is why understanding the evolution and the contexts of the case study organisations in Chapter Six was so important. In other words, policy is 'filtered' through formal structures and informal perceptions of the implementing organisation (Van Meter and Van Horn 1975). Many of the factors which will explain resistance to, or acceptance, of a new policy, are illustrated in Filter (3) in Figure (10.5) including the degree of CCP match, the organisation's existing missions, structures, knowledge levels, staff and attitudes, public visibility; and the direct organisational environment, such as public and political pressures, legislative and regulatory framework, and the State's economic climate. The importance of organisational context in EIA is consistent with findings by Lothian and Walsh who noted that the range of alternatives in EIA:

'tend to be limited by the perceptions, tradition and structure of the developing agency. The amalgamation of functionally similar departments under a single umbrella department such as road, rail, bus and tram within a Department of Transport potentially enables broad approaches to be reviewed. Frequently, however, the perceptions of the agencies concerned will force a narrow traditional view to prevail' (Lothian and Walsh 1978: p12).

The similarities in both Transport and ETSA's history, and the external social, political and economic influences on them, were quite marked and were summarised at the end of Chapter Six. Both organisations were dominated by engineering 'experts' (*ie* technocracies), both had similar periods of decline and optimism, both initially had great autonomy from government, both were publicly visible, and both experienced changing community and government expectations about environmental management during the late 1960s and 1970s (the first 'wave'), the 1980s (the 'second' wave) and the 1990s (the 'third' wave) (refer also Chapter Seven). But these similarities are not unique, and it *'has been repeatedly observed,...that many organizations introduce the same changes at about the same time'* (Brunsson and Olsen 1998: p200).

Because Transport and ETSA were public sector organisations which provided essential infrastructure, they believed that they were serving the 'public interest', and in the beginning, when community and government demand for road access and electricity was high, serving the public interest was exactly what they were doing. Their missions were clear, but this soon changed when most of the road and electricity infrastructure had been established by the 1970s. Much of the community had become accustomed to a way of life which was substantially different to life in the previous century, when cars and electricity were restricted to the few. With maturing community awareness about the 'price of progress' and increasing attempts by

government to intervene into operations, the organisations' belief in their own traditional expertise to serve the public was gradually eroded as they became the subject of criticism where once they were the subject of praise. The power of the community in the MATS Plan, the Montacute road saga and the Little Para Valley transmission line in preventing or delaying significant development operations (refer Chapter Six), had a profound impact on the organisations because up until that point, they could more or less do what they liked. Henceforth, their missions became increasingly complex.

What becomes apparent is a transformation from an 'age of innocence' in the 1950s, to an 'age of constraint' in the 1990s. What also becomes apparent is that both organisations are no strangers to change. Each decade of change was more profound than previous decades. In Transport for instance, the 'halcyon' 1950s and 1960s were the most progressive and optimistic after the war and years of depression (Donovan 1991); the 1970s were described as the most 'turbulent' by one employee; the 1980s were of 'historic significance' as described by Commissioner Payze (DRT 1989-90: pix); whilst the 1990s were probably the most 'spectacular' and 'unparalleled' times of organisational change in the Department's history (Interview 63 1999). It was during the 'turbulent' 1970s that EIA was first introduced to Transport and ETSA.

Explaining Resistance

The initial resistance to EIA, particularly at a less visible cultural level, was due in part to formal organisational aspects such as limited knowledge levels and expertise resources. Although both organisations were operating within a healthy economic climate when EIA was introduced, construction costs were increasing and there was less money available in the 1970s than there was in the 1950s and 1960s. Both organisations were expected to do more with less, and resistance to this may have been exacerbated by perceptions in both organisations that EIA was not perceived to be effective in reducing costs in the long term (Chapter Eight). Moreover, EIA was simply tacked on to the existing roles of engineers who had no real understanding of environmental issues. Knowledge levels were low and the experts were now required to become '*novices at a new trade*', which increases the potential for resistance (refer Chapter Two).

Resistance was however, primarily a result of the age of the organisations and their cultural evolution. That is, EIA imposed on the traditional autonomy and 'free rein' of both organisations. Both organisations were initially beyond political control and highly autonomous because of the technical expertise that they provided. As noted by Kellow in a broader Australian context, in electricity utilities there is:

'a high degree of technical specialisation. This diminishes accountability because elected politicians and the public can rarely understand the issues at stake, and we often speak of **technocracy** under such circumstances. But if all organisations are monuments to past problems, they are also embodiments of past means to deal with those problems, and they will prefer to maintain the *status quo* if at all possible. A new problem requiring a new approach, or a new means of solving an old problem, will threaten those whose position depends on the old means' (Kellow 1996: p26).

Ministers were imposing upon the realms of the traditional 'experts', and as a result, the 'attitudinal receptivity' towards EIA in both organisations (Chapter Two) was probably quite low. The disregard for paperwork and EIA during the 1970s and 1980s, may have been one way of endeavouring to maintain and exert traditional authority and expertise, and was also a continued reflection of tensions between construction and planning groups in Transport and the lack of formal mechanisms to ensure information transfer between EIA and construction (such as EMPs). Top management commitment in the early years of EIA was also not as strong in either organisation, due to a lack of formal organisational environmental goals, particularly when compared to the 1990s, when environmental goals and strategic plans were created with executive endorsement. Thus, the formal message of environmental protection to employees was not explicit at the top management level in the early years of EIA. In this respect, the traditional construction culture was still being informally rewarded in both organisations.

EIA was also introduced in the midst of several other change requirements during the 1970s. While it may be true that EIA was only mechanism of change, it is also true that change in one area is difficult to contend with. When surrounded by multiple change requirements in many aspects of daily operations, it becomes increasingly complex for individuals to cope. EIA may thus involve resistance, not because individuals may disagree with the principles of environmental protection, but because it increases the complexity of a role which had been relatively straightforward in an engineering sense: to design and construct roads, or to transmit electricity. In reflection of the external model of reform, EIA also challenged internal power and communication relationships, partly because it brought in external participants to the decision-making process (the Department of Environment and the public).

Explaining Acceptance

Yet EIA was eventually accepted at the formal organisational level, and is increasingly being accepted at the less visible cultural level. The question is why? There are several possible reasons for this. The increasing acceptance of EIA and other environmental protection requirements may be a reflection of Taylor's (1984) notion of '*being judged by procedure not outcome*' (Chapter Three). In other words, increasing experience may have demonstrated that compliance with the EIA process did not dramatically alter the organisation's mission as was originally feared when it was first introduced. As also noted in Chapter Three, procedures, no

matter how 'irksome' they might be, gradually become '*accepted as one's own premises of thought and action*' (Kaufman 1971). This gradual accumulation of experience is consistent with Wichelman's argument, that even the routine production of 'mediocre' EISs eventually forces agencies to integrate environmental values into their actions. Resistance may also have declined or been less than it could have been because:

- as noted earlier, both organisations had the advantage of forewarning and learning from experience in the United States and at the Australian Commonwealth level. Thus, they anticipated the EIA requirement and it was not thrust upon them without warning, as appeared to be the case in the United States;
- because of Transport's involvement in developing their own EIA procedures. As noted in Chapter Two, *participation* in the development of a policy requirement reduces resistance;
- because both organisations had already been under public attack prior to EIA, and both were highly visible in the public arena (as was the case for the Corps of Engineers in the United States). Because of this visibility, it was in the interests of the organisations to publicly demonstrate responsiveness and not to resist (Interview 31 1999). As a result, they had already begun to make changes to their operations in the environmental arena prior to EIA, albeit limited in scope; and
- because advanced planning structures had already been established in both organisations prior to EIA which made their existing decision-making structures more consistent with a process such as EIA, and this consistency is also believed to reduce resistance (refer Chapter Two). Moreover, in 1969 prior to the introduction of EIA, the focus in Transport, at the behest of Commissioner Johninke, was also changing towards transport planning rather than road construction, which again is more consistent with principles of EIA.

Changes in attitude and acceptance of the EIA process at the cultural level were also believed by many of those surveyed to be a result of increasing contact with environmental staff, the increasingly supportive attitudes and requirements of the executive, experience with the EIA process, and the increasing community pressures. Performance was slightly stronger in the CCP framework in Transport (despite the stronger evaluative control over ETSA and changes to projects), but it was difficult to identify the exact reasons for this because of problems of determining cause and effect relations. But possible influences could include the greater experience in EIA within Transport, which according to Baker and Wood (1999) has a major bearing on EIS quality and project changes (*ie* all internal projects subject to some form of EIA); the greater influence of environment staff as change agents in the EIA process in Transport, and the fragmentation and privatisation of ETSA which may have weakened their overall environmental management performance (refer Chapter Seven). As also noted by Glasson and Salvador (2000: p192), privatisation can '*cause further fragmentation of what may already be complex procedures*'.

Nonetheless, resistance was less than it might have been because EIA was also an *'idea whose time had come'* within the organisations (refer Brunsson and Olsen 1998: p200). In this respect, change in other areas of the organisations (even if not related to EIA) impacted on the culture for EIA. Figure (10.6) pinpoints key features of both organisations when EIA was first introduced in the 1970s by illustrating the status of infrastructure, the levels of road construction and maintenance activity, the levels of accountability from government and community, and the development of internal procedures and management systems.

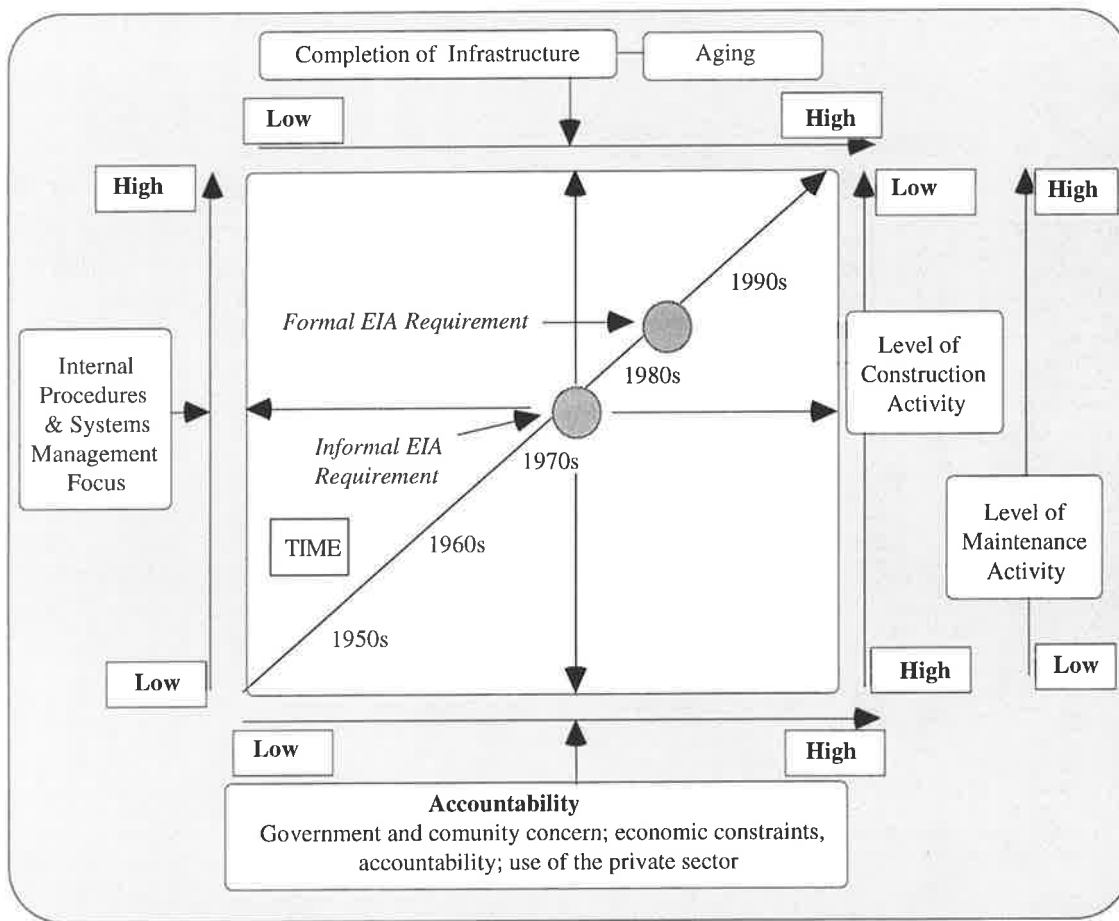


Figure 10.6: The Nature of the Organisations and Context in Transport and ETSA at the time of EIA's introduction

Instructions: The middle of the diagram contains the time-line. Read from the middle of the diagram; pinpoint when EIA was first introduced in the middle of the box, then read outwards to each border (for instance, EIA was introduced in the 1970s; if reading downwards, this indicates that it was introduced at a time of increasing accountability relative to the 1950s. If reading upwards, it becomes apparent that EIA was introduced when much of the road and electricity infrastructure was established in the State).

Although Figure (10.6) only highlights broad trends and does not account for specific fluctuations, it does indicate that EIA was introduced at a time when:

- much of the road and transmission infrastructure had already been established in South Australia. In Transport, there were fewer opportunities for engineers to become involved in construction, and when they were involved, it was on a much smaller scale (Interview 63 1999). Much of the major infrastructure had already been established, and there was restricted 'right of way', with few major corridors left for large road developments. Given that substantial costs were associated with acquiring built-up land, *'the days of building your freeways and major road works [was] starting to get a bit out of...reach...trying to squeeze a bit of road to put in'* (Interview 20 1999) (thus EIA would have had less of an impact and was of lesser magnitude than if it had been introduced in the 1950s when development activity was high in both organisations);
- as noted earlier, community and government calls for accountability were increasing in several arenas, and government was intervening into both organisations' operations (that is, EIA was only one accountability requirement among many);
- and both organisations, particularly Transport, were establishing more complex procedures and management systems in both the environment arena and in corporate planning in general (thus, EIA as a procedure was suited to an increasingly bureaucratic environment, whereas in the 1950s for instance, when procedures were minimal, it would not have sit well within the organisations).

Missions were changing; both organisations introduced corporate planning in the 1980s (which led to the development of formal environmental goals); both organisations were being downsized and the traditional cultures were being eroded (many of the previously dominant and resistant construction engineers had moved on); the roles of engineers were becoming more publicly visible and increasingly subordinate (and hence there was less authority to resist and to make decisions in the EIA process); there was an increasing focus on 'customer-responsiveness' (which increases openness and responsiveness in EIA); and as noted earlier, environmental systems were expanding in response to increasingly stringent environmental legislation and as part of the 'mainstreaming' of the environment in the 'third wave' of environmentalism. In this latter case, the internal environmental management systems (EMSs) and guidelines tended to strengthen and reinforce the *validity, legitimacy* and *specificity* of the EIA process because they provided upfront knowledge to participants in the EIA process about environmental expectations in a range of areas such as noise impacts and heritage issues (thus increasing specificity of knowledge for EIA), and because the requirements for compliance to legislation increased the potential role of EIA as a compliance tool. Despite the views of some that EMSs can be used as a 'greenwashing' exercise to improve public image (Reed 1997: p51), the potential for liability appeared to be a real issue in further promoting change.

Resistance to EIA was also becoming increasingly futile in the 1990s due to the transformation of both organisations from constructors to managers, and the outsourcing of most of the construction work to the private sector. As noted in Chapter Six, there was a declining role of government in the provision of road infrastructure and this was a trend throughout Australia. With the greater privatisation and outsourcing of work at the construction stage, both organisations were adopting a 'watchdog' role rather than an operational or provider role, which introduces an element of independence consistent with the aims of the FOPP model defined in Chapter Six. Transport in particular was becoming more akin to a regulatory body and becoming a 'purchaser', whilst ETSA, although a 'purchaser' of private sector consultants and contractors, was essentially still a 'provider' organisation, or in other words, a 'distributive' type agency (Kellow 1996).

Unlike distributive type agencies which are dominated by engineering experts, regulatory agencies are dominated by lawyers or process specialists, and as a result, behaviour is expected to be quite different between the two organisational types (Kellow 1996). Ridgway (1995: p303) in her research on EIA, also found that agencies were becoming 'de-engineered' and becoming 'planning and policy organisations'. The increasing emphasis in Transport on regulation and policy may eventually lead to a move into the 'programmatic' phase of change because of a need to control and coordinate transport networks and the way in which private contractors provide their services (this coordinating role is less relevant to ETSA because of their fragmentation and role as providers who are at the behest of customers requesting transmission lines). In controlling and regulating private providers of road and transmission developments, both organisations also need to maintain a strong body of planning, design and environment expertise to oversee private contractors, particularly given the problems of controlling contractors which are already apparent due to a lack of resources.

The increasing reliance on private consultants to do the planning, EIA and design work, may also, as suggested by Ridgway (1995: p303), '*lead to increased separation of the design and EIA processes to the detriment of future project planning*', which again highlights the importance of SEA and maintenance of expertise. As noted in Chapter Eight, it may also be necessary to create a form of 'competition control' in EIA (as an additional control in EIA to those identified by Ortolano *et al* 1987). That is, the establishment of formal criteria for contractor selection, where the experience and past performance of private contractors in environmental management are used as a basis for their selection. To enhance the chances of selection, contractors will ideally improve their environmental performance to remain competitive. As noted by Ingram and Ullery (1980):

'Competition between units in a fragmented political structure prompts the vying units toward commitments in areas of competitive advantage resulting in a larger policy change... When a number of organizations operate in one policy area, competition results. Political

organizations are naturally concerned with status, and are eager to protect and extend positions of policy influence. When primacy is challenged, organizations are likely to respond with larger changes than they would otherwise find comfortable' (Ingram and Ullery 1980: p676).

If such an approach is adopted, then greater control over contractors (who will ideally make larger changes in the environmental arena than they might otherwise have done), may eventuate. This is a key recommendation to improve EIA at the organisational level. Given that there were still a number of limitations in both organisations in terms of capability, culture, and EIA performance, Table (10.3) outlines a number of additional recommendations to improve practice relating to (i) human resources and training, (ii) policy and project delivery, (iii) control of contractors and consultants, and (iv) Environmental Management Plans.

Table 10.3: Recommendations to improve EIA in Transport and ETSA

RECOMMENDATION
<p>1. Human Resources & Training</p> <p>1.1 modify the job selection criteria for new engineers to incorporate levels of environmental awareness;</p> <p>1.2 during the induction process for new employees, make the environmental requirements and systems established within the organisation more explicit;</p> <p>1.3 in Transport in particular, enhance the level of access, by all organisational elements, to in-house environmental and public consultation expertise so as to integrate this expertise more comprehensively into internal planning processes;</p> <p>1.4 expand the range of environmental disciplines which reflect the greater focus on 'brown' issues such as air quality experts in Transport, and social science experts in ETSA;</p> <p>1.5 in Transport, conduct additional educational workshops to improve the levels of knowledge about the EIA process and other environmental legislative/policy requirements (which appears limited in some cases);</p> <p>1.6 centralise all environmental guidelines and management systems into one folder or document so that employees have a 'one-stop shop' for guidance (currently procedures are fragmented throughout different sections) (this is already occurring in ETSA).</p> <p>2. Policy & Project Delivery</p> <p>2.1 create direct and formal links between environmental staff and the policy development process so that a form of Strategic Environmental Assessment can be established which in turn will guide the project development process;</p> <p>2.2 improve the input of environmental staff into the project conception stage rather than leaving it to the project planning stage;</p> <p>2.3 in the project management approach, ensure that all participants are present for the life of the project (including the construction stage). If resources prohibit this, establish feedback mechanisms which identify issues and problems identified at the construction stage which can be fed into the planning process for future projects (for planners, designers, project managers, environment staff and strategic staff who conceive the projects to begin with);</p> <p>2.4 clarify the levels of authority between functional managers, project managers, and environmental staff in the EIA and project delivery process (in Transport there are currently no clear lines of authority);</p>

Table 10.3 Continued

- 2.5 in order to utilise EIA as a compliance tool, incorporate more explicit requirements in the EIA and planning process, that all legislative requirements, thresholds, and standards are explicitly referred to in planning or EIA reports, and the degree to which projects comply to these requirements. This information can then be transferred to the EMPs;
- 2.6 in Transport, ensure that landscaping becomes a fundamental component of all major projects by directly linking landscape requirements into the environmental clearance conditions. In ETSA(Electranet) focus on 'active' rehabilitation rather than 'passive' regeneration in the mitigation of visual impacts;
- 2.7 provide greater certainty and transparency in Transport's public consultation process, with the creation of guidelines on the process which are publicly available;
- 2.8 if possible, establish more flexible construction dates which can account for unforeseen events, public controversy, or major environmental issues which are difficult to resolve.

3. Consultant/Contractor Selection & Management

- 3.1 establish a form of 'competition control'. This would mean the definition of clear, systematic and formal environmental criteria for the selection of the most competitive tender for the construction stage of project delivery. Not only will costs be important in the selection process, but so too will past environmental performance and existing environmental management systems of the contractor (eg level of environmental knowledge, presence of EMS, previous management history and experience);
- 3.2 formally integrate EMP requirements within the final contract, and define clearly in the contract where the contractor becomes criminally liable for particular activities where they fail to comply with the organisation's environmental management requirements and conditions;
- 3.3 ensure the presence of environmental expert on-site at the construction stage of project delivery to oversee contractor environmental performance;
- 3.4 create additional resources to conduct environmental auditing for all major projects, and incorporate lessons learned into a central database which is accessible to all EIA and project delivery participants.

4. Environmental Management Plans

- 4.1 incorporate provisions for EMIPs and auditing of new projects in ETSA (Electranet) in a similar manner to Transport's system;
- 4.2 ensure that contractors' EMIPs are assessed for adequacy by environmental staff and others directly involved in the EIA process before contracts are completed;⁸
- 4.3 be more specific about thresholds in EMPS so that they are not viewed as 'motherhood' statements, and so that the degree of contractor discretion is reduced.

10.3.3 Filter (4): The Project Context

In addition to the EIA system and organisational context, the project context can also influence and filter EIA outcomes, which is a point also made by Garipey and Henault (1994). Even though change occurred in both Transport and ETSA with strong 'compliance' to the EIA process at the project level (Chapter Nine), this did not necessarily mean strong performance in 'openness' and 'responsiveness', and low compliance did not necessarily mean low openness

⁸This has often done after the contracts are signed, which results in less incentive for contractors to produce an adequate EMIP.

or responsiveness. So there are clearly other factors which explain the different outcomes between projects within the same organisation. A number of these influences, many of which emerged from the analysis of EIA practice in this research, are illustrated in Filter (4) in the contextual filter model (refer back to Figure 10.5). EIA outcomes and the degree of organisational change at any given point in time can be influenced by the nature of the project, in terms of its type, scale, costs, benefits, location, timing, public visibility and flexibility of alternatives. The nature of the project and decision outcomes are, in turn, affected by factors in the immediate project environment, some of which overlap with those factors at the organisational level, including the state of the economy at the time the project is proposed (and the degree of emphasis on cost factors), project need, public visibility, public attitudes and pressure groups, whether there have been precedents for the project, and the nature and sensitivity of the social and physical setting.

The variables of public visibility and pressure, political support (most of the projects were developed within the constructs of government policy because they were infrastructure developments), flexibility of alternatives, project need, precedent, and state of the economy were particularly important factors in explaining or understanding EIA outcomes in the project case studies. For example:

- Transport's Blanchetown Bridge project and EIA process was relatively straightforward due to low *public pressures*, strong *need*, low *political pressures*, and the presence of *precedent* because a bridge already existed in the location. As a result, there was a relatively good performance in the four dimensions of EIA performance evaluated in this research;
- in Transport's Expressway project, the existing *environment* had already been set aside as a road corridor (*precedent*), and *political support* for the project aimed to win votes at an election, hence the project was not substantially altered as a result of EIA and the process was relatively straightforward (public pressure was not well organised or publicised);
- in Transport's Runway Extension project, there was strong *political support*, but due to high *public visibility* and *pressure*, the project was modified in its design, but not fundamentally given the stronger government commitment to the project;
- in ETSA's Ardrossan project, the *project need* was clear, the *existing environment* had already been substantially degraded, and the *local public* were generally accommodating and willing to compromise, thus the EIA process was also relatively straightforward.

ETSA's Cherry Gardens and Transport's Adelaide-Crafers projects provide particularly good illustrations of Filter (4) in operation. For instance:

- both projects had strong *political support* (and the government had already made agreements with the Victorian government about of the interconnection programme, of which the Cherry Gardens project was a part);
- both projects had high *public visibility* and strong *public pressures* because they were proposed within particularly sensitive *social and biophysical settings*;
- both Transport and ETSA over-emphasised *economic factors* because they were proposed shortly after an *economic downturn* in the State; and
- both Transport and ETSA demonstrated relatively low performance in terms of 'openness' and 'responsiveness' because of this economic emphasis (although ETSA demonstrated strong responsiveness in terms of process rather than project changes to appease controversy);
- but only the Cherry Gardens project involved a change of significant magnitude in the final assessment and decision stage (*ie* strong evaluative control), whereas changes to the Transport project were relatively moderate.

What factors explained the difference in outcomes? Essentially, the *flexibility of alternatives* in the Adelaide-Crafers project was more limited than in the Cherry Gardens project, because the economic costs of the 'best' alignment were substantially higher than the Cherry Gardens 'best' alternative (by about \$50 million); and because the decision to fund the Adelaide-Crafers project was made by an external government agency at the Commonwealth level (thus the State EIA Branch did not have much power of evaluative control). The importance of economic development and political factors inhibiting the effectiveness of evaluative control has also been noted by Ortolano (1993). Indeed, a key point to note which was a strong theme in Chapters Eight and Nine, is that most of the Transport projects were political and had strong government commitment, whereas this was less apparent for the ETSA projects. Because projects, their objectives and funding were sometimes predefined by groups outside of the organisations, this explains why EIA outcomes were, as noted earlier, focused more on incremental modifications. Evaluative control and public-agency control can thus only work in certain circumstances, and although the public had a high influence on minor changes and refinements to all of the projects, where economic factors and political commitment were strong, their influence was limited.

10.4 CONCLUSION

Clearly, there are a multitude of factors which both facilitate and constrain the organisational change process as a result of the EIA requirement. In endeavouring to grapple with these issues, the research process was complex and can be likened to the assembly of a jigsaw with missing pieces, no clear edges, and an obscure pattern. It was particularly difficult to judge the degree of change achieved as a result of EIA because of the problems of disentangling overlapping changes associated with EIA, broader environmental management initiatives, and

changes at the overall organisational level (not just in the environmental arena). Nonetheless, the evaluation frameworks developed for this research are unique in that there was previously no systematic and comprehensive method for evaluating 'effective' organisational change and behaviour in the EIA context. This is significant given that even in the 1990s '*we have only begun to understand with some depth how and why EIA works*' (Bartlett 1990: p89).

In this respect, this research has advanced methodologies for evaluating and understanding EIA performance at the EIA legislative system, organisational, and project levels. In particular, the *CCP framework* was useful for comparatively highlighting strengths and limitations in the organisational change process and the implementation of EIA at given points in time; the *system-evaluation* framework was useful for emphasising strengths and weaknesses in the EIA system which may explain organisational responses to EIA; whilst the *contextual filters* model was particularly helpful in understanding what factors influenced the change process and EIA outcomes. The frameworks developed in this research, although requiring further testing and refinement, can also be applied as a standard for comparison between different jurisdictions in future research projects. The *system-evaluation* framework in particular provides a new and easy way of visualising differences and similarities in EIA between different jurisdictions, or changes in EIA systems over time within the same jurisdiction. Not everyone will agree with the evaluation dimensions and criteria used, but this is to be assumed given that, as noted in Chapter Three, finding consensus on the goals to be achieved (or in this case evaluated) is difficult. Refinement of the variables in the CCP, system and contextual filters frameworks developed in this research will further aid in the diagnosis and prognosis of EIA performance within and between different organisations and different jurisdictions.

The research has also highlighted the importance of historical and organisational context in understanding EIA outcomes and organisational change. In other words, change occurred within both Transport and ETSA, not only as a result of the EIA system and experience with the EIA process, but also as a byproduct of change initiatives within other areas of the organisations which were completely unrelated to the EIA requirement (*eg* loss of engineer autonomy and authority, outsourcing of construction work and decline in construction staff who were the most resistant to the EIA process). As noted in Chapter Two, change in one area will invariably have implications for other areas within an organisation (Dawson 1996). Changes in other areas of the organisation not only facilitated more effective EIA behaviour, but were also partly inhibitive. In other words, fundamental organisational change could not (and cannot) occur because of a gradual blurring of organisational boundaries.

Prior to Ministerial control, and when most construction was conducted by internal employees, there were distinct organisations called Transport or ETSA, with 'experts' encapsulated by a virtually impervious boundary. With increasing Ministerial control, this boundary later became

permeated and stretched to encapsulate Ministers, public 'customers', and private sector contractors, each of whom had an influence on the way in which the organisations operated. Full decision-making authority was removed from both organisations, as demonstrated in part by the strong political commitments to road and transmission line construction (yet limited external funding), which precluded Transport and ETSA from considering broader and/or more expensive options. To facilitate survival, the organisations responded to these political pressures, via what Liroff (1972: p29) terms a 'negotiated environment' between the organisation, interest groups and government to reduce any threats to their 'well being'. That is, *'organizations will emphasize scoring well on those criteria most visible to important elements in their environment. When they cannot hope to show improvement on all, they seek to emphasize those of interest to elements on which they are most dependent'* (Liroff 1972: p29).

Despite these constraints, the most important question is: has decision-making improved in both organisations as a result of EIA? It would be fair to say yes given the complete lack of regard for environmental factors prior to the EIA requirement which was demonstrated in Chapter Six. However, this research has demonstrated that progress in decision-making was characterised more by incremental improvements, with the use of EIA as a compliance-based, project refinement and management tool, rather than as a decision-making tool to determine the suitability (or otherwise) of a project in the first place. Moreover, it was found in this research that EIA procedures on their own (in reflection of the rational model of reform) were insufficient in their capacity to induce immediate attitudinal change and full integration with planning without the reinforcement of supporting capability and infrastructure such as new staff and the training and the expertise that they brought, in addition to external public pressures (*ie* the internal and external models of reform).

While EIA is often criticised, the level of change in terms of *outcomes* achieved from EIA may never reach an ideal (refer Chapter Three). The rational, internal and external models of reform are still valid theories for explaining change in the EIA context twenty years after their conception, but they do not negate the possibility of incrementalism or 'satisficing' because of their limitations noted in Chapter Three. Because the EIA process may be characterised by bargaining and compromise, Pfeffer (1981: p28) suggests that decisions will *'seldom perfectly reflect the preferences of any group or subunit within the organization.'* Whether political, rational, internal, or external models of reform are applied, it is possible that a combination of models can apply at one time. In both Transport and ETSA, both the internal and external models were strong (including professional control), but this research found that the external model of reform had a more profound effect on ETSA, particularly given that ETSA relied on the external legislative EIA process. This was indicated in part by ETSA's higher levels of knowledge about external policy requirements (Chapter Seven), and the strong public and

evaluative control and influence over the projects assessed in EIA (Chapter Nine). In this respect, the influence of internal environmental officers as change agents was less pronounced in ETSA, and was not as necessary given that only a few engineers were involved in EIA, and given the heavy reliance on consultants to do EIA.

In contrast, the internal model of reform was more pronounced in Transport given their reliance on internal EIA procedures, and given that greater numbers of engineers were involved, but who still required continued prompting from environmental staff. Yet even the internal model of reform was constrained because, although environment staff have environmental advocacy roles within Transport, they work within the realms of engineers, budgets, time constraints and the political realities of project development which sometimes contrasts with the 'ideal' aspirations of environmental protection (*ie* this is what you *should* ideally be going, but this was what we *can* do). Although the external model was also influential in opening up decision-making processes in Transport and leading to project design modifications, this was not to the extent evident in ETSA, and this may have been due to the more pronounced political nature of road projects. Nonetheless, the external model was still important as an indirect regulator of behaviour in Transport, given that poor performance in internal EIA processes increases the chance of greater external control over decision-making.

Within this context, EIA could be described as a hybrid approach to decision-making, being partly *rational* in that it is based on clear procedures which require the consideration of broader alternatives, and more complex, scientific and multidisciplinary information; and partly *arational* in that the final decision does not necessarily have to aim for the best option or be guided by clear objectives, and is in reality influenced by a variety of different interests. The problem is that if past policies do not provide adequate solutions, this incremental nature is inappropriate (Doyle and Kellow 1995). Environmental problems require a holistic approach rather than marginal analysis, and in order to facilitate a more integrated process, governments must seek to 'swim against the tide' of the political realities of incrementalism (Doyle and Kellow 1995). Yet it should be recognised overall, that this does not mean decision-makers are '*irrational, unreasonable, illogical or inefficient*' (Culhane *et al* 1987: p4), nor are they '*..single-minded egotists [or] unswerving altruists...They are ordinary human beings, rational within limits, disciplined by their calling as public servants...*' (Corbett 1992: p60).

Whilst not condoning the organisations' past parochial perspectives, it must be acknowledged that in order to facilitate community transport access or energy supply, both organisations' behaviour was often encouraged by the community and the government during the 1950s and 1960s. It was from this legitimacy that the cultures of both organisations stemmed. When community and government attitudes changed in the mid 1960s and 1970s, the organisations were expected to immediately embrace these challenges and to change over 50 years of history.

Not surprisingly such unexpected opposition to a once welcomed mission may invoke resistance, because of the loss of excitement, optimism and technical challenge which was originally present within both organisations.

What is most ironic, however, is that the capability to implement EIA, such as money, time, and political freedom, was evident during the 1950s and 1960s in both organisations, yet the levels of cultural and political will were not. Today on the other hand, the cultural will is there, yet financial, time, and political constraints inhibit fundamental organisational change and the implementation of effective EIA. Yet while there was still some way to go for EIA and environmental management in both organisations, the overall impression derived from the CCP framework was that, within political and economic constraints, a genuine attempt was being made in both organisations to push the boundaries of environmental capabilities, with expanding goals, procedures, and management systems, in an attempt to become more responsive to both community and government, and to facilitate their own survival.

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