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Evolution, devolution, revolution? An analysis of the legal and administrative arrangements for catchment and water planning in South Australia and New South Wales

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EVOLUTION, DEVOLUTION, REVOLUTION?

**An analysis of the legal and administrative arrangements for catchment and
water planning in South Australia and New South Wales**

A thesis submitted in fulfilment of the
requirements for the award of the degree

DOCTOR OF PHILOSOPHY

from

UNIVERSITY OF WOLLONGONG

by

CARLA JOAN MOONEY
BA NSW, MEnvPlan *Maq*, MNRL *Woll*

FACULTY OF LAW
2005

CERTIFICATION

I, Carla Joan Mooney, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy, in the Faculty of Law, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualification at any other academic institution.

.....

Carla Joan Mooney

March 2005

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Abbreviations

CMA	<i>Catchment Management Act, 1989</i> (NSW)
CMA	Catchment Management Authority (NSW)
CMR	<i>Catchment Management Regulation, 1999</i> (NSW)
COAG	Council of Australian Governments
CWMB	Catchment Water Management Board (SA)
CWMP	Catchment Water Management Plan (SA)
DA	<i>Development Act, 1993</i> (SA)
DLWC	Department of Land and Water Conservation (NSW)
EM	Ecological modernisation
EMS	Environmental Management System
EPAA	<i>Environmental Planning and Assessment Act, 1979</i> (NSW)
ESD	Ecologically Sustainable Development
GNP	Gross National Product
HEC	Healthy Rivers Commission (NSW)
ICESD	Intergovernmental Committee on Ecologically Sustainable Development
IDAS	Integrated Development Assessment
IGAE	Intergovernmental Agreement on the Environment
IGAE	Intergovernmental Agreement on the Environment
INRMP	Integrated Natural Resource Management Plan
IUCN	International Union for the Conservation of Nature
LEP	Local Environmental Plan
LGA	Local Government Area
MDBMC	Murray Darling Basin Ministerial Council
MLRCP	Mount Lofty Ranges Catchment Program
NAP	National Action Plan for Salinity and Water Quality
NCC	National Competition Council
NCP	National Competition Policy
NCP	National Competition Policy
NEPC	National Environmental Protection Council
NGO	Non-government Organisation
NHT	Natural Heritage Trust
NLWRA	National Land and Water Resources Audit

NRM	Natural Resource Management
NRMMC	Natural Resource Management Ministerial Council
NSESD	National Strategy for Ecologically Sustainable Development
NSW	New South Wales
NVRIG	Native Vegetation Reform Implementation Group
OECD	Organisation for Economic Cooperation and Development
PAR	Plan Amendment Report
PEOA	<i>Protection of the Environment Operations Act, 1997</i> (NSW)
PWA	Prescribed Wells Area
RAC	Resource Assessment Commission
REP	Regional Environmental Plan (NSW)
SA	South Australia
SCA	Sydney Catchment Authority (NSW)
SCC	Shoalhaven City Council (NSW)
SCMB	Southern Catchment Management Board (NSW)
SEPP	State Environmental Planning Policy (NSW)
SIWMC	Shoalhaven Illawarra Water Management Committee (NSW)
SOI	Statement of Intent
SWCMA	<i>Sydney Water Catchment Management Act, 1998</i> (NSW)
SWMOP	State Water Management Outcomes Plan (NSW)
SWP	State Water Plan (SA)
TDEL	Total daily extraction level
TVA	Tennessee Valley Authority
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Program
VVGA	Victorian Vegetable Growers Association
WA	<i>Water Act, 1912</i> (NSW)
WAA	<i>Water Administration Act, 1986</i> (NSW)
WAC	Water Advisory Council (NSW)
WAP	Water Allocation Plan (SA)
WMA	<i>Water Management Act, 2000</i> (NSW)
WMC	Water Management Committee (NSW)
WRA	<i>Water Resources Act, 1997</i> (SA)

WRC	Water Resources Council (SA)
WRPC	Water Resource Planning Committee (SA)
WWF	Worldwide Fund for Nature

Abstract

The sustainable management of private agricultural land requires a shift in the approach to decision making about natural resources, improved regulation and better integration. There has been substantial legal reform in the area of natural resource management over the last ten years. This reform is particularly evident in the introduction of legal processes for catchment and water planning.

Catchment and water planning is concerned with both setting ‘management’ priorities and generating ‘rules’ in relation to access to natural resources. Planning in this context can be viewed as both a process and a product. In broad terms the planning process involves the collection and analysis of environmental, economic and social data and consultation with the community about both needs and means to achieve change. The product i.e. plans, specify parameters, priorities, rules, implementation tools and review mechanisms.

This research involved an analysis of the legal and administrative arrangements for catchment and water planning in South Australia and New South Wales and a review of its implementation in two coastal catchments i.e. the Onkaparinga (SA) and the Southern (NSW). The specific questions addressed were:

- Do these arrangements facilitate sustainable management?
- Are they resulting in better regulation? and
- Is there an increase in the level of integration?

The literature on sustainability was examined to help define the key elements of a planning framework. This formed the basis for the analysis of the catchment and water planning legislation. Regulatory theory literature was examined to provide a further framework for analysis.

This is a study of the ‘law in context’. The case study method was used.

Chapter 1 – Introduction and Methods.

1.1 Background

This research, like much of its kind, has evolved from an idea, which in its original conception had clarity and purpose. The original idea was that the natural environment is interconnected and interdependent and that it would be better protected if the relevant legal and administrative system was also interconnected and interdependent. The idea that ‘everything is connected to everything else’ is not original but rather informed by the relatively new science of ecology, which provided a view of nature that was lacking in the discrete, reductionist approach of the other sciences.¹ The original research proposal submitted to Land and Water Australia was to undertake, what in hindsight seems a rather mechanistic exposition of the integrating provisions of the legal and administrative arrangements for catchment, water and land-use planning.

In 2000 I completed a minor thesis titled ‘An International Comparison of the Role, Function and Evolution of Catchment Management’ for a Master of Natural Resources Law. The fundamental idea of catchment management is integrated natural resource management at the scale of water catchments. This research found that, in legal and administrative terms, the most integrated example of catchment management was the Tennessee Valley Authority (‘TVA’), in the United States. The TVA, established in 1933 was ‘charged with the broadest duty of planning for the proper use, conservation and development of the natural resources of the Tennessee River drainage basin’.² In practice, the TVA has been very good at economic and social development and much less effective in the area of conservation, despite its original mandate. It became apparent to me that the achievement of ‘integration’ requires more than exhortation. Both the objective of integration and the processes for its implementation are critical.

In Australia the objective of natural resource management is Ecologically Sustainable Development (ESD). ESD is also fundamentally a project of integration, one rather

¹ Sessions D., *Deep Ecology. Living as if Nature Mattered*. (1985) Gibbs Smith, Publisher Peregrine Smith Books, Salt Lake City, United States, 85.

² President Theodore Roosevelt quoted by T Palmer (1986) *Endangered Rivers and the Conservation Movement*, University of California Press, Berkeley, Cal. Newson M., *Land Water and Development (Second Edition)* (1997) Routledge, London, England, 124.

more expansive than the original conception of this project. ESD is concerned with the integration of environmental, social and economic factors and a reformulation of the values which drive decision-making. The achievement of change rests on the effective implementation of these decisions.

During 1999 I carried out a research project for the then Department of Land and Water Conservation (NSW) entitled 'Review of the Usefulness to NSW of Water Legislation from Other Jurisdictions'.³ The diffusion, across the States of Australia, of a model of catchment and water planning was apparent. The idea emerged that planning could be a key process for implementing sustainability. This model of planning is very different to that which exists under the land-use planning system. In the first instance, it is concerned with existing land-uses, as distinct from just new land-use. Secondly, it embraces the notion of 'sustainable management' rather than simply the facilitation or accommodation of development. In the simplest terms, while land-use plans describe the strategic vision of a community and the decision-making criteria for approval of 'one-off' applications for development, catchment and water plans appear to be multi-dimensional. In general terms they are concerned with the on-going management of existing land-uses through the establishment of a decision-making framework, the coordination of government activity including expenditure and the generation of rules (command regulation) about access to, and use of, natural resources. This seemed an entrancing development and I became very curious about the influence of this approach on the critical problem of legal implementation in the agricultural sector

In summary, this research is concerned with an examination of the legal and administrative arrangements for catchment and water planning, their potential to shift to sustainable management and their role in facilitating the implementation of change by improving the quality of regulation. As with my original proposal a central theme remains integration but it sits within this broader context.

³ Mooney C., *Review of the Usefulness to NSW of Water Legislation from Other Jurisdictions* (1999) Department of Land and Water Conservation,, Sydney, Australia..

1.2 Introduction

This research is not value neutral, although this does not preclude it being objective. It is based on the belief that there is a profound and urgent need to address, ameliorate and repair the impact of agriculture on the natural environment. Over the last ten years or so a public policy experiment has been underway. Decision-making about natural resource management has changed. Overtly, it has shifted from a developmentalist, centralised approach to one concerned with the sustainable management of natural resources within a decentralised community-based planning process. This thesis is concerned with examining the new planning frameworks to consider:

- whether they have the potential to facilitate the sustainable management of natural resources; and
- whether they have a role in improving the quality and effectiveness of command regulation in the agricultural sector.

1.2.1 Part One - Context.

In broad terms, Chapter Two is concerned with identifying the broad levers and drivers of agricultural land-use in Australia. The intention of this chapter is to provide a sweeping overview of the context in which State natural resources law operates.

In the first instance, the context is conceptualised in terms of a triple bottom line, which encapsulates the three major dimensions of sustainability: environmental, social and economic.⁴

Secondly, the role of individuals is considered with a focus on attitudes to the environment, the notion of stewardship and a duty of care.

Thirdly, the historical role of governments in the development of agriculture is discussed. Governments have been closely involved in the development of agriculture.

⁴ The Allen Consulting Group, *Triple Bottom Line Measurement and Reporting in Australia: Making it Tangible* (2002) <http://www.ea.gov.au/industry/fin...ple-bottom/executive-summary.html> (accessed 27 June).

The current structure and condition of agricultural landscapes is a consequence, in part, of the policies of successive governments.

Fourthly, the contemporary influence of the Commonwealth government in natural resource management is described. It has a range of constitutional responsibilities, fiscal powers, policy and coordination functions, which set the context within which the States execute their natural resource management responsibilities.

Finally, this chapter describes and critiques in broad terms the legal and administrative arrangements for natural resource, environmental and land-use planning law at the State level.

1.2.2 Part Two - Sustainability.

In Chapter Three the international process for the development of the concept of sustainable development is briefly reviewed. Following is a short account of the adoption of ESD as a policy paradigm in Australia and a review of its implementation at the Commonwealth level.

The second part of this chapter moves beyond the policy documents to examine the idea of sustainable development at a conceptual level. Sustainable development is an elegant synthesis of the changes in thinking that have emerged over the last 30–40 years. It is a highly contested concept, which can mean ‘anything to everyone’ or ‘nothing to nobody’. Its strength may lie in this very ambiguity. It is concluded that sustainability is not so much a number or a place in time as a process of change.

The potential of law to facilitate implementation of ESD is then considered. Changes in the law which work to incorporate ESD in Australia are drawn out. It is argued that the law is in transition.

In Chapter Four the expansive and expanding literature on sustainability is reviewed to draw out the key concepts of sustainability. These are framed as a set of elements that should form the substance of a legal framework for environmental planning that is concerned with operationalising the broad principles of sustainability. The challenges

this poses to traditional public administration are identified. This section becomes the template for the analysis of catchment and water planning law in SA and NSW, in Part Four of this thesis.

1.2.3 Part Three - Regulation.

In Australia there has been a growing disenchantment with command regulation and an increasing interest in a range of alternative regulatory approaches. The first part of Chapter Six provides an overview of these alternatives and their applicability in the agricultural sector. Command regulation, while much critiqued, remains a central component of the approach to natural resource management. In the second part of this chapter the research on command regulation has been reviewed with a view to examining how it might be improved in practice. This review runs along three themes i.e. the design of rules, enforcement and compliance, and the normative role of law.

Finally, given the proposition that command and control regulation will remain an important strategy in the agricultural sector, the potential of a range of approaches to regulatory reform is considered. The third part of the chapter reviews an emerging body of literature, particularly from Europe, which is concerned with the influence of approaches to rule-making. Some of this literature is firmly bedded within a self-regulatory context, however it will be argued that these insights can be used to inform a planning based approach to regulation. An iteration between planning, value change, rule-making, integration and compliance construction could advance the multi-dimensional and inter-temporal approach required for the sustainable management of the Australian environment. This theoretical discussion will establish the analytical framework for the discussion of natural resource planning as a regulatory strategy advanced in the conclusion to this thesis.

1.2.4 Part Four – Case Study

Part Four of this thesis is a case study of the legal and administrative arrangements for catchment and water planning in NSW and SA. This moves from a study of the ‘law-in-books’ to a study of the law in implementation.

In Chapter Six, the legal and administrative arrangements for catchment and water planning in SA and NSW are analysed against the elements of sustainable planning developed in Part Two. Similarities and differences between the States have been drawn out.

Chapter Seven and Eight describe the implementation of catchment and water planning in the Onkaparinga catchment in SA and the Southern Catchment in NSW. The detail of the case study method and content is documented further in the Methods section below.

1.3 Methods

1.3.1 Socio-legal Research.

This research falls broadly within what is known as socio-legal studies.⁵ The focus of socio-legal research is upon the law in social context rather than for its own intrinsic value as legal text.⁶ In general, the concern is with how the broader structures incorporated in law influence the everyday actions of legal actors.⁷ According to Hutter (1999) socio legal research is characterised by the interplay and interdependence of theory and empirical data.⁸

‘...[T]heory, research, and the subjects of research interplay and are interrelated. Just as theory feeds into empirical research, so empirical research feed into theory: and in turn both may reflect back into the ‘real world’ and thus alter or influence the subjects of research.’⁹

It would however be a misrepresentation to imply that relationship between theory and empirical data is in any way a linear process, rather it is a dynamic one. In this

⁵ For a review on the literature and styles of socio-legal studies see Hutter B. M. and Lloyd-Bostock S., "Law's Relationship with Social Science: The Interdependence of Theory, Empirical Work and Social Relevance in Socio-legal Studies" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, Oxford, England.

⁶ Hutter B. M., "Socio-Legal Perspectives on Environmental Law: An Overview" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, New York, United States.

⁷ Ibid.

⁸ Ibid.

⁹ Hutter B. M. and Lloyd-Bostock S., "Law's Relationship with Social Science: The Interdependence of Theory, Empirical Work and Social Relevance in Socio-legal Studies" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, Oxford, England, 31.

research, there has been an on-going iteration between the theoretical insight gained from the literature and the data points of interest in the empirical research. This has resulted in a gradual refinement of the case studies that constitute the empirical part of this thesis.

There is a dearth of socio-legal research on the impact of law upon the environment and upon the regulated.¹⁰ It is hoped that this research will contribute to filling this gap. A determination of the impact of the law on the environment is deeply problematic. With the exception of the absolute prohibition of, for example, the production or use of a chemical, the demonstration of direct causality between a legal measure and environmental change is confounded by the myriad influences on both behaviour and on environmental outcomes. Furthermore, a legal measure designed to catalyse long-term change may not produce measurable change in environmental indicators over the short-term.

The challenge then of testing the environmental impact of the legal framework for planning had to be approached from another angle. The need to frame the argument in terms of the bigger questions case studies are intended to illustrate, has been argued persuasively by Howitt (2001).¹¹ The strategy adopted in this research has been to review the literature on sustainability in order to discern the elements of the concept that should be included in a legal framework for catchment and water planning. These elements were used as the template for the analysis of legislation. Against this template the legal strategies for implementation contained in the legislation were explicated. The purpose of this process was to establish whether the new catchment and water planning legislation 'in-the-books' had the potential to facilitate the sustainable management of natural resources. The implementation of the law in two small coastal catchments is then described and discussed.

The second strand of theory reviewed in this thesis relates to regulation. The literature review of regulatory theory provides the basis for a critique of the legal strategies employed in catchment and water planning and by the plans. This is with respect to

¹⁰ Hutter B. M., "Socio-Legal Perspectives on Environmental Law: An Overview" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, New York, United States, 16.

¹¹ Howitt R., *Rethinking Resource Management - Justice, Sustainability and Indigenous Peoples* (2001) Routledge, England.

both the process of regulatory reform and the influence, if any, on the ‘rules’ and their implementation.

1.3.2 Case Study Research - overview.

Yin (1994) argues that case studies are the preferred strategy when: ‘how’ or ‘why’ questions are being posed; the investigator has little control over events; and the focus is on a contemporary phenomenon within some real-life context.¹² The case study is:

‘an empirical inquiry that investigates a contemporary phenomenon in context, especially when the boundaries between phenomenon and context are not clearly evident and when relevant behaviours cannot be manipulated.’¹³

Case studies have a distinctive place in evaluation research.¹⁴ The most important is to explain the causal links in real-life interventions that are too complex for other methods.

According to Howitt (2001) there are several reasons for using a case study approach to resource-related research:

- ‘To provide knowledge as a basis for understanding specific circumstances.
- To provide an empirical basis for developing generalised models.
- To identify common ground in reaching policy directions across a range of situations.
- To provide a basis for making decisions.’¹⁵

The case study is a valid method for socio-legal research. Both are concerned with a research process aimed at understanding a current event in its real-life context. Further, as with socio-legal research, theory development is important. For case studies, theory development as part of the design phase is essential, whether the purpose of the ensuing case study is to develop or to test theory.¹⁶ In a case study context, the purpose of the literature review is to develop more targeted and perceptive questions about the topic under study. The case study method benefits from the prior development of theoretical

¹² Yin R. K., *Case Study Research: design and methods* (1994) Sage, California, USA, 1.

¹³ Ibid. 13.

¹⁴ Yin R. K., "The case study methods as a tool for doing evaluation" (1992) 40 (1) *Current Sociology* 121-137.

¹⁵ Howitt R., *Rethinking Resource Management - Justice, Sustainability and Indigenous Peoples* (2001) Routledge, England, 191.

¹⁶ Yin R. K., *Case Study Research: design and methods* (1994) Sage, California, USA, 27.

propositions to guide data collection and analysis.¹⁷ The conceptual framework affects the ‘content, meaning and value’ of the case study.¹⁸ In this research the literature has been used to assist in the development of a theory about sustainable legal systems, which is then tested in the case studies themselves. The use of theory has helped define the appropriate research design and data collection. It also becomes the main vehicle for generalising the results of the case study.¹⁹ The literature on regulatory theory has been useful in defining the issues and developing an analytical framework.

1.3.3 Research Design.

According to Yin (1994) the research design should contain the study’s questions, propositions, units of analysis, the logic linking the data to the propositions and the criteria for interpreting the findings.²⁰ Similarly Howitt (2001) suggests that the researcher needs to define the purpose of the research, the sources of information, how to make sense of it, how to recognise and deal with new information, and the vantage point within the system.²¹

Study questions.

The research juxtaposes the legal and administrative arrangements for catchment and water planning in NSW and SA, with a particular focus on integration with the land-use planning system and the regulatory regimes for water quality. It was expected that there would be commonality between the two States in the legislative provisions for catchment and water planning and that this represents a trend in natural resource management. However, it was also expected that there would be significant differences between the two States, the detail of which might prove to be significant to the effectiveness of the legislative approach.

¹⁷ Ibid. 13.

¹⁸ Howitt R., *Rethinking Resource Management - Justice, Sustainability and Indigenous Peoples* (2001) Routledge, England.

¹⁹ Yin R. K., *Case Study Research: design and methods* (1994) Sage, California, USA, 32.

²⁰ Ibid. 20.

²¹ Howitt R., *Rethinking Resource Management - Justice, Sustainability and Indigenous Peoples* (2001) Routledge, England, 195.

The research method used follows the general theory-building framework described by Yin (1994). The literature on sustainability and regulatory theory has been reviewed with a view to:

- describing the elements of a legal approach to catchment and water planning which will operationalise the principles of sustainability; and
- developing an analytical framework through which to explore the potential of catchment and water planning in the development of an effective regulatory strategy.

The case study research has been conducted on a cascading scale. The case studies in the first instance test the catchment and water planning law ‘in the books’ in NSW and SA against the ‘elements of a sustainable legal framework’ developed in Part Two of this thesis. The case studies then go on to review the implementation of the law in two small coastal catchments in SA and NSW.

The empirical component of this research is explicitly concerned with the implementation of the new catchment and water planning law in NSW and SA, and the strengths and weaknesses of the particular approach for the furtherance of sustainable agriculture on private land. The concern is both with conventional command regulation and tools of management. It is contended that a number of claims about the efficacy of this approach have been made but remain to be demonstrated. The objective of the case studies is to test these claims and draw some conclusions about the effectiveness of the new approach from the perspective of both sustainability and regulatory theory.

The systems in NSW and SA are at different stages of development i.e. the legislation in NSW is at a very early stage of implementation, whereas in SA there has been sufficient time to move from plan-making to implementation of plans. For SA, this research benefited from the existence of a literature reviewing the operation of the system. To this extent, the case studies of implementation of the law are quite different, with the SA case being more robust and only tentative conclusions drawn in relation to NSW.

Boundaries of the research.

This research concerns the management of private/non-urban land broadly agriculture (irrigated and dryland), horticulture and pasture management for livestock. It does not consider public land i.e. national park, nature reserve, state forest, crown land, council land etc. Biodiversity and nature conservation issues will only be considered to the extent that they relate to objectives for plans for private land. The ideal for integrated catchment management is the inclusion of all the different aspects of natural resources, but the focus of this research is more limited. This research is limited to an examination of the management and regulation of water quantity, water quality and land-use.

The physical boundaries of the case study areas reflect the administrative catchments as defined in the respective jurisdictions.

Case study selection.

In this research a purposive sampling approach has been adopted i.e. the cases have been selected because they are relevant to the topic under investigation. It is not argued that the cases selected are exceptional or indeed typical. Rather the premise is that the protection of coastal catchments with high suitability for agriculture is important to the achievement of sustainable agriculture generally. Furthermore, both catchments, while experiencing environmental and economic stress, are still relatively robust and the chances of successful planning outcomes are more probable. In both catchments, the existence of external third party interests, most notably urban populations concerned with water supply, means that economic support for protection measures is relatively more available than in other rural areas and so should contribute to the viability of any approach.

The Onkaparinga Catchment, SA and the Southern Catchment Board area, NSW were studied. These catchments were selected because there is a similarity in the catchment profile i.e. coastal catchments with areas that are subject to special protections for drinking water purposes; significant peri-urban pressure which includes high demand for rural residential development and tourism facilities; a changing agricultural profile including a decline in broadacre activities, particularly dairy farming and a shift towards more intensive land-use; and water quantity stress and water quality decline. It is

acknowledged that from the perspective of environmental attributes there are significant differences in rainfall, soil type, topography and so on.

Data collection

The original objectives and design of the case study were based on theoretical propositions, which in turn reflected a set of research questions, reviews of the literature and insights. These propositions shaped the data collection plan and therefore gave priorities to the relevant analytic strategies. It must be acknowledged however that the description and documentation involved ‘interpretation of information, comparison with other situations, making judgements about relevance, meaning and significance and intervention to achieve particular goals’.²²

Data collection methods were not routinised and a replication logic was not applied. There was an ongoing interaction between the theoretical issues being studied and the data being collected. In this research both case studies were conducted simultaneously. An iteration between the cases contributed to the development of data points, priority issues and clarity.

The construct validity of research is supported through the use of multiple sources of evidence. In this research the main sources of evidence have been legislation, government reports, plans, records of meetings, unstructured interviews and direct observation of meetings. Interviews have been an important source of data in this research, however their limitations with respect to the problems of bias, poor recall, or inaccurate reporting are acknowledged. The case study interviews were of an open-ended and unstructured nature. Key informants were asked for the facts of a matter as well as for their opinions about events and their value in catalysing lines of enquiry cannot be underestimated. Every effort has been made to corroborate interview data with information from other sources.

²² Ibid. 193.

1.3.4 Multiple-case Case Studies.

This research has involved two separate case studies. The evidence from multiple cases is often considered more compelling and the overall study therefore is regarded as being more robust. However, the rationale for single case designs usually cannot be satisfied by multiple cases i.e. the unusual or rare case, the critical case or the revelatory case.²³ Typically, using two cases the method of generalisation is analytic generalisation, where a previously developed theory is used as a template with which to compare the empirical results of the case study.²⁴ Small number comparative analysis is deterministic in its conception because interaction between variables cannot be tested by this method.²⁵ However, comparative analysis can proceed through a logical juxtaposition of aspects of a small number of cases. The case study catchments were carefully selected to ensure that there was a reasonable basis for comparability.

1.3.5 The case studies.

The vantage point has been the catchment and water planning legislation in the respective State i.e. the *Water Resources Act, 1997* (SA) and the *Catchment Management Act, 1989* (NSW) and the *Water Management Act, 2000* (NSW). Consequently, a desktop analysis of the legislative arrangements for catchment and water planning in NSW and SA was undertaken. The provisions of the legislation that were reviewed are:

- scope,
- objects,
- rights to take water,
- administrative framework,
- scope, content and review of plans,
- the plan-making procedure, including public participation in plan-making,
- formal requirements for integration of plans,
- functions, clarity, accountability and transparency,

²³ Yin R. K., *Case Study Research: design and methods* (1994) Sage, California, USA.

²⁴ Ibid.

²⁵ Ibid.

- adaptive capacity of plans, and
- appeals and third party rights.

These provisions were analysed in a manner that corresponds with the ‘elements’ of a sustainable planning framework, developed from the literature and described in Part Two of this thesis.

It is from the perspective of the catchment and water planning that the relationship with the land-use planning system i.e. the *Development Act, 1993* (SA) and the *Environmental Planning and Assessment Act, 1979* (NSW); and the system for regulation of water quality i.e. *Environment Protection Act, 1993* (SA) and the *Protection of the Environment Operations Act, 1997* (NSW) was examined in the case studies.

Particular focus is given to the interaction and integration of the catchment and water plans with land-use plans. Catchment and water plans are in the main concerned with the management of existing and on-going uses of natural resources, as well as restoring the damage of the past. Land-use plans are concerned with, but not necessarily limited to, new land-use. The importance of compatibility between plans cannot be overstated. Efforts to manage existing uses sustainably can easily be overwhelmed by inappropriate new development.

In summary, this research examines both the ‘process’ aspects of the law in relation to planning and to a limited extent the substantive outcome of these processes, i.e. the content of the plans, with particular reference to integration with the land-use planning system.

1.3.6 Limits of the case study method.

The case study method is not without its critics. Key concerns with case study research include lack of rigour, time requirements and concern about the generalisability of results.²⁶ These points are addressed in turn.

²⁶ Sarantakos S., *Social Research* (1998) Macmillan Education Australia Pty Ltd, South Yarra. Yin R. K., "The case study methods as a tool for doing evaluation" (1992) 40 (1) *Current Sociology* 121-137.

Rigour.

Problems with rigour can be mitigated by transparent design and reporting of evidence. To this end it should be noted that the data collection methods in the case studies have varied significantly. This is a consequence of two factors. I brought to this research a sound pre-existing knowledge of NSW natural resources and planning law. My knowledge of the SA system was more cursory and therefore more time was required to gain familiarity with the legal and administrative arrangements in that State. Secondly, I live in NSW and was able to directly observe meetings and benefit from first-hand experience of the operation of the system in this State. Interviews have necessarily been a much more important element of the research approach in the SA case study. I undertook two field trips to SA²⁷ and have maintained regular email and phone contact with key informants.

Time.

Case study research is time consuming and there is a risk that it will become an expansive descriptive effort rather than a critical analysis of key points. To this end I have clearly defined the boundaries of this research and used the literature to focus the inquiry. This is not to imply that there have been no 'blind alleys', tangents, or 'dead ends'. However, ultimately these have informed and enriched my understanding of the system under study. PhD research confers the rare opportunity to take time to develop an in-depth understanding and I have spent four years collecting, collating and analysing the case study data.

Generalisability.

The final concern is that case studies provide a limited basis for scientific generalisation. However, generalisations can be made to theoretical propositions and not to populations or universes.²⁸ It is thus necessary to do a generalising and not a particularising analysis and produce analytical generalisation. It is therefore legitimate

²⁷ 19-23 March 2001, 1-10 October 2002.

²⁸ Yin R. K., *Case Study Research: design and methods* (1994) Sage, California, USA, 10.

to generalise about the validity of the original theoretical propositions, relating to sustainable legal systems and their influence on regulatory outcomes.

1.4 Caveats and regrets.

A fundamental premise of this research is that the law is and should be in transition. Unfortunately, for the researcher, this means that very soon, the research is out of date. At the time of writing in 2004, major legal and administrative reform was underway in both SA and NSW. What is intended to be a contemporary analysis can all too readily become an historical piece!

South Australia

In SA major legislative reform to natural resource management was first proposed in 2001. The Integrated Natural Resource Management Bill, 2001 lapsed in Parliament in the lead-up to the 2002 State election. The Bill proposed:

‘...[a] Ministerial Board and a network of regional Integrated Natural Resource Management Groups to coordinate approaches to managing the State’s natural resources. The proposed Act is not intended to immediately replace any existing legislation, rather it seeks to provide a common set of policies and processes across all natural resource management legislation.’²⁹

In November 2002, the Government of SA released a Discussion Paper ‘New Directions for Natural Resource Management in South Australia.’³⁰ The Draft Natural Resource Management Bill 2003 was released for comment in July 2003. The legislative proposal:

- brings NRM into the framework of ecological sustainability and adopts the inter-generational equity and precautionary principles;
- provides for the establishment of a new structure which integrates a number of the current NRM institutional arrangements;

²⁹ Government of South Australia, *Draft Integrated Natural Resource Management Bill: Request for Comments & Explanatory Paper* (2001) Adelaide, SA, 5.

³⁰ Natural Resource Management Council, *New Directions for Natural Resource Management in South Australia* (2002) Government of South Australia, Adelaide, SA.

- repeals the *Animal and Plant Control (Agricultural Protection and Other Purposes) Act 1986*, *Soil Conservation and Land Care Act 1989*, and *Water Resources Act 1997*; and
- incorporates operational matters from the Acts to be repealed.³¹ ‘

In short, the Bill will expand the scope of natural resource issues dealt with at the regional level through a streamlined administrative framework. Catchment Water Management Boards are to be replaced with Natural Resource Management Boards. While coöordinated decision-making at the regional level is proposed through the new Boards, regulatory and operational provisions are drawn from existing legislation and relate to the individual natural resource management areas.³² The *Natural Resource Management Act, 2004* finally received assent on the 5th August 2004.

New South Wales

In October 2003, NSW Premier Carr announced major natural resource management reforms.³³ Heralded as ‘historic’ change, it proposes ‘sweeping reforms’ to natural resource management in the State in line with the recommendations of the Native Vegetation Reform Implementation Group (NVRIG).³⁴ The package of reforms included passage of the *Natural Resources Commission Act, 2003*, the *Native Vegetation Act, 2003* and the *Catchment Management Authorities Act, 2003*.

The *Catchment Management Authorities Act, 2003* received assent on the 11th December 2003 and from January 2004, formally constituted Catchment Management Authorities (CMA) as statutory bodies with a wide range of powers and responsibilities.³⁵ The objects of the Act include: ‘to establish authorities for the purpose of devolving operational, investment and decision-making natural resource functions to the catchment level’ and ‘to provide for *proper* natural resource planning at

³¹ Department of Water Land and Biodiversity Conservation, *Consultation Draft Natural Resources Management Bill, 2003* (2003) Government of South Australia, Adelaide, SA, 4.

³² Ibid. 4.

³³ Office of the Premier, *Media Release: Premier Carr announced historic overhaul of natural resources management* (2003) <http://www.dipne.nsw.gov.au/nvrig/index.html> (accessed 26 November).

³⁴ Department of Infrastructure Planning and Natural Resources, *A new approach to natural resource management* (2003) <http://www.dipnr.nsw.gov.au/nvrig/index.html> (accessed 26 November).

³⁵ Department of Infrastructure Planning and Natural Resources, *Catchment Management Authorities - their role in delivering the reform program* (2003) <http://www.dipnr.nsw.gov.au/nvig/index/html> (accessed 26 November).

a catchment level' (emphasis added).³⁶ The specific function of the Authorities includes 'to develop catchment action plans and to give effect to any such approved plans through annual implementation programs'.³⁷ The functions include further to provide loans, subsidies or other financial assistance; fund 'works'; assist landholders; and provide education and training.³⁸ Clearly, the new authorities will have a 'management' as distinct from a 'regulatory' focus. The Southern Catchment Management Board that was the subject of this study became part of the much larger Southern Rivers CMA. The CMA will: consolidate the two relevant catchment blueprints and produce a catchment action plan and investment strategies targeting the areas of highest priority; recommend and manage incentive programs; provide landholders with the information they need to develop property vegetation plans; and provide education and training.³⁹

In addition to these changes, there were significant amendments to the *Water Management Act, 2000* with the passage of the *Water Management Amendment Act, 2004* in June of 2004. This legislation contained amendments to enable NSW to commence the new access licensing and approval system in the areas covered by water sharing plans and other changes to conform to commitments in the National Water Initiative.

Finally, in September 2004 Craig Knowles, Minister for Infrastructure and Planning and Minister for Natural Resources announced a major overhaul of the NSW planning system.⁴⁰ The proposals involve reforms to strategic planning for growth areas, simplification of planning controls, improvements to development assessment processes and provision for flexibility in the use of developer levies for local facilities and services.

It is beyond the scope of this research to critique these reforms. This review was of the legislation in operation at the time of the research.

³⁶ *Catchment Management Authorities Act, 2003* s. 3 (a)(b).

³⁷ *Catchment Management Authorities Act, 2003* s. 15(a).

³⁸ *Catchment Management Authorities Act, 2003* s. 15(b)-(e).

³⁹ Southern Rivers Catchment Management Authority, *Catch Up* (2004) Southern Rivers Catchment Management Authority, Wollongong, NSW.

⁴⁰ Department of Infrastructure Planning and Natural Resources, *Improving the NSW planning system* (2004) <http://www.dipnr.nsw.gov.au/planningreform.html> (accessed 11 November).

During the period of this research there has been significant State Government Departmental reorganisations in both SA and NSW. I have not attempted to detail these changes in this thesis. In this thesis departments are generally referred to by the name they used at the relevant time. With respect to ‘administrative arrangements’ the focus has been on the legal provisions.

Part One

Chapter Two - Context

2.1 Introduction.

This research is a study of the ‘law-in-context’. Accordingly, Part One of this thesis is concerned with building a picture of the context within which natural resources law, and more specifically the law relating to natural resources planning at the State level, operates. This research is fundamentally concerned with the *sustainable* management of natural resources on private agricultural land.

‘[F]rom a sustainable development perspective – from the point of view of long-term, public needs – the agricultural sector cannot be residualised and left in a state of public denial. Its social, economic and physical role is a central element in achieving a more sustainable society, both for the rural and urban public.’¹

Accordingly, the first part of this chapter describes the ‘triple bottom line’² for agriculture in Australia i.e. the environmental, social and economic picture. This description is undertaken at a national scale and is necessarily general in nature. Firstly, in the environment section it will be shown that there is extensive evidence of broadscale environmental degradation, species loss, loss of vegetation, land degradation and water quality decline. It will be demonstrated that environmental problems are complex and interconnected and that no single issue can be resolved in isolation. It is not argued that the current environmental condition is exclusively attributable to agricultural practices but they have been a significant contributor. Secondly, consideration is then given to the social context of the agricultural sector. It will be shown that there has been dramatic structural change across the sector, which has had a number of social effects. This change is driven by both the changing nature of the industry and also by a range of government policies both directly and indirectly concerned with agriculture. Thirdly, the broad economic position of agriculture in Australia is described. It will be shown that agriculture is of significant but declining

¹ Marsden T., Banks J., Renting H. and Van Der Ploeg J. D., "The Road Towards Sustainable Rural Development: Issues of Theory, Policy and Research Practice" (2001) 3 *Journal of Environmental Policy and Planning* 75-83, 75.

² See Environment Australia, *Triple Bottom Line Reporting in Australia - A Guide to Reporting Against Environmental Indicators* (2003) Commonwealth of Australia, Canberra, Australia.

importance to the economy and that there are clear trends towards intensification and farm aggregation. Finally, a number of emerging issues with the potential to increase the challenge for the sustainable management of natural resources on private agricultural land will be drawn out.

The concern of the second part of this chapter is with both the historical and contemporary role of individuals and governments in the current shape of the agricultural sector. The fundamental purpose of this chapter is to convey the role played by both individuals and government in the degradation of agricultural landscapes and the historical, social and economic forces, which have contributed to this situation. It is not intended to imply that this was wilful but rather it is a search for an understanding of the complex drivers and levers of unsustainable land-use practice in the agricultural sector.

In the first instance, the role of individuals is considered from the perspective of attitudes to the environment, the notion of stewardship, and the potential of a 'duty of care' to shift individuals to more sustainable land-use practices. Secondly, the historical role of governments in shaping the structure of agriculture in this country is described. Perceptions about the importance of agriculture to the national interest, the developmentalist ethos of successive governments and the influence of the farm sector on policy development are considered. The recent shift in the place of agriculture in Australian society is reflected by a change in government policy from specific support for the sector to a focus on management.

This research centres on the legal and administrative arrangements for natural resource management at the State level. However, a critique of management at the State level cannot be undertaken without an understanding of the influence of the Commonwealth. While the Commonwealth is reluctant to directly regulate, it has been highly influential through the use of a range of other powers. In this respect, the role of the Commonwealth in policy direction, coordination, monitoring and funding is important to outcomes at the State level. The final part of this chapter provides a broad overview of the legal and administrative arrangements for natural resource management at the State level. Current arrangements pose a number of challenges to the sustainable management of natural resources. Catchment management is an approach which has

developed in response to the problems which arise as a consequence of the traditionally sectoral, fragmented and uncoordinated legal and administrative arrangements for natural resource management.

This chapter demonstrates the diversity, complexity and interconnectedness of the environmental, social, economic, legal and administrative context of agriculture in Australia. A shift to sustainable management of natural resources on private agricultural land requires change from both governments and individuals. It requires measures to address the legacies of the past, to ameliorate the impact of current practices and to ensure that future development is sustainable. There is no single recipe, no simple solution; the complex of factors that drive unsustainable practices need to be addressed holistically. The potential of the legal and administrative arrangements for catchment and water planning to respond to these challenges is the central concern of this research.

2.2 Agriculture – the triple bottom line

2.2.1 Environment.

Recognition of, and concern about, the impact of agriculture and pastoralism on the Australian landscape has long been evident. ‘Parliamentary debates, media reports, recommendations from inquiries, and first-hand accounts by landowners, travellers, scientists and government officials all attest to abuse of the land since 1788.’³ Concern about soil degradation in Victoria was expressed from as early as 1878 and most States had publicly acknowledged and made attempts to deal with the issue by at least the 1940s.⁴

Some 60% of the Australian continent supports agriculture and pastoralism. It is beyond the scope of this research to comprehensively describe the range of environmental impacts of agricultural and other land-uses or their complex interactions. However, a brief summary serves to highlight the breadth, depth and scale of

³ Australian State of the Environment Committee, *Australia State of the Environment 2001* (2001) Department of Environment and Heritage, Collingwood, Victoria, 11.

⁴ Bolton G., *Spoils and Spoilers. A History of Australians Shaping their Environment* (1992) Allen and Unwin, Sydney, Australia, see Chapter 12.

environmental problems currently facing Australia. It is possible to conclude that the rate of soil degradation,⁵ loss of vegetation from clearing and introduction of exotic species is a consequence of agricultural activities.⁶ It is more difficult to estimate the magnitude of the problem, and a determination of causality is complicated by the underlying geology and natural climate fluctuations, particularly drought.⁷

In recent years there have been concerted efforts to accurately assess both the scale and causes of the various environmental impacts. A notable initiative in this regard is the Commonwealth investment in the National Land and Water Resources Audit (NLWRA) which has brought together a comprehensive suite of information⁸ on the state of the natural environment. Both the Commonwealth and State Governments prepare State of the Environment Reports, which collate indicators of environmental quality in a number of land-use and environmental sectors. Many of the environmental problems of today had their genesis in past land-use practices. However current practices, most particularly land clearing, continue to generate negative environmental impacts.

Indigenous people have lived in Australia for some 40,000 years. They 'skilfully managed and shaped the landscape by the continuous and creative use of fire'.⁹ Over countless generations the landscape was changed. Barr and Cary (1992) describe the impact of 'fire stick farming' on the landscape as resulting in eucalypt-dominated forests, open on the hillsides and plains and denser along watercourses.¹⁰ The landscape was not 'conserved', however 'the Aborigines created a sustainable agricultural system that lasted for tens of thousands of years.'¹¹ Fire had many uses, which include hunting, warfare, regeneration of plant food and expanding human habitat.¹² So shaped was the

⁵ Wind, sheet and rill erosion, soil compaction and structural decline, soil salinity and sodicity, dryland salinisation and soil acidification.

⁶ Young A., *Environmental Change in Australia Since 1788* (2000) Oxford University Press, South Melbourne, Australia, see Chapter 3.

⁷ Ibid. 36-37.

⁸ The NLWRA has conducted Australia-wide assessments of water availability and quality, dryland salinity, rangelands, agricultural productivity and sustainability, Australians in natural resource management, catchments, rivers and estuaries and biodiversity.

⁹ Barr N. and Cary J., *Greening A Brown Land* (1992) Macmillan Education Australia, Melbourne, Australia, 7.

¹⁰ Ibid. 7-9.

¹¹ Ibid. 9.

¹² Flannery T., *The Future Eaters - An ecological history of the Australasian lands and people* (1994) Reed Books, Chatswood, Australia, 223.

environment by fire that modern vegetation communities differ dramatically to that which existed prior to European occupation.¹³ According to Flannery (1994) hunting by Aboriginals influenced both the size and population of Australian fauna.¹⁴

The Australia invaded by Europeans over 200 years ago was modified but stable. Seddon (1983) describes the European impact on the Australian environment as nothing short of devastating:

‘When Europeans entered Australia, they did not come alone. They brought their diseases ... their livestock, their pets, their cultivated plants, and their weeds and their pests ... Among the consequences of this multiple invasion on an isolated ecosystem was acute biological instability.’¹⁵

The process of change initiated by the early settlers has continued to the present day, confirming that ‘[e]xisting pressures from human settlements are not consistent with a sustainable environment’.¹⁶ According to the Australian Bureau of Statistics’ report, ‘Measuring Australia’s Progress’ (2002), Australia is going backwards on five of the six key indicators of progress on environmental issues: biodiversity preservation, land clearance, land degradation, the condition of inland waters and greenhouse gas emissions.¹⁷ The 2002 Environmental Sustainability Index, ranked Australia 16th of the countries surveyed.¹⁸

The Australian State of the Environment Report (2001) stated that ‘degradation of lands and waters remains of critical concern, especially in the intensive land-use zone upon which much of Australia’s agricultural production depends; population growth has particular effects on coastal areas; habitat fragmentation and the introduction of pests threaten some ecosystems; and global pressures including the greenhouse effect

¹³ Ibid. 217-236.

¹⁴ Ibid. 212-216.

¹⁵ Seddon G., *Landprints. Reflections on place and landscapes* (1997) Cambridge University Press, Cambridge, England, 214.

¹⁶ Australian State of the Environment Committee, *Australia State of the Environment 2001. Key Findings* (2001) Commonwealth Government, Canberra, Australia, 1.

¹⁷ ABS, *Measuring Australia’s Progress* (2002).

¹⁸ Global Leaders of Tomorrow Environment Task Force W. E. F., *2002 Environmental Sustainability Index* (2002) World Economic Forum, Geneva, Switzerland, 3.

exacerbate problems.’¹⁹ The Report found that despite a range of initiatives the state of the natural environment has improved very little since the previous report in 1996, and, in some critical aspects, has worsened. Pressures on the Australian environment continue to grow.²⁰

One of the most tragic aspects of European invasion and land-use practices has been the loss of biodiversity. Australia has a high diversity of biomes and high biodiversity.

‘Australia is an ark, an ecological treasure house that is home to over 250,000 species. It is identified as a mega-diverse country, one of 17 countries that together harbour over 70% of the planet’s terrestrial species. Over the past 50 million years, Australia’s wildlife has evolved in isolation from the rest of the world. Most species are unique to the continent ...’²¹

About 85% of flowering plants, 84% of mammals, more than 45% of birds, and 89% of inshore, temperate-zone fish are endemic.²² Australia has the world’s worst record of mammal extinctions. It is fifth on the International Union for the Conservation of Nature (IUCN) extinction Red List. Thirty-six animals are extinct and 527 are listed as critically endangered, endangered or vulnerable.²³ Twenty species of native birds are extinct.²⁴ The survival of many wild plants and animals is under considerable pressure. There has been a massive contraction in distribution of mammals in the arid and semi-arid parts of the continent.²⁵ The abundance of some 29 species of birds in agricultural areas has significantly decreased over the last 20 years where an increased proportion of the landscape has been cleared. Most affected are grassland, woodland and ground nesting guilds.²⁶ Over 2,800 unique ecosystems (at bioregion scale) throughout Australia are at risk.²⁷

¹⁹ Australian State of the Environment Committee, *Australia State of the Environment 2001* (2001) Department of Environment and Heritage, Collingwood, Victoria, 1.

²⁰ Ibid. 1.

²¹ Christoff P., *In Reverse* (2002) ACF, Melbourne, Australia, 10.

²² Department of Environment and Heritage Threatened species and threatened ecological communities at <http://www.deh.gov.au/biodiversity/threatened/index.html> accessed 22/07/2004.

²³ IUCN Red List at www.iucn.org/redlist accessed 22/07/2004

²⁴ Christoff P., *In Reverse* (2002) ACF, Melbourne, Australia, 11.

²⁵ National Land and Water Resources Audit, *Executive Summary. Australian Terrestrial Biodiversity Assessment* 2002 (2002) http://audi.deh.gov.au/ANRA/vegetation/docs/biodiversity/bio_assess_summary.cfm (accessed 15/6).

²⁶ Ibid.

²⁷ Ibid.

The most significant threat to species and ecosystems in eastern Australia is vegetation clearing, however overgrazing, exotic weeds and feral animals are also important.²⁸ The rate of land clearing has accelerated, with as much cleared during the last 50 years as in the 150 years before 1945.²⁹ The loss of native vegetation contributes to biodiversity decline through direct loss of species, habitat loss and fragmentation.³⁰ Key threats to biodiversity also include processes such as salinisation, and changing hydrological conditions and fire regimes.³¹

Land clearing and modification of vegetation for pasture improvement was and continues to be a major concern. The NLWRA assessment of Australia's native vegetation shows that since European settlement approximately 13% of the continent has been cleared and the condition of the remainder varies. Approximately 32% of native vegetation in the agricultural and urban zones is cleared or highly modified. The most affected vegetation groups are heath, low closed forests and closed shrublands, mallee woodlands and shrublands, eucalypt tall open forests, eucalypt woodlands, and rainforest and vine thickets. Much of the remaining vegetation in these zones is fragmented and occurs in isolated trees or narrow strips. The remnants are often on unproductive land or land specifically set aside for conservation.³²

Graetz *et al.*'s (1995) study of landcover disturbance found that:

- Within the intensive land-use zone around 52% of forests and woodlands had been cleared or thinned. Individual landcover types have levels of clearing that range between 30% and 90%.
- In the central extensive land-use zone, 37% of the total area was assessed to be slightly disturbed, 9% substantially disturbed, and 15% interpreted as significantly disturbed.

²⁸ Ibid.

²⁹ Australian State of the Environment Committee, *Australia State of the Environment 2001* (2001) Department of Environment and Heritage, Collingwood, Victoria, 7.

³⁰ Glaznig A., *Native Vegetation Clearance, Habitat Loss and Biodiversity Decline - an overview of recent native vegetation clearance in Australia and its implications for biodiversity* (1995) Department of Environment, Sport and Territories, Canberra, Australia, 8-9.

³¹ Australian State of the Environment Committee, *Australia State of the Environment 2001* (2001) Department of Environment and Heritage, Collingwood, Victoria, 7.

³² National Land and Water Resources Audit, *Australia's Native Vegetation. A summary of the National Land and Water Resources Audit's Australian Native Vegetation Assessment 2001* (2002) Commonwealth of Australia, Canberra, Australia, 19, 21.

- Thus, almost half of the landcover subject to active land-use is significantly disturbed. There are no vegetation types that remain completely undisturbed.
- The landcovers that have been most disturbed are the richest country i.e. with the highest rainfall and therefore the highest productivity.³³

According to the NLWRA, about 26% of surface water management areas and 34% of groundwater management units are close to, or have exceeded, sustainable extraction limits.³⁴ Increasing pressure to extract surface and groundwater for human use is leading to continued deterioration of the health of water bodies. Water use increased by 65% between 1985 and 1996/7. Some 75% of extracted surface and ground water is used for irrigation.³⁵

Surface water quality has deteriorated in many areas because of increasing salinity, turbidity, nutrients and/or pollution.³⁶ However the assessment of water quality by the NLWRA was constrained by the lack of water quality data with only about 28% able to be assessed. River water in several catchments is predicted to have salinity levels that will exceed drinking water guidelines within the next 20 years. The frequency, size and persistence of harmful algal blooms in inland water seem to have increased over the past 50 years.³⁷ Eutrophication and reduced river flows have led to an increase in the frequency and severity of algal blooms.³⁸ Land-use is a simple predictor of nutrient loads although other factors such as rainfall intensity, soil characteristics and drainage density are important variables.³⁹ Young *et al.* (1996) found that annual average nutrient export (total phosphorus and nitrogen) from a range of land-uses was significant with market gardening and urban areas the most significant contributors.⁴⁰ It

³³ Graetz R. D., Wilson W. A. and Campbell S. K., *Landcover Disturbance over the Australian Continent - a contemporary assessment* (1995) Department of the Environment, Sport and Territories, Canberra, Australia, 6.

³⁴ National Land and Water Resources Audit, *Fast Facts 22. Water use and availability in Australia - Key findings* (2001) Environment Australia, Canberra, Australia.

³⁵ Ibid.

³⁶ National Land and Water Resources Audit, *Fast Facts 23. Water Quality in Australia - Key Findings* (2001) Environment Australia, Canberra, Australia.

³⁷ Australian State of the Environment Committee, *Australia State of the Environment 2001* (2001) Department of Environment and Heritage, Collingwood, Victoria, 6.

³⁸ Young W. J., Marston F. M. and Davis J. R., "Nutrient Exports and Land Use in Australian Catchments" (1996) 47 *Journal of Environmental Management* 165-183, 165.

³⁹ Ibid. 167.

⁴⁰ Ibid. 171.

has been argued that soil loss is equivalent to mining a non-renewable resource.⁴¹ Calculations have pointed to an estimated annual topsoil loss of between 50 and 300 tonnes for each hectare used for cropping.⁴²

There is a diversity of impacts from agriculture on water quality and these include: water diversion; contamination from cropping systems i.e. pesticide residues, fertilizers and salts; contamination from livestock systems; waterlogging; and drainage problems from irrigation.⁴³ Land degradation, including erosion, and acidic and sodic soils contribute to poor water quality. The effect of the dramatic increase in pesticide use since the 1960s is uncertain because of lack of monitoring and data, but of concern.⁴⁴

The NLWRA (2001) indicated that the major water quality issues (i.e. nutrients, salinity and turbidity) are associated with land-use management practices and that improved land-use practice and re-establishment of riparian vegetation are the keys to improving surface water quality. Improvements in water quality therefore require measures to address both water use and land management. The Commonwealth SOE Report (2001) concluded that there is increasing pressure to extract surface and groundwater leading to continuing deterioration of the health of water bodies. Surface water has deteriorated further in many areas because of increased salinity. Management systems are not dealing with the complex linkages between waters and their catchments. Increased control on surface water is resulting in increased pressure on groundwater. Salinity is causing water quality decline and land degradation.⁴⁵

The NLWRA of catchment, river and estuary condition found similarly sobering results. The key findings for the biophysical conditions of the more intensively used catchments were that 5% are in the poorest condition class, 15% are in the lower condition class,

⁴¹ Christoff P., *In Reverse* (2002) ACF, Melbourne, Australia, 15.

⁴² Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia, 287.

⁴³ Zilberman D., "The Impact of Agriculture on Water Quality" in OECD (ed), *Sustainable Management of Water Resources - Issues and Policies. The Athens Workshop*. (1998), OECD, Paris, France, 134-142.

⁴⁴ Australian State of the Environment Committee, *Australia State of the Environment 2001* (2001) Department of Environment and Heritage, Collingwood, Victoria, 6.

⁴⁵ Australian State of the Environment Committee, *Australia State of the Environment 2001. Key Findings* (2001) Commonwealth Government, Canberra, Australia, 7.

50% are in the mid-range condition class and 30% are in the better condition class.⁴⁶ Over 85% of river length assessed is classified as modified in environmental features. There is impaired aquatic biota in 33% of the river length assessed with almost 25% having lost up to 50% of aquatic macro-invertebrates. Nutrients (mainly phosphorus) and suspended sediment loads are higher than natural loads in more than 90% of river length assessed with 33% classified as substantially modified. Over 80% of assessed river length is affected by catchment disturbance. There is modified habitat, mainly linked to loss of riparian vegetation, along more than 50% of the river length assessed. Hydrological change could not be comprehensively assessed because of lack of data. Changes in river condition was found to be most strongly linked to intensity of land-use, increased nutrient and sediment loads, and loss of riparian vegetation.⁴⁷

Less well articulated are the environmental impacts of urban development particularly 'sprawl' into formerly agricultural areas. According to Johnson (2001) these impacts include loss of environmentally fragile land, reduced regional open space, greater air pollution, higher energy consumption, decreased aesthetic appeal, loss of farmland, reduced diversity of species, increased runoff of stormwater, increased risk of flooding, removal of native vegetation, absence of views and ecosystem fragmentation.⁴⁸

No issue more elegantly demonstrates the interconnectedness of environmental harms than dryland salinity. The NLWRA estimated that nearly 5.7 million hectares are considered at risk or affected by dryland salinity – a figure that could triple to 17 million hectares in 50 years time.⁴⁹ Dryland salinity affects not only agricultural land but also water, vegetation and infrastructure.⁵⁰ Dryland salinity is caused by changes in the water balance. Tree clearing, reduced plant growth and thus reduced use of water in the soil increase the amount of water feeding into groundwater. This raises the groundwater table and mobilises salts stored in soils. The effects of dryland salinity are

⁴⁶ National Land and Water Resources Audit, *Catchment, River and Estuary Condition in Australia. A summary of the National Land and Water Resources Audit's Australian Catchment, River and Estuary Assessment 2002* (2002) Commonwealth of Australia, Canberra, Australia, 5.

⁴⁷ Ibid. 7.

⁴⁸ Johnson M., "Environmental impacts of urban sprawl: a survey of the literature and proposed research agenda" (2001) 33 *Environment and Planning A* 717-735, 721-722.

⁴⁹ National Land and Water Resources Audit, *Dryland Salinity in Australia. A summary of the National Land and Water Resources Audit's Australian Dryland Salinity Assessment 2000*. (2001) Commonwealth of Australia, Canberra, Australia, 3.

⁵⁰ http://audit.ea.gov.au/ANRA/docs/fast_facts/fast_facts_21.html

experienced at the farm scale, elsewhere in the catchment and/or downstream. It is more pervasive than other forms of degradation but is closely linked to them i.e. causing soil erosion, nutrient build-up in streams which sometimes promotes algal blooms, as well as the loss of plants from the river/creek edge leading to riverbank erosion and loss of wildlife habitat.⁵¹

More recently there has been recognition of the need to maintain ecosystem functions and the underlying processes, which maintain them. The anthropocentric conceptualisation of this idea is that of ecosystem services. Ecosystem services include the provision of clean air and water, natural fertilisation and nutrient cycling in soils, mitigation of climate, pollination of plants including crops, control of pests, provision of genetic resources, production of goods like food, fuel and fibre and maintenance of cultural and social values.⁵² While in the past these services were assumed to be endlessly renewable, there is evidence accumulating across terrestrial and aquatic ecosystems of a steady decline worldwide.⁵³ The World Resources Institute concluded in 2000 that most of the world's ecosystems are in fair, poor or bad condition with respect to delivering ecosystem services.⁵⁴ Ecosystem services contribute to economic and social well-being through the use of natural assets to provide inputs to production and by maintaining natural assets through regenerating the assets.⁵⁵ A critical issue for the agricultural sector is the decline in pollinators due to clearing of habitat and use of pesticides.⁵⁶ In a broader sense water quality decline arising from degradation of catchments, has resulted in the need for technological solutions such as water filtration.⁵⁷ The latter issue raises critical questions about policy choices between catchment protection and technological solutions. Recent research in Australia is

⁵¹ National Land and Water Resources Audit, *Fast Facts 21. Dryland Salinity in Australia - key findings*. (2001) Environment Australia, Canberra, Australia.

⁵² Cork S. and Shelton D., "The Nature and Value of Australia's Ecosystem Services: A Framework for Sustainable Environmental Solutions" (Paper presented at the Sustainable Environmental Solutions for Industry and Government, Queensland, Australia, 2000) 151-159, 151.

⁵³ Ibid. 151.

⁵⁴ Quoted in Cork S., "Ecosystem services: The many ways in which biodiversity sustains and fulfills human life" (2001) (September 2001) *Nature and Society Internet Forum*.

⁵⁵ Cork S., Shelton D., Binning C. and Parry R., "A framework for applying the concept of ecosystem services to natural resources management in Australia" (Paper presented at the Third Australian Stream Management Conference, Brisbane, Australia, 2001) 157-162, 159.

⁵⁶ Cork S., "Ecosystem services: The many ways in which biodiversity sustains and fulfills human life" (2001) (September 2001) *Nature and Society Internet Forum*.

⁵⁷ Ibid.

attempting to more specifically define the range of ecosystem services, which underpin agricultural activities in order to improve their valuation and protection.⁵⁸

Not only is landscape change and environmental degradation evident across much of Australia but its management and future implications must be conditioned by an awareness of uncertainty. This arises most notably from the potential impacts of climate change. There have been recorded increases in minimum temperatures, changes in precipitation and rainfall distribution, with a trend towards increased intensity.⁵⁹ Sea level has risen and the intensity of UV-B radiation at the earth's surface has increased.⁶⁰ Predictions about future scenarios vary considerably however they all emphasise a more variable and unpredictable climate, with increased incidence of extreme events such as fires, floods, droughts and tropical storms with significant effects on river flows.⁶¹

There is evidence that climate change is already affecting the physiology, geographic distributions and phenology (life cycle) of species.⁶² Predictions about the ways in which species respond to climate change are summarised as follows:

- Changes in atmospheric CO₂ concentration, temperature or precipitation will directly affect rates of metabolism and development in many animals, and processes such as photosynthesis, respiration, growth and tissue composition in plants.
- A 3 degree C change in temperature will affect species' geographic ranges. Species capable of moving range relatively rapidly will either move upwards in altitude or towards the poles.
- Life cycle events triggered by environmental cues such as degree-days may be altered, and the result may break the coupling of life-cycle interactions between species. This will alter competitive relationships and other interactions with other species, which will lead to changes in local abundance of species and to

⁵⁸ see Proctor W., Cork S., Langridge J., Langston A., Abel N., Howden M., Anderies M., Parry R. and Shelton D., "Assessing Ecosystem Services in Australia" (Paper presented at the 7th Biennial Conference of the International Society for Ecological Economics, Sousse, Tunisia, 2002)

⁵⁹ Howden M., "Climate trends and climate change scenarios" (Paper presented at the Climate change impacts on biodiversity in Australia, Canberra, Australia, 2002) 8-13, 8-10.

⁶⁰ Ibid. 10.

⁶¹ Ibid. 12.

⁶² Hughes L., "Summaries of workshop presentations" Ibid.14-16, 14.

changes in the composition of species. Inevitably at least some species will become extinct.⁶³

These changes will affect not only natural systems but also the distribution and productivity of agriculture. Climate change, could translate into a 30–40% increase in demand for irrigation water in some parts of the Murray-Darling catchment in certain seasons.⁶⁴

Since the first plantings in 1995, there has been a rapid expansion in the commercial cultivation of genetically modified ('GM') crops. The area under GM crops in 2000 is estimated to be 44.5 million hectares worldwide.⁶⁵ Monsanto is hailing this development as a second green revolution,⁶⁶ an unfortunate parallel given that the first green revolution significantly increased agricultural production but left a legacy of loss of biodiversity, diminution of food plant varieties and increased vulnerability of major food crops.⁶⁷ The use of GM plants presents a suite of new risks to sustainability, including gene flow from Genetically Modified Organisms ('GMO's) to wild relatives, emergence of new forms of resistance, recombinations of viruses and bacteria to produce new pathogens and production of novel toxins by GMOs.⁶⁸

The costs of environmental degradation of agricultural landscapes can be conceptualised in a number of different ways. These include costs of repair, the cost of lost production and costs associated with off-farm impacts such as loss of clean drinking water. Less readily quantifiable in economic terms are the costs of biodiversity decline and decline in ecosystem function.

The cost of land degradation, including loss of agricultural production, is cautiously estimated to be between \$1.06⁶⁹ and \$1.2 billion annually and the costs of repairing

⁶³ Ibid. 14.

⁶⁴ Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia, 276.

⁶⁵ Pretty J., "The rapid emergence of genetic modification in world agriculture: contested risks and benefits" (2001) 28 (3) *Environmental Conservation* 248-262..

⁶⁶ Murray D., *Seeds of Concern* (2003) UNSW Press, Sydney, Australia.

⁶⁷ Ibid.

⁶⁸ Pretty J., "The rapid emergence of genetic modification in world agriculture: contested risks and benefits" (2001) 28 (3) *Environmental Conservation* 248-262.

⁶⁹ Lovering J. and Crabb P., "Australia's 200 year experiment in agricultural sustainability" (1998) 11 (1) *Agricultural Science* 17-25.

natural systems between \$2 and \$6 billion each year.⁷⁰ Algal blooms in dams cost farmers more than \$30 million per year, and in rivers, storage and irrigation channels costs to primary producers are about \$15 million per year.⁷¹

The impact of salinity on crop yield is estimated to have a net present value of roughly \$558 million.⁷² The current impact of water table rise and dryland salinity in non-metropolitan Australia is estimated to range between \$30 million/yr and \$125 million/yr with a best-bet estimate of \$89 million/yr.⁷³ The present value of national costs resulting from a 1%, 5% and 10% deterioration in water quality over the period 2000 to 2020 are respectively \$778, \$1,304 and \$1,959 million.⁷⁴

The Australian State of the Environment Report concludes:

‘ The size of many of the problems demands responses that are beyond the capacity of existing institutional arrangements and individual landholders. This will be a challenge for all Australians, it will involve investments by urban Australians in the restoration of rural land, and rural Australians in a reassessment of the rights and responsibilities of landholders. We have put off this challenge for too long. This decade is the time for change, to implement the principles and objectives of ESD.⁷⁵

The impacts of agricultural land-uses on the landscape are cumulative and inter-generational. This generation must deal with the consequences of land-uses that were undertaken in the past. It is likely for example, that 70% of land degradation in the semi-arid and arid regions occurred in the first 20 years after settlement.⁷⁶ Many of the problems identified at this time persist and according to Young (2000) so do the causes.⁷⁷ These issues are taken up in detail later in this chapter.

⁷⁰ Prime Ministers's Science Engineering and Innovation Council, *Sustaining Our Natural Systems, report to the PMSEIC, Eighth Meeting* (2002)

⁷¹ Australian State of the Environment Committee, *Australia State of the Environment 2001* (2001) Department of Environment and Heritage, Collingwood, Victoria, 6.

⁷² Hajkowicz S. and Young M. D., "Executive Summary" in Hajkowicz S. and Young M. D. (ed), *Value of Returns to Land and Water and Costs of Degradation* (2002), CSIRO, Canberra, Australia, 23.

⁷³ Ibid. 26.

⁷⁴ Ibid. 29.

⁷⁵ Australian State of the Environment Committee, *Australia State of the Environment 2001* (2001) Department of Environment and Heritage, Collingwood, Victoria, 4.

⁷⁶ Young A., *Environmental Change in Australia Since 1788* (2000) Oxford University Press, South Melbourne, Australia, 35.

⁷⁷ Ibid. 63.

2.2.2 Social.

Agricultural employment is 370,000 or 4.6% of the national workforce,⁷⁸ down from 6% in 1986.⁷⁹ Between 1986 and 1996 there was a 16% decline in the number of farm families and a 21% decline in the number of farmers.⁸⁰ Rural population decline has been occurring for many years initially as a result of increased mechanisation and rising farm labour costs. More recently the decline has been attributed to a reduction in the number of farms, largely through farm amalgamations.⁸¹ Micro economic reform has had a significant influence on population and service delivery in some rural areas.

Over the last 40 years the number of 'commercial' farms in Australia almost halved from around 200,000 in 1961 to just over 100,000 in 2001.⁸² There was an 18% decline in farm establishment numbers between 1986 and 1996.⁸³ Establishment decline was greatest amongst the middle-sized farms, those with gross farm incomes between \$50,000 and \$200,000.⁸⁴ The average farm size has increased by almost 50% from 2,800 hectares in 1961 to 4,100 hectares in 2001.⁸⁵ There is clear evidence that this trend is ongoing, with the highest number of land transactions on record (both purchase and lease) in 1998-99.⁸⁶ While there are relatively few non-family farms, they make an important contribution by accounting for 23% of farm area operated.⁸⁷ This is a result of the relatively high proportion of corporate non-family farms that operate larger

⁷⁸ Environment Australia, *Australian Agriculture Assessment 2001 Report* (2001) Commonwealth of Australia, Canberra, Australia.

⁷⁹ Chapman L. and Greenville J., "Profiling rural Australia" (2002) 9 (1) *Australian Commodities* 234-249, 247.

⁸⁰ Australian State of the Environment Committee, *Australia State of the Environment 2001. Key Findings* (2001) Commonwealth Government, Canberra, Australia.

⁸¹ Conacher A. and Conacher J., *Rural Land Degradation in Australia* (1995) Oxford University Press, Melbourne, Australia, 80.

⁸² Hooper S., Martin P., Love G. and Fisher B., "Get big or get out. Is this mantra still appropriate for the new century?" (Paper presented at the 24th Biennial Conference of the Australian Society of Animal Production, Adelaide, 2002), 2.

⁸³ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

⁸⁴ Ibid.

⁸⁵ Hooper S., Martin P., Love G. and Fisher B., "Get big or get out. Is this mantra still appropriate for the new century?" (Paper presented at the 24th Biennial Conference of the Australian Society of Animal Production, Adelaide, 2002), 2.

⁸⁶ Ibid. 6.

⁸⁷ Martin P., Hooper S., Riley C., Tok J. and Helali S., "Farm performance 2001-2002 a very good year for broadacre and dairy farmers" (2002) 9 (1) *Australian Commodities* 209-225, 221.

pastoral properties.⁸⁸ Around 6% of all farms are 'lifestyle' farms, and/or retirement farms on which less than 48 weeks of total labour input is used and less than \$350,000 in farm capital (excluding the operators' house) is invested.⁸⁹

Australian agriculture is characterised by a large number of small farms and a small number of large farms. In 1996 the median gross farm establishment income was estimated at \$96,000.⁹⁰ The top third of broadacre farms account for 70% of agricultural production.⁹¹ Approximately 10% of farm establishments produce 40–50% of gross agricultural income and manage 60% of agricultural and pastoral land.⁹² At the other end of the scale, the financially smallest 50% of farms produced approximately 10% of total value of agricultural production.⁹³

A generalisation can be made that larger farms are more profitable, with farm cash income of the highest third of farms consistently three to four times greater than that of the smallest farms.⁹⁴ The most efficient and profitable farmers tend to be expanding their farm area and there is clear evidence of the benefits of economies of scale.⁹⁵ In contrast, the number of sub-commercial farms has increased over time.⁹⁶ While their contribution to the gross value of agricultural production is small (less than 5%) they manage a significant quantity (almost 16.6 million hectares) of relatively high value, productive land (many in high rainfall, near-urban locations) and make a substantial contribution to communities.⁹⁷ There is considerable pressure on these farms from urban fringe development and high land prices.

⁸⁸ Ibid. 221.

⁸⁹ Ibid. 221.

⁹⁰ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

⁹¹ Productivity Commission, *Impact of Competition Policy Reforms on Rural and Regional Australia* (1999) Productivity Commission, Canberra, 9.

⁹² Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

⁹³ Ibid.

⁹⁴ Hooper S., Martin P., Love G. and Fisher B., "Get big or get out. Is this mantra still appropriate for the new century?" (Paper presented at the 24th Biennial Conference of the Australian Society of Animal Production, Adelaide, 2002), 3.

⁹⁵ Ibid. 7.

⁹⁶ Ibid. 2.

⁹⁷ Ibid. 2.

Approximately 3.5% of farm families reported no net family income compared with less than 1% of all Australian families.⁹⁸ Farm families are under-represented in the income category between \$6,000 and \$15,000 and over-represented in the income category between \$25,000 and \$35,000.⁹⁹ In small and isolated settlements in rural areas over half the children live in families receiving additional social security support.¹⁰⁰ The contribution of off-farm income to total farm income has steadily increased over the past 20 years especially for those operating smaller farms,¹⁰¹ with estimates of up to 50% of farm families being reliant on off-farm income, particularly in the broadacre sector.^{102 103} Access to off-farm employment is directly correlated to income levels among farm families.¹⁰⁴ Alternatives to off-farm incomes include partnerships with entrepreneurs willing to finance new ventures such as vine growing or feed lotting; diversifying into tourism activities, such as farm stays; or leasing part or all of the property.¹⁰⁵ The living standards of people in rural and regional communities are affected not only by incomes but also by the costs of living. Lower housing costs may help offset lower median incomes, while higher transport costs may push up the price of other goods and services.¹⁰⁶

The education standards of the farm community are generally below the national average. Around 50% of farm owner-managers have completed between 1 and 4 years of secondary school and a further 23% have completed between 5 and 6 years. Education levels are correlated with age, with younger farmers generally having higher educational attainment than older ones.¹⁰⁷ In the agricultural sector, only 31% have

⁹⁸ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

⁹⁹ Ibid.

¹⁰⁰ O'Connor K., J. S. R. and Baum S., "The Regional Distribution of Growth" in Nieuwenhuysen J., Lloyd P. and Mead M. (ed), *Reshaping Australia's Economy. Growth with Equity and Sustainability* (2001), Cambridge University Press, Cambridge, England, 60.

¹⁰¹ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

¹⁰² Ibid. 8.

¹⁰³ Stern W. and McClintock I., "The farming environment" in Robertson A. and Roshier D. (ed), *Preserving Rural Australia. Issues and Solutions*. (1999), CSIRO Publishing, Australia, 17.

¹⁰⁴ Australian Natural Resources Audit, *Agricultural Structure - An Overview* (2001) Environment Australia, Canberra, Australia.

¹⁰⁵ Stern W. and McClintock I., "The farming environment" in Robertson A. and Roshier D. (ed), *Preserving Rural Australia. Issues and Solutions*. (1999), CSIRO Publishing, Australia, 17.

¹⁰⁶ Chapman L. and Greenville J., "Profiling rural Australia" (2002) 9 (1) *Australian Commodities* 234-249, 241.

¹⁰⁷ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

tertiary qualifications compared to 52% of the Australian workforce.¹⁰⁸ In contrast to trends across the rest of the country, school retention rates are declining in rural and regional Australia.¹⁰⁹ Again, gender differences are evident with more rural girls than boys completing high school and with girls aspiring to university education in greater numbers.¹¹⁰ Of concern is Reeve's (1992) observation that the move to a more sustainable agriculture will place considerable demands on farmers in view of the more exacting management skills required for sustainable agricultural practice over those required for conventional practice.¹¹¹

Loss of population and employment in rural areas has also been compounded by a number of government policies. For example, in the decade to 1996, 30,000 jobs were lost in NSW rural areas, and 19,500 of these were State government jobs resulting in the loss of \$1 billion in salaries to rural NSW.¹¹² A number of governmental policies have affected rural communities both directly and indirectly. These changes include the centralisation of management functions to regional centres and capital cities, resulting in bank closures, reductions in government employees and the withdrawal of services. Government rationalisation and policy change, such as contracting-out and competitive tendering for government services, contributes to the trend. The commercialisation and corporatisation of government business has led to a reduction in some services and an increase in charges. Changes in statutory marketing arrangements for commodities such as grains, dairy products and eggs, has generated concern about the creation of regional monopolies in markets already constrained by size and dominated by powerful retailers.¹¹³

The effects of globalisation and the changes in the fortunes of agriculture coupled with the pursuit of neo-liberal economic policies by successive Australian governments have

¹⁰⁸ Cary J., Webb T. and Barr N., *Understanding Landholder Capacity to Change to Sustainable Practices* (2002) Bureau of Rural Sciences, Canberra, Australia, 21.

¹⁰⁹ Cary J., Webb T. and Barr N., *Understanding Landholder Capacity to Change to Sustainable Practices* (2002) Bureau of Rural Sciences, Canberra, Australia.

¹¹⁰ Cary J., Webb T. and Barr N., *Understanding Landholder Capacity to Change to Sustainable Practices* (2002) Bureau of Rural Sciences, Canberra, Australia.

¹¹¹ Reeve I., "Sustainable agriculture: problems, prospects and policies" in Lawrence G., Vanclay F. and Furze B. (ed), *Agriculture, Environment and Society. Contemporary Issues for Australia* (1992), Macmillan, Sydney, Australia.

¹¹² Chapman L. and Greenville J., "Profiling rural Australia" (2002) 9 (1) *Australian Commodities* 234-249, 9.

¹¹³ Productivity Commission, *Impact of Competition Policy Reforms on Rural and Regional Australia* (1999) Productivity Commission, Canberra, 10-11.

resulted in major social changes in rural Australia.¹¹⁴ Structural changes, including farm number, size and agricultural production mix, have affected the levels and patterns of employment, educational opportunities and the level and location of rural services.¹¹⁵ The impact of these changes is not uniform across Australia and the extent to which towns and regional centres have been affected has been determined largely by their reliance on agriculture relative to other industries.¹¹⁶

In its Inquiry into the Impact of Competition Policy Reforms on Rural and Regional Australia (1999), the Productivity Commission drew several general conclusions.

- Some regions were performing well and could be characterised as having a diversified economic base and growth in particular activities such as tourism and certain resource-based and agricultural activities (e.g. cotton, grape growing and export-oriented food processing) and were regional service centres.
- Static regions were characterised as those with stable populations sufficient to hold basic services with some degree of diversification in economic activity with some change in the composition of activity (e.g. wool relative to wheat).
- Declining regions were characterised as lacking a diversified economic base, affected by decline in the number of farms and hence rural population. Scale was considered to be important with very small communities vulnerable to self-reinforcing decline.¹¹⁷

The demographic effect of the population changes in rural areas is not uniform. There is evidence of a population drift to the coast from inland Australia. There has been a loss of young people from inland communities, particularly young women resulting in an aging rural population and an emerging gender imbalance.¹¹⁸ Even in rural areas on the coast with a net population increase, these two trends are evident.¹¹⁹

¹¹⁴ For a broad overview of the social economic and other circumstances affecting rural and regional Australia see Productivity Commission, *Impact of Competition Policy Reforms on Rural and Regional Australia* (1999) Productivity Commission, Canberra.

¹¹⁵ Chapman L. and Greenville J., "Profiling rural Australia" (2002) 9 (1) *Australian Commodities* 234-249, 234.

¹¹⁶ Ibid. 234.

¹¹⁷ Productivity Commission, *Impact of Competition Policy Reforms on Rural and Regional Australia* (1999) Productivity Commission, Canberra, 8.

¹¹⁸ Productivity Commission, *Impact of Competition Policy Reforms on Rural and Regional Australia* (1999) Productivity Commission, Canberra, 10.

¹¹⁹ Productivity Commission, *Impact of Competition Policy Reforms on Rural and Regional Australia* (1999) Productivity Commission, Canberra, 10.

A critical reason for the loss of young people from rural communities is the lack of meaningful full-time work. By comparison with urban employment conditions, rural unemployment is higher and more prolonged, job opportunities are limited, often poorly paid, and in many cases seasonal.¹²⁰ This situation is compounded by the increasingly urban life-style aspirations of rural youth and a decline in the cultural relevance of farming as lifestyle and identity.¹²¹

An important issue influenced by demographic and economic changes is intergenerational transfer of farm property. In 1999-2000 over 90% of farms in the broadacre and dairy sectors were family owned and operated.¹²² A recent survey found that the expectation of intergenerational transfer is declining – 61% of respondents indicated that their farm had been owned by parents or parents-in-law, but only 29% believed that their farm would be run by their children in the future.¹²³ This will increase the trend to a lesser proportion of family farms and a rising proportion of ‘commercial farms’.¹²⁴

Economic pressure, growing rural debt, social isolation and loss of services have all contributed to the decline in social indicators of the rural population. Population loss can undermine the viability of important social infrastructure such as schools and medical facilities. The social consequences of population decline, including demographic imbalances particularly in the 15-35 year age bracket attributed to the lack of employment and educational opportunities and an overall ageing of the community, results in a disruption of social fabric detrimental to community leadership and voluntarism. The loss of social amenity that accompanies population loss further contributes to problems of drug abuse, alcoholism, crime and youth suicide. The social

¹²⁰ Chapman L. and Greenville J., "Profiling rural Australia" (2002) 9 (1) *Australian Commodities* 234-249.

¹²¹ Australian Natural Resources Audit, *Agricultural Structure - An Overview* (2001) Environment Australia, Canberra, Australia.

¹²² Hooper S., Martin P., Love G. and Fisher B., "Get big or get out. Is this mantra still appropriate for the new century?" (Paper presented at the 24th Biennial Conference of the Australian Society of Animal Production, Adelaide, 2002), 2.

¹²³ Reeve I., Doyle B., D Brunckhorst D. and Marshall G., *Independent Advice on the Link Between Sustainable Farming Practices, Farm Profitability and River Health* (2002) NSW Healthy Rivers Commission, Sydney, Australia.

¹²⁴ Stern W. and McClintock I., "The farming environment" in Robertson A. and Roshier D. (ed), *Preserving Rural Australia. Issues and Solutions.* (1999), CSIRO Publishing, Australia, 19.

implications of these changes are dramatic. Rural people suffer markedly higher levels of substance abuse, psychiatric disorders, stress-related and chronic illnesses than urban dwellers, and rural suicide rates have increased dramatically.¹²⁵

Rural Australia is in the middle of a period of significant structural change. The number of large farm businesses is increasing while the number of middle sized farms has been decreasing, as has the recruitment of young people; many farm families are becoming more dependent on off-farm income and the median age of the farm population has been rising.¹²⁶ The rate of change is likely to accelerate in response to pressures such as:

- accelerated urbanisation;
- changing life aspirations of rural youth;
- a decline in the cultural relevance of farming as a lifestyle identity;
- changing female expectations of marriage and work relationships within the farm business; and
- the impact of the looming retirement of baby-boomers and population segmentation of the labour market.¹²⁷

Some contemporary agricultural landscapes will remain clearly agricultural in their character, a situation facilitated by land values that reflect agricultural capacity and rate of return on investment. For others the capacity to increase competitiveness through land purchase and farm aggregation is limited. This is particularly the case in coastal areas where land values reflect their desirability for urban and rural residential development. These high values are reflected in figures that show that about 40% of farm capital is concentrated in small family farms, despite their occupying only 24% of farm area.¹²⁸

¹²⁵ Conacher A. and Conacher J., *Rural Land Degradation in Australia* (1995) Oxford University Press, Melbourne, Australia, 81.

¹²⁶ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

¹²⁷ Ibid.

¹²⁸ Martin P., Hooper S., Riley C., Tok J. and Helali S., "Farm performance 2001-2002 a very good year for broadacre and dairy farmers" (2002) 9 (1) *Australian Commodities* 209-225, 221.

2.2.3 Economy.

Agriculture remains important to the Australian economy, although its importance in relation to the national economy has diminished steadily since the 1950s, with the agricultural share of the export market falling from around 85% in 1950s to 20% in recent years.¹²⁹ However in dollar terms the value of Australia's agriculture exports has increased substantially.¹³⁰ In terms of Gross Domestic Product (GDP) agriculture still contributes around 3% or \$621 billion.¹³¹

While traditionally Australian farmers were strongly reliant on the State for various kinds of assistance, over the last 10 years there has been an unprecedented policy shift towards deregulation and a major lowering of trade barriers.¹³² Agricultural subsidy levels to Australian producers are around 10%, considerably lower than the OECD average of 40%.¹³³ While there has been a reduction in support for agriculture it is still significant. Hajkowicz and Young (2002) estimate that assistance in the financial year 1996/97 to agricultural production via government subsidies, tariff protection, extension support and other means (but not including government contributions to environmental and natural resource programs like Landcare and the Natural Heritage Trust) was \$2,239 million.¹³⁴

There is clear evidence of a change in the agricultural product mix. There has been a shift from the traditional beef and wool sectors to increased production of cotton, wine, canola and horticulture products.¹³⁵ This represents a general trend towards intensification of land-use with cropping and intensive horticultural activities becoming

¹²⁹ Conacher A. and Conacher J., *Rural Land Degradation in Australia* (1995) Oxford University Press, Melbourne, Australia, 107.

¹³⁰ Lovering J. and Crabb P., "Australia's 200 year experiment in agricultural sustainability" (1998) 11 (1) *Agricultural Science* 17-25, 18.

¹³¹ Environment Australia, *Australian Agriculture Assessment 2001 Report* (2001) Commonwealth of Australia, Canberra, Australia. note: the data shows trends averaged from 1989 to 1992 and for 1995 to 1998.

¹³² Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia, 289.

¹³³ Ibid. 290.

¹³⁴ Hajkowicz S. and Young M. D., "Executive Summary" in Hajkowicz S. and Young M. D. (ed), *Value of Returns to Land and Water and Costs of Degradation* (2002), CSIRO, Canberra, Australia, 12.

¹³⁵ Productivity Commission, *Impact of Competition Policy Reforms on Rural and Regional Australia* (1999) Productivity Commission, Canberra, 9.

relatively more important.¹³⁶ Irrigation plays an important role, contributing about 26% of agricultural products by value from less than 1% of land.¹³⁷

Australian farmers have been described as among the most efficient of those in the developed world. Overall productivity, yields and biological productivity appears to have increased steadily over most areas of intensive land-use over the period 1982–1997.¹³⁸ The growth in productivity has been made possible through the release of improved crop cultivars, livestock breeding and selection, judicious use of chemicals and fertilisers, more energy efficient machinery and equipment, and innovations in farm practices.¹³⁹

Despite these innovations crop yields per hectare have shown very little improvement in recent decades.¹⁴⁰ This has been attributed to a number of factors including loss of topsoil, soil acidification and production losses due to weeds and insects.¹⁴¹ Much of Australia's agriculture is highly marginal and depends on what is effectively an ongoing, if intermittently applied, cash subsidy (for 'exceptional circumstances' - droughts, floods and poor markets) and on acceptance of high levels of natural resource degradation.¹⁴²

Farm viability is affected by both costs and commodity prices. Farmer terms of trade have steadily diminished with farm costs increasing by an average of 100% while commodity prices have increased by only 53%.¹⁴³ As a result farm debt has increased markedly, although the debt burden varies considerably between sectors. The response to increased cost/price pressures has been increased capitalisation, mechanisation, labour reduction and increased reliance on the family unit.¹⁴⁴

¹³⁶ Environment Australia, *Australian Agriculture Assessment 2001 Report* (2001) Commonwealth of Australia, Canberra, Australia.

¹³⁷ Ibid.

¹³⁸ Ibid.

¹³⁹ Stern W. and McClintock I., "The farming environment" in Robertson A. and Roshier D. (ed), *Preserving Rural Australia. Issues and Solutions*. (1999), CSIRO Publishing, Australia, 11.

¹⁴⁰ Conacher A. and Conacher J., *Rural Land Degradation in Australia* (1995) Oxford University Press, Melbourne, Australia, 62.

¹⁴¹ Ibid. 62-65.

¹⁴² Cullen P., "Water: The Key to Sustainability in a Dry Land" (Paper presented at the Rosenberg International Forum on Water Policy, Canberra, Australia, 2002).

¹⁴³ Conacher A. and Conacher J., *Rural Land Degradation in Australia* (1995) Oxford University Press, Melbourne, Australia, 107.

¹⁴⁴ Ibid. 109.

Several patterns of offsets have been identified to counter the effect of cost/price pressure. These include: expanding the area under agriculture by clearing remnant vegetation (where possible); increasing farm size through aggregation and thus improving economies of scale; and by intensifying production through irrigation or changed production methods, including higher inputs of fertilisers, continuous cropping or the introduction of higher yield varieties.¹⁴⁵ A feature of the cost/price squeeze has been the deferral of farm expenditure in several areas, especially capital improvements but also on landcare and conservation activities.¹⁴⁶ Thus it can be concluded that low farm incomes and high debt are likely to discourage adoption of sustainable practices.¹⁴⁷

Since the 1950s agribusiness has become more prominent in the farm sector. Contract farming is becoming increasingly common and vertical integration is evident. On present trends, many parts of agriculture will become increasingly integrated with the food industry with more use of contracts and greater vertical integration.¹⁴⁸ In some industries there has been a trend towards vertical integration of farm business into corporate production structures¹⁴⁹ including food processing.¹⁵⁰ This process has led to questions challenging the assumptions about land management and the extent to which the landholder is the key actor in decisions about land-use under contract farming methods.¹⁵¹ Rickson *et al.* (1997) have drawn attention to the range of other players, including input suppliers, large agri-food corporations, banks and finance houses, retail chains and so on, who exert influence over farmer decisions about crop management, resource use and conservation practices.¹⁵² For example, driven by the transnational 'fast food' industry, 90% of the Tasmanian potato harvest consists of only two

¹⁴⁵ Ibid. 65-67.

¹⁴⁶ Ibid. 111-112.

¹⁴⁷ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

¹⁴⁸ Environment Australia, *Australian Agriculture Assessment 2001 Report* (2001) Commonwealth of Australia, Canberra, Australia.

¹⁴⁹ Barr N. and Cary J., *Influencing Improved Natural Resource Management on Farms* (2000) Department of Agriculture Fisheries and Forestry - Australia, Canberra, 32.

¹⁵⁰ Stern W. and McClintock I., "The farming environment" in Robertson A. and Roshier D. (ed), *Preserving Rural Australia. Issues and Solutions.* (1999), CSIRO Publishing, Australia, 20.

¹⁵¹ Barr N. and Cary J., *Influencing Improved Natural Resource Management on Farms* (2000) Department of Agriculture Fisheries and Forestry - Australia, Canberra, 32.

¹⁵² Rickson R., Burch D. and Sanders R., "New and Emerging Structures in Agriculture: Challenges and Opportunities for Natural Resource Management" (Paper presented at the Advancing Integrated Resource Management: Processes and Policies, Canberra, Australia, 1997).

varieties.¹⁵³ Contract farmers make only a few or no decisions relating to the land being worked, inputs and production schedules being part of the contract arrangements.¹⁵⁴ This poses a dilemma for government policy on rural land degradation, which continues to develop on the premise that individual farmers have control over farming operations on their land when in reality the bulk of such control may lie elsewhere. Thus regulatory strategies aimed at the individual farmer must be supplemented by exerting other supply-chain pressures to fully affect an improved environmental outcome.

Australian agriculture and pastoralism are becoming increasingly centralised and capital intensive. The average farm size is growing and farming is becoming increasingly dependent upon high energy, mechanised technology and on chemical inputs.¹⁵⁵ For many crops, pesticides and fertilizers now account for 50% of the variable costs of production.¹⁵⁶ The level of agricultural production is some 43% higher than 25 years ago however, the value of production has declined by around 55%.¹⁵⁷ The long term trend is for price decline to continue.¹⁵⁸ Pressure to use available land more intensively will increase, and unless suitably managed, undesirable environmental consequences will ensue.¹⁵⁹ This is because there will be greater demand on water resources, more intensive use of soil, and greater pressure on vegetation.¹⁶⁰

Australia has been a keen participant in the World Trade Organisation ('WTO') Agreement on Agriculture which has as its central vision 'an integrated global agricultural economy ... Food is grown, not by farmers for local consumers, but by corporations for global markets'.¹⁶¹ Indeed the export orientation of the Australian farm sector is evident, with some 75% of product produced for export markets. It has been

¹⁵³ Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia, 304.

¹⁵⁴ Ibid. 307.

¹⁵⁵ Ibid. 293.

¹⁵⁶ Ibid. 293.

¹⁵⁷ Ibid. 293.

¹⁵⁸ Environment Australia, *Australian Agriculture Assessment 2001 Report* (2001) Commonwealth of Australia, Canberra, Australia.

¹⁵⁹ Stern W. and McClintock I., "The farming environment" in Robertson A. and Roshier D. (ed), *Preserving Rural Australia. Issues and Solutions*. (1999), CSIRO Publishing, Australia, 12.

¹⁶⁰ Robertson A. and Roshier D., "Scientific and social impediments to restoration ecology as applied to rural landscapes" in Robertson A. and Watts R. (ed), *Preserving Rural Australia. Issues and Solutions* (1999), CSIRO Publishing, Australia, 7.

¹⁶¹ Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia, 289.

argued that the globalisation and industrialisation of agriculture has contributed to the ongoing trend of unsustainability in this sector.¹⁶²

Economic globalisation is likely to have a number of effects. It will favour the dominance of market systems by large multinational corporations which tend to be relatively intensive users of human-made capital.¹⁶³ These corporations tend to stimulate the use of saleable private goods (for example tractors, chemical fertilizers and pesticides) rather than less saleable commodities (for example, integrated pest management).¹⁶⁴ Economic globalisation can be expected to promote agricultural specialisation, encourage monocultures, reduce the diversity of genetic material used commercially, support the supply of standardised product and increase the uniformity of production methods.¹⁶⁵ In the longer term, these trends may be inimical to agricultural sustainability.

The debate on agricultural sustainability has been within the context of general concern for the environment, the management of natural resources, the high use of non-renewable energy in production and the increasing dependence on external inputs.¹⁶⁶ Major drivers of land-use change appear to be market prices, productivity gain, technological innovation and a range of external influences including global policies such as greenhouse and WTO trading rules.¹⁶⁷ Deregulation is increasing Australian farmers' exposure to world market forces, resulting in a decline in farm numbers, while the productivity and production levels of those who remain have increased markedly¹⁶⁸ arguably at considerable cost to the environment.

¹⁶² Ibid. 291.

¹⁶³ Dragun A. and Tisdell C., "Globalisation, Agriculture and Environment" in Dragun A. and Tisdell C. (ed), *Sustainable Agriculture and Environment* (1999), Edward Elgar Publishing Ltd, Cheltenham, England, 298.

¹⁶⁴ Ibid. 298.

¹⁶⁵ Ibid. 298.

¹⁶⁶ Gibbon D. and Jakobsson K. M., "Towards Sustainable Agricultural Systems" in Dragun A. K. and Tisdell C. (ed), *Sustainable Agriculture and the Environment* (1999), Edward Elgar Publishing Ltd, Cheltenham, England, 101.

¹⁶⁷ Environment Australia, *Australian Agriculture Assessment 2001 Report* (2001) Commonwealth of Australia, Canberra, Australia.

¹⁶⁸ Halpin D. and Martin P., "Farmer Representation in Australia : Avenues for changing the Political Environment" (1999) 58 (2) *Australian Journal of Public Administration* 33-46, 41.

2.3 Individuals – attitudes, stewardship and a duty of care.

2.3.1 Attitude to the Environment.

The Australian environment has been dramatically and permanently modified by European settlement. In an effort to understand this destruction, much work has been done to examine the attitudes of the early settlers and the legacy of these attitudes. It is widely argued, for example, that the early settlers saw Australia as a hostile and alien land, that they lacked emotional ties to the landscape and saw it simply as potential wealth to be exploited.¹⁶⁹ According to one perspective:

‘not only were the early settlers untroubled by their destructiveness but [they] rejoiced in it, so great was their alienation from their new surroundings and their eagerness to turn the land to new uses’.¹⁷⁰

In 1966 Jock Marshall provided a ‘Guide to Anglo-Australian Cupidity, Wickedness and Waste’ in *The Great Exterminator*.

‘The bush, to our great-grandfathers, was the enemy: it brooded sombrely outside their brave and often pathetic little attempts at civilisation; it crowded in on them in times of drought and flood. It, not they, was alien.’¹⁷¹

Conacher and Conacher (1995) have argued that people’s attitudes have had an important influence on the direct and indirect causes of land degradation.¹⁷² The early European farmers came with both attitudes and knowledge unsuited to the Australian environment. Judaeo-Christian attitudes to the environment conventionally see the land

¹⁶⁹Flannery T., *The Future Eaters - An ecological history of the Australasian lands and people* (1994) Reed Books, Chatswood, Australia. Lines W. J., *Taming the Great South Land. A History of the Conquest of Nature in Australia* (1992) Allen and Unwin, Sydney, Australia. Bolton G., *Spoils and Spoilers. A History of Australians Shaping their Environment* (1992) Allen and Unwin, Sydney, Australia.

¹⁷⁰Bonyhady T., *The Colonial Earth* (2000) Melbourne University Press, Victoria, Australia, 3.

¹⁷¹Marshall A. J., "The World of Hopkins Sibthorpe" in Marshall A. J. (ed), *The Great Extermination. A Guide to Anglo-Australian Cupidity Wickedness and Waste* (1966), Heinemann, London, England, 2.

¹⁷²Conacher A. and Conacher J., *Rural Land Degradation in Australia* (1995) Oxford University Press, Melbourne, Australia, 113.

as an asset or resource to be exploited or used for human benefit.¹⁷³ Farming knowledge that did exist was developed in the vastly different European environment.

The first settlers were ignorant of Australian species, and unable to utilise them, introduced European varieties and techniques of farming. Australia's unique and fragile ecosystems have been under pressure ever since.

‘Alien techniques of cultivation and their attendant exotic species, were joined by deliberate introductions designed to make the landscape more European or even to afford sport; their environmental impact was unanticipated, and even in the nineteenth century, most unwelcome.’¹⁷⁴

There is now a considerable body of literature on the way Australia was ‘misread’ and misrepresented by the early settlers as well as by scientists who viewed the biophysical environment in a myopic Eurocentric way.¹⁷⁵ Flannery (1994) is of the view that it was not possible for the European Australians to act in any other way and that they ‘were only acting in accordance with the principles that their European environments had inculcated in their ancestors’.¹⁷⁶ In short they were ‘terribly maladapted’ to the Australian environment.¹⁷⁷ Lines (1992) is less sanguine and paints a picture of a brutal and rapacious assault on both Indigenous Australians and the environment.¹⁷⁸

Bonyhady (2000) has argued that these kinds of attitudes were not universal: ‘while many colonists were alienated by their new environment, others delighted in it’.¹⁷⁹ Seddon (1997) recounts evidence of an ‘aesthetic appreciation’ of Australian flora and

¹⁷³ DesJardins J., *Environmental Ethics. Concepts, Policy, Theory* (1999) Mayfield Publishing Company, California, United States, see 25-58 for a discussion of the dimensions of the debate about the influence of Christianity on attitudes to the environment.

¹⁷⁴ Crowley K. and Walker K. J., "Introduction" in Walker K. J. and Crowley K. (ed), *Australian Environmental Policy 2. Studies in Decline and Devolution* (1999), University of New South Wales Press Ltd, Sydney, Australia, 17.

¹⁷⁵ Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia. Marshall A. J., "The World of Hopkins Sibthorpe" in Marshall A. J. (ed), *The Great Extermination. A Guide to Anglo-Australian Cupidity Wickedness and Waste* (1966), Heinemann, London, England. Seddon G., *Landprints. Reflections on place and landscapes* (1997) Cambridge University Press, Cambridge, England. Flannery T., *The Future Eaters - An ecological history of the Australasian lands and people* (1994) Reed Books, Chatswood, Australia..

¹⁷⁶ Flannery T., *The Future Eaters - An ecological history of the Australasian lands and people* (1994) Reed Books, Chatswood, Australia, 355.

¹⁷⁷ Ibid. 355.

¹⁷⁸ Lines W. J., *Taming the Great South Land. A History of the Conquest of Nature in Australia* (1992) Allen and Unwin, Sydney, Australia, 89-126.

¹⁷⁹ Bonyhady T., *The Colonial Earth* (2000) Melbourne University Press, Victoria, Australia, 3.

fauna among some early settlers.¹⁸⁰ Some of the first laws passed in the new colony were for environmental protection albeit motivated by utilitarian concerns. This included specifically, for example, the prohibition by Governor Hunter of pollution of the Tank Stream, which provided Sydney's main source of water.¹⁸¹ While there is evidence of an emerging aesthetic appreciation of the Australian bush and attempts to preserve resources and restrain waste throughout the 18th and 19th centuries, the dominant developmentalist ethic meant that the resulting efforts had limited effect. Indeed, the majority of the successes were protection of iconic sites and locations of specific recreational interest.¹⁸² The impact of broad scale agricultural activity on the landscape was of little concern to the early environmentalists.

2.3.2 A Stewardship Ethic.

It has been argued that in contrast to the early attitudes of Australian settlers a stewardship ethic exists among modern farmers. Stewardship is described as the responsibility or obligation to maintain the land for future generations. 'There is no evidence that farmers have, or would, willingly use the land in such a way as to destroy its productivity'.¹⁸³ Robertson and Roshier (1999) conclude from personal experience with producers and a variety of other surveys, that there is a strong stewardship ethic among many Australian primary producers.¹⁸⁴ Small (1994) contends that most farmers are conservationists and know that their future depends on their being so.¹⁸⁵

Farmer concern for the environment rose dramatically in the late 1980s. However changes in attitude during the 1990s have been much less marked. The University of New England has recently repeated a monitor survey of farmer attitudes. The 2001 survey found:

¹⁸⁰ Seddon G., *Landprints. Reflections on place and landscapes* (1997) Cambridge University Press, Cambridge, England, 64-67.

¹⁸¹ Bonyhady T., *The Colonial Earth* (2000) Melbourne University Press, Victoria, Australia, 5.

¹⁸² See for example Hutton D. and Connors L., *A History of the Australian Environment Movement* (1999) Cambridge University Press, Cambridge, England.

¹⁸³ Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia.* (2000) Federation Press, Sydney, Australia, 294.

¹⁸⁴ Robertson A. and Roshier D., "Scientific and social impediments to restoration ecology as applied to rural landscapes" in Robertson A. and Watts R. (ed), *Preserving Rural Australia. Issues and Solutions* (1999), CSIRO Publishing, Australia, 5.

¹⁸⁵ Small P., "The View for the Farm" in Cosgrove L., Evans D. and Yencken D. (ed), *Restoring the Land. Environmental Values, Knowledge and Action.* (1994), Melbourne University Press, Carlton, Victoria.

- decreasing concern overall about the seriousness of land degradation;
- increasing concern overall about chemical residues in agricultural produce and about the environmental and health effects of agricultural chemicals;
- increasing awareness that farm practices have impacts beyond the farm boundary and more favourable views about the consideration of wider public interest in decision-making;
- increasing acceptance that there will have to be major transformation of agricultural landscapes, with just over 46% agreeing to the proposition that if agriculture is going to have a long term future a lot of cleared country will have to be put back to bush and forestry; and
- strong support for the view that farmers should be compensated for loss of income or autonomy of decision-making due to measures taken in the public interest.¹⁸⁶

Research by Barr and Cary (2000) has shown that the links between environmental beliefs and environmental behaviour are tenuous. It cannot be assumed that an investment in attitude change might modify the behaviour of land managers. In 1998/99 a quarter of the farms in most of the major farming regions reported one or more significant land or water degradation problems.¹⁸⁷ There was also a widespread awareness amongst farmers of the importance of environmental impacts beyond the farm boundary.¹⁸⁸ However, Barr and Cary (2000) demonstrated that there is also a tendency for individuals to underestimate the extent of soil degradation on their own farm.¹⁸⁹ This tendency is often manifested in what is called the ‘proximity effect’, where landholders will describe the resource problem in their region as serious, in the neighbourhood as a moderate problem, and on their own farm as being no problem.¹⁹⁰

¹⁸⁶ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

¹⁸⁷ Ibid.

¹⁸⁸ Ibid.

¹⁸⁹ Barr N. and Cary J., *Influencing Improved Natural Resource Management on Farms* (2000) Department of Agriculture Fisheries and Forestry - Australia, Canberra, 3.

¹⁹⁰ Ibid. 3.

Policies to change behaviour via changing the stewardship ethic are likely to achieve relatively little in the absence of other enabling conditions.¹⁹¹ Motivation, financial incentive, financial capacity, skill capacity and appropriate technology are necessary before changes in farm management behaviour can be expected.¹⁹² The characteristics that most influence landholders' capacity to change are: level of farm income, landholder age, participation in training, having a documented farm plan, and membership of landcare.¹⁹³ Most important however is how landholders perceive their future financial situation. This is more closely associated with practice adoption than objective measures of their current financial position.¹⁹⁴ While conservation might be a long-term goal, short-term financial pressure has in many cases led to a deferral of action.¹⁹⁵ Landholder surveys indicate greater concern about economic rather than environmental impacts of land degradation.¹⁹⁶ This means that there is significant potential for goal conflict in environmental extension since increased sustainability often involves increased management complexity and financial risk.¹⁹⁷ It is apparent that efforts to change current practices will need to address these issues as well as attitudinal change.

In situations involving common property resources or externalities there will be a conflict between individual self-interest and the expectation that farmers will undertake activity for the common or future good for little, or negative, financial return.¹⁹⁸ Community awareness programs create effective impacts through a two-stage process where awareness generates a favourable climate for the use of other policy instruments that, more directly, influence behaviour change.¹⁹⁹ While programs such as Landcare are achieving incremental change, particularly in changing community norms, its

¹⁹¹ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

¹⁹² Barr N. and Cary J., *Influencing Improved Natural Resource Management on Farms* (2000) Department of Agriculture Fisheries and Forestry - Australia, Canberra, 29.

¹⁹³ Cary J., Barr N., Aslin H., Webb T. and Kelson S., *Human and Social Aspects of Capacity to Change to sustainable Management Practices* (2001) Bureau of Rural Sciences, Canberra, Australia, viii.

¹⁹⁴ Ibid. viii.

¹⁹⁵ Small P., "The View for the Farm" in Cosgrove L., Evans D. and Yencken D. (ed), *Restoring the Land. Environmental Values, Knowledge and Action*. (1994), Melbourne University Press, Carlton, Victoria, 166.

¹⁹⁶ Barr N. and Cary J., *Influencing Improved Natural Resource Management on Farms* (2000) Department of Agriculture Fisheries and Forestry - Australia, Canberra, 2.

¹⁹⁷ Ibid. 2.

¹⁹⁸ Cary J., Webb T. and Barr N., *Understanding Landholder Capacity to Change to Sustainable Practices* (2002) Bureau of Rural Sciences, Canberra, Australia.

¹⁹⁹ Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

effectiveness is limited by a reliance on voluntarism.²⁰⁰ Policies to promote stewardship ethics may facilitate political, cultural and legal changes and influence other enabling factors over the longer term.²⁰¹

Recognition of resource degradation is a necessary, but rarely sufficient, condition for adoption of sustainable natural resource management practices. Whether farmers change their land management in response to this recognition depends on many interrelated factors including:

- characteristics of the natural resource management practices;
- beliefs about the environment and practices to protect the environment;
- financial capacity to invest in natural resource protection;
- management skills and knowledge of land managers;
- support for environmentally friendly behaviour from peers and social networks;
- individual differences between landholders; and
- regulatory and legal pressures.²⁰²

This discussion leads to the general conclusion that efforts to change attitudes are of importance, particularly in the longer term. However, the achievement of change in the shorter term needs to be supported by other enabling measures. Clearly some forms of economic support are appropriate, but there is also an important role for the application of disincentives for inappropriate practices.

2.3.3 Duty of Care.

A duty of care exists at common law. However, it is only harm to personal interests that is actionable.²⁰³ Common law does not recognise that a duty of care might be owed to the environment *per se*.²⁰⁴ This issue is of particular significance for biodiversity conservation. Hence the common law can only protect the environment indirectly

²⁰⁰ Barr N. and Cary J., *Influencing Improved Natural Resource Management on Farms* (2000) Department of Agriculture Fisheries and Forestry - Australia, Canberra, 3.

²⁰¹ Ibid. 3.

²⁰² Environment Australia, *Australians and Natural Resource Management 2002* (2002) Commonwealth of Australia, Canberra, Australia.

²⁰³ Bates G., *A Duty of Care for the Protection of Biodiversity on Land* (2001) Productivity Commission, Canberra, vii.

²⁰⁴ Ibid. vii.

through legal liability for impacts on persons and property arising out of activities that harm it. With this focus, the emphasis is on financial penalties for breaching the duty, rather than encouraging positive behaviour.

The debate about farmer attitudes to the environment and how this influences natural resource outcomes has led to calls for the legislating of a ‘stewardship ethic’ or a duty of care to the environment itself. The Industry Commission (1998) for example, proposed that as part of a comprehensive regime to regulate the use of natural resources a statutory duty of care be introduced ‘requiring everyone whose actions influence the management of land and other natural resources to take all reasonable and practical steps to prevent harm to the environment’.²⁰⁵

The Industry Commission proposal represents an extension and codification of the common law duty of care.²⁰⁶ It acknowledges the need to support the general duty with voluntary and mandatory standards in order to define the duty of care including the meaning of ‘reasonable and practical’ and other issues²⁰⁷s. The impact of a statutory duty of care has been the subject of debate. Bates (2001), for example, has argued that such duties may be difficult to enforce and may not provide much additional protection (for biodiversity) where direct legislation for environmental protection exists.²⁰⁸

Similar questions were raised in submissions to the Industry Commission. For example, the Queensland Government was concerned about how a statutory duty of care would be implemented, particularly in relation to enforcement provisions.²⁰⁹ There is support for a voluntary duty of care but many farm organisations oppose codification because of concern about the potential for litigation and the loss of management control.²¹⁰

Bates (2001) concludes that while a statutory duty of care could bring considerable benefit by providing guidance to resource users on what practices are acceptable, it is

²⁰⁵ Industry Commission, *A Full Repairing lease. Inquiry into Ecologically Sustainable Land Management* (1998) Industry Commission, Canberra, 133.

²⁰⁶ Ibid. 134.

²⁰⁷

²⁰⁸ Bates G., *A Duty of Care for the Protection of Biodiversity on Land* (2001) Productivity Commission, Canberra, viii.

²⁰⁹ Industry Commission, *A Full Repairing lease. Inquiry into Ecologically Sustainable Land Management* (1998) Industry Commission, Canberra. See Queensland Government Submission, 342.

²¹⁰ Ibid. 144.

not a panacea.²¹¹ Both Bates and the Industry Commission consider that a statutory duty of care would need to be supported with complementary approaches such as education and incentives.²¹² While it may be of symbolic value, this discussion would lead to the conclusion that it could easily suffer the sort of implementation problems that have affected the broader approach to regulation in the sector.

2.4 Government – historical and political context.

Historically governments have been intimately involved in the distribution of land for agricultural and other purposes. They have directly financed infrastructure to support agricultural development and generously subsidised agriculture.

Two key themes emerge from a review of the historical and political role of governments in the development of agriculture in Australia. Firstly, for much of the 19th and 20th century there has been a correlation between the national interest and agriculture. Often '[p]ursuing the agricultural "well-being" ... [was seen as] ... equivalent to pursuing the "national interest"'.²¹³ Secondly, there has been a pervasive 'developmentalist' ethos, which has been reflected through public sector support for infrastructure development and the facilitation of access to natural resources. These themes were reflected by the influence of farm groups on policy and expressed through the law. Indeed as Walker (1999) has remarked: '[g]overnments in Australia have acted historically as licensers of plunder, sometimes quite blatantly'.²¹⁴

Australian governments were closely involved in land distribution during early and subsequent phases of settlement. The speed of movement of the agricultural and pastoral frontiers was a feature of settlement in a newly colonised country where land was perceived to be in great abundance.²¹⁵ Mercer (2000) has argued that an attitude of

²¹¹ Bates G., *A Duty of Care for the Protection of Biodiversity on Land* (2001) Productivity Commission, Canberra, viii.

²¹² Ibid. 27-31.

²¹³ Halpin D. and Martin P., "Farmer Representation in Australia : Avenues for changing the Political Environment" (1999) 58 (2) *Australian Journal of Public Administration* 33-46, 35.

²¹⁴ Walker K. J., "Statist Developmentalism in Australia" in Walker K. J. and Crowley K. (ed), *Australian Environmental Policy 2 - Studies in Decline and Devolution* (1999), University of New South Wales Press Ltd, Sydney Australia, 37.

²¹⁵ Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia, 272.

profligacy soon emerged, such that degradation did not matter because the land supply was inexhaustible.²¹⁶ Land distribution policies have been extensively critiqued.²¹⁷ For example, the Land Selection Acts of the 1860s, the Closer Settlement Acts of the 1890s and the World War I Soldier Settlement policy, for example, all resulted in the establishment of holdings that were too small to be viable under Australian conditions.²¹⁸ This misjudgement came at considerable environmental and social cost.

In addition to directly distributing land, governments have supported the development of agriculture through extensive and expensive investment in infrastructure. A nation-building vision led to the development of major projects, such as the Kalgoorlie Pipeline (1903) and the Snowy Mountains Hydro-Electric Scheme (1949). In Australia, as in the other 'settler capitalist' societies, development has involved government.²¹⁹ Lack of private infrastructure provision meant that government provision of communications, encouragement of land clearance and subsidisation of infant industries was required to 'open up' the country.²²⁰ Walker looks at the role of government over four periods of Australian history²²¹ and concludes that while economic policy flavour has changed, the general commitment to development and the role of government in stimulation of economic activity remains unchallenged.²²²

'[Australia] has always applied a European developmentalist attitude, grounded in nineteenth century notions of "progress", to an ecological system in which climate, soils, flora and fauna were all incompatible with the implicit model of development to a greater or lesser extent'²²³.

Public sector investment in the development of infrastructure, such as water projects, has commonly been part of land and agricultural settlement policies or local economic

²¹⁶ Ibid. 272.

²¹⁷ Flannery T., *The Future Eaters - An ecological history of the Australasian lands and people* (1994) Reed Books, Chatswood, Australia, Young A., *Environmental Change in Australia Since 1788* (2000) Oxford University Press, South Melbourne, Australia.

²¹⁸ Industry Commission, *A Full Repairing lease. Inquiry into Ecologically Sustainable Land Management* (1998) Industry Commission, Canberra, see Box 4.1, 69.

²¹⁹ Australia's development pattern strongly resembles those of Canada, New Zealand, Argentina and Brazil dubbed 'settler capitalist' or 'dominion capitalist' societies.

²²⁰ Walker K. J., "Statist Developmentalism in Australia" in Walker K. J. and Crowley K. (ed), *Australian Environmental Policy 2 - Studies in Decline and Devolution* (1999), University of New South Wales Press Ltd, Sydney Australia, 24.

²²¹ Ibid.in (ed), pp 25-37. The four periods are described as colonial stage, colonial socialism, half-hearted developmentalist Keynesianism and State-sponsored marketisation.

²²² Ibid. 25.

²²³ Ibid. 23.

development programs. The provision of water supply infrastructure has been seen by Australian governments as an unequivocal public good.²²⁴ In NSW early public sector investment in dams and irrigation infrastructure was explicitly linked to social and economic objectives. The establishment of the Murrumbidgee Irrigation areas during the 1920s was part of a Policy of National Development aimed at increasing the population in western NSW.²²⁵ The primacy of economic development and regional employment, resulted in the provision of water diversions and reticulation schemes regardless of cost.²²⁶ The environmental suitability or economic return, were not central considerations in decision-making. Traditionally, all non-market environmental and social costs were simply excluded because they were unquantified or unquantifiable.²²⁷ This attitude existed until well into the 1980s.²²⁸

According to Tisdell *et al.* (2002), ‘the period prior to the early 1990s is characterised by optimistic national development, a regime dedicated to drought-proofing extant and proposed agricultural endeavour and a policy of intensive and extensive rural settlement (reinforced in later years by the motivation of national defence). The result was the over-allocation of water supplied at below-cost and a lack of adequate signals or incentives to conserve water.’²²⁹

The level of government investment in water infrastructure, based on drought-proofing and an irrigation solution, was fundamentally ill-founded and resulted in the development of marginal land. It has been estimated, for example, that based on current economic criteria, *ex ante*, only 12% of the land in irrigation production in 1987 would have been developed.²³⁰ The legacy of these past decisions continues with an estimate of the current subsidy to irrigation (reflected in expenditure on capital items,

²²⁴ Tisdell J., Ward J. and Grudzinski T., *The Development of Water Reform in Australia* (2002) Cooperative Research Centre for Catchment Hydrology, Brisbane, Queensland, 17.

²²⁵ For an interesting discussion of the history of irrigation investment in NSW, see Wilkinson J., *Grand Designs and Changing Realities*. (1997) NSW Parliament, Sydney, Australia.

²²⁶ Tisdell J., Ward J. and Grudzinski T., *The Development of Water Reform in Australia* (2002) Cooperative Research Centre for Catchment Hydrology, Brisbane, Queensland, citing Crase *et al.* (2000), Musgrave (1996), and Paterson (1987b).

²²⁷ P H Gleik (1998) *The World's Water : The Biennial Report on Freshwater Resources*, Island Press, Washington, DC, 16.

²²⁸ Tisdell J., Ward J. and Grudzinski T., *The Development of Water Reform in Australia* (2002) Cooperative Research Centre for Catchment Hydrology, Brisbane, Queensland.

²²⁹ *Ibid.* 17.

²³⁰ *Ibid.* 18.

management and environmental amelioration), of around \$400 million per annum.²³¹ Even with shifts to cost recovery in more recent times it is estimated that NSW water users contribute only about 70% of ongoing costs.²³²

In addition to land distribution and infrastructure provision, a range of other policies and programs have been designed to support the development of agriculture. These include, fertilizer subsidies, drought relief programs, tax concessions for land clearing and price supports.²³³ Many of these policies have contributed to the rate and scale of environmental degradation. Drought relief in particular has been criticised. It has been argued that it simply bolsters less efficient farmers and delays appropriate de-stocking resulting in even more intensive pressure on the natural environment.²³⁴

Australian governments have also supported agriculture through the provision of research and extension. Agriculture departments across the country have provided scientific support since 1900.²³⁵ Most of the State governments and the Commonwealth through the CSIRO were providing advice and research support on measures to control land degradation by the 1930s.²³⁶ However the appropriateness of this support has been questioned. A range of current environmental problems on agricultural land, are a consequence of the adoption of modern, capital intensive farming techniques promoted in various ways by State governments.²³⁷ On the other hand, the 'receptiveness' of much of the agricultural community to information about 'sound' farming practice has also been questioned.²³⁸

Support for nation building and development, has both shaped, and been shaped by, the emergent cultural identity which idealised country life. Although most Australians

²³¹ Ibid. 18.

²³² Ibid. 18.

²³³ Conacher A. and Conacher J., *Rural Land Degradation in Australia* (1995) Oxford University Press, Melbourne, Australia, 122.

²³⁴ Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia, 286.

²³⁵ Bolton G., *Spoils and Spoilers. A History of Australians Shaping their Environment* (1992) Allen and Unwin, Sydney, Australia, 137.

²³⁶ Flannery T., *The Future Eaters - An ecological history of the Australasian lands and people* (1994) Reed Books, Chatswood, Australia, 353.

²³⁷ Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia, 281.

²³⁸ Bolton G., *Spoils and Spoilers. A History of Australians Shaping their Environment* (1992) Allen and Unwin, Sydney, Australia, 138.

were urban, even in the early 20th century, a pervasive attitude of the 'inherent superiority of rural life' supported government policy to 'settle the bush'.²³⁹ Still today images such as that of the 'stockman' have 'immense emotional value to many Australians ... perhaps as a result of the inherent appeal of his independence and mateship'.²⁴⁰ Even amongst those who profess a 'love of the bush' this appreciation is often of cleared pastures and agricultural landscapes.²⁴¹

In 1985 Don Aitkin characterised an Australian strain of agrarianism. Some of the features he identified were as follows.

- Australia depends on its primary producers for its high standards of living, for only those who produce a physical good add to a country's wealth.
- Therefore, all Australians, from city and country alike, should in their own interest support policies aimed at improving the position of primary industries.
- Farming and grazing, and rural pursuits generally, are virtuous, ennobling and cooperative; they bring out the best in people. In contrast, city life is competitive and nasty, as well as parasitical.
- The characteristic Australian is a country-man, and the core elements of the national character come from the struggles of country people to tame their environment and make it productive.²⁴²

The importance of the farm sector to the national economy and identity enabled it to be highly influential in policy development. The farming community has a long history of organisation to influence the political environment in Australia. It has resulted in the formation of local producer groups, a parliamentary party and ultimately a set of State- and commodity-based sectoral interest groups under the umbrella of a national peak organisation.²⁴³ While this influence has declined, groups such as the National Farmers Federation formed in 1979 continue to be important players in the development of agricultural policy and a key representative in the consultative policy-making

²³⁹ Ibid. 135.

²⁴⁰ Flannery T., *The Future Eaters - An ecological history of the Australasian lands and people* (1994) Reed Books, Chatswood, Australia, 393.

²⁴¹ Seddon G., *Landprints. Reflections on place and landscapes* (1997) Cambridge University Press, Cambridge, England, 70.

²⁴² Aitkin D., "'Countrymindedness" - the Spread of an Idea" (1985) 4 *Australian Cultural History* 34-41.

²⁴³ Halpin D. and Martin P., "Farmer Representation in Australia : Avenues for changing the Political Environment" (1999) 58 (2) *Australian Journal of Public Administration* 33-46, 33.

framework that has emerged over the last 20 years.²⁴⁴ In addition, consultative mechanisms and locally-based participatory movements have replaced a dedicated ‘farmers party’ as a way for farmers to have input to policy and contribute towards its implementation.²⁴⁵

The law has in the main reflected and supported the developmentalist approach to agriculture. In a review of environmental management and nature conservation Frawley (1994) identified three eras.

- exploitative pioneering — in which the role of government was limited, but when the State did intervene it was to allocate resources amongst competing interests;
- national development — which also exhibited some concern for the ‘wise use’ of resources. There was increasing government intervention for both conservation and development purposes, and to protect capital investment and sectoral interests; and
- modern environmentalism — in which the political process attempted to incorporate environmental concern. This has translated in legal terms to a plethora of environmental legislation, which operated as an adjunct to existing law.²⁴⁶

Throughout the three eras the dominant social paradigm has been developmentalist – focussed on economic growth and the instrumental valuation of the environment as ‘resources’, the development of which formed the basis of economic development policy.²⁴⁷

The level of support to agricultural development through land distribution, infrastructure provision, economic subsidies and other programs has begun to change. There has been a shift in policy emphasis in recent years and the notion of a corollary between the national interest and support of agriculture is increasingly questioned. What is apparent from this discussion however is that the current structure of agriculture

²⁴⁴ Ibid. 38.

²⁴⁵ Ibid. 33.

²⁴⁶ Frawley K., "Evolving visions: environmental management and nature conservation in Australia" in Dovers S. (ed), *Australian Environmental History - Essays and Cases* (1994), Oxford University Press, Melbourne, 55-78.

²⁴⁷ Ibid. 60.

has been a function in part of the policy and programs of successive governments. It is clear that the responsibility for past environmental degradation of agricultural lands is not just the responsibility of individuals but also of governments and the broader community. The challenge that sustainability poses to developmentalism is discussed further in Chapter Three. While there has been a change in the explicit policy of Governments, natural resource administration and law is a product of these past imperatives.

2.5 The Commonwealth.

The States have *defacto* primary responsibility for resource management and land-use policy. However, the States' powers and responsibilities need to be considered in the context of the significant influence the Commonwealth exercises over natural resource management. The Commonwealth has constitutional powers, international responsibilities, coordination functions, develops national policies, strategies and standards, undertakes environmental monitoring and research, directly funds programs and can influence natural resource management indirectly through taxation and broader economic policy.

The Australian Constitution, written in 1901, never makes explicit mention of the environment. As a consequence the States were long regarded as having exclusive powers over resource management and land-use policy. This is no longer the case either with respect specifically to water or the environment more generally.

The Constitution gives no direct power to the Commonwealth to legislate with respect to water or water resources. Section 100 contains the only reference to water and is drafted as a restriction on the power of the Commonwealth to make laws with respect to trade or commerce under section 98.²⁴⁸ The general assumption is that this is a constraint on Commonwealth legislative power in water resource management. Recent research by Connell (2003) challenges this assumption. Based on an analysis of the

²⁴⁸ Lenton K., "Editorial" (2003) 8 (2) *The Australasian Journal of Natural Resources Law and Policy* 79-82, 80.

1897-98 Australasian Federal Convention he argues that Section 100 was not intended to be as restrictive as it is currently assumed to be.²⁴⁹

More broadly, legal precedents over the last 30 or so years have established that the Constitution gives the Commonwealth wide powers over the States in certain environmental matters.²⁵⁰ The most significant of these is the 'Tasmanian Dams Case', which confirmed the Commonwealth constitutional powers to effectively determine land use priorities in the States.²⁵¹ According to Bates (1984) it affirmed that the Commonwealth has 'very real and significant power' and constraints on its exercise will be 'political rather than legal'.²⁵² These powers arise from the Commonwealth's legal pre-eminence in matters of trade and commerce²⁵³, taxation,²⁵⁴ quarantine,²⁵⁵ fisheries,²⁵⁶ corporations,²⁵⁷ race,²⁵⁸ external affairs,²⁵⁹ incidental matters,²⁶⁰ customs, excise and bounties,²⁶¹ financial assistance²⁶² and territories.²⁶³ It is generally held that these 'heads of power' give the Commonwealth substantial power and wide scope to legislate directly on matters affecting the environment.²⁶⁴

Australia is a signatory to over 56 multilateral treaties relating to the environment²⁶⁵ including Agenda 21, the global action plan for sustainable development.²⁶⁶ These

²⁴⁹ Connell D., "Section 100 - A Barrier to Environmental Reform?" Ibid.83-97.

²⁵⁰ see Farrier D., Lyster R. and Pearson L., *The Environmental Law Handbook* (1999) Redfern Legal Centre Publishing, Redfern, Australia, 15-17 for an overview of these cases.

²⁵¹ *Commonwealth v Tasmania* (1983) 158 CLR 1.

²⁵² Bates G., "The Tasmanian Dam Case and Its Significance in Environmental Law" (1984) 4 *Environmental and Planning Law Journal* 325-345, 344

²⁵³ Commonwealth Constitution s 52 (i).

²⁵⁴ Ibid. s 51(ii).

²⁵⁵ Ibid s 51 (ix).

²⁵⁶ Ibid s 51 (x).

²⁵⁷ ibid s 51 (xx).

²⁵⁸ Ibid s 51 (xvi).

²⁵⁹ Ibid s 51 (xxxix).

²⁶⁰ Ibid s 51 (xxix).

²⁶¹ Ibid s 90.

²⁶² Ibid s 96.

²⁶³ Ibid s 122.

²⁶⁴ Fowler R., "A Brief Review of Federal Legislative Powers with Respect to Environment Protection" (1993) (1) *Australian Environmental Law News* 51-64.

²⁶⁵ Industry Commission, *A Full Repairing Lease. Inquiry into Ecologically Sustainable Land Management* (1998) Industry Commission, Canberra, 82. These include the Convention on International Trade in Endangered Species of Wild Fauna and Flora (1 July 1975), the Convention on Wetlands of International Importance especially as Waterfowl Habitat (The Ramsar Convention) (21 December 1975), Convention for the Protection of the World Cultural and Natural Heritage (17 December 1975), the Convention on Biological Diversity (29 December 1993); and the United Nations Framework Convention on Climate Change (21 March 1994).

²⁶⁶ Agenda 21 is discussed further in Chapter Three.

commit the Commonwealth to protecting Australia's environment in the interests of the global environment. Domestically, some of these obligations are reflected through Commonwealth legislation such as the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) ('EPBC Act'). On matters of national significance, the Commonwealth has been active in the development of a number of national programs and strategies.²⁶⁷

The pre-eminent Commonwealth environmental legislation is the EPBC Act, which arguably provides:

'for the first time in Australia's history, a truly national framework for environment protection and biodiversity conservation. It enables the Commonwealth to demonstrate national leadership in a manner that respects the role of the States in delivering on-ground management.'²⁶⁸

The objects of EPBC are:

- (a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and
- (b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and
- (c) to promote the conservation of biodiversity; and
- (ca) to provide for the protection and conservation of heritage; and
- (d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples; and
- (e) to assist in the co-operative implementation of Australia's international environmental responsibilities; and
- (e) to assist in the co-operative implementation of Australia's international environmental responsibilities; and
- (f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
- (g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.²⁶⁹

The Act contains a range of provisions for the conservation of biodiversity. These include the listing of nationally threatened species, ecological communities, migratory species, marine species and threatening processes; the preparation of recovery, threat

²⁶⁷ These include National Strategy for Ecologically Sustainable Development, National Strategy for the Conservation of Australia's Biological Diversity; the National Greenhouse Response Strategy, National Water Quality Management Strategy, COAG Water Reform Agenda, National Forest Policy Statement and the National Weeds Strategy, amongst others.

²⁶⁸ Environment Australia, *Work in Progress. Australia's commitment to the Environment* (n.d.) Commonwealth of Australia, Canberra, Australia.

²⁶⁹ EPBC s.1.

abatement and conservation plans; the protection and management of protected areas including Commonwealth reserves, World Heritage properties, Ramsar wetlands and Biosphere reserves. It provides for enforcement, environmental audits, conservation orders, liability for offences, powers to remedy environmental damage and extensive third party rights.

The EPBC Act, for the first time allows the Commonwealth, to directly regulate private land-use by requiring approval for an action that will have, or is likely to have, a ‘significant impact’ on a matter of national environmental significance. National environmental significance triggers are World Heritage Properties, National Heritage Places, declared Ramsar Wetlands, listed threatened species and communities, migratory species protected under international agreements, nuclear actions and the Commonwealth marine environment.²⁷⁰ The EPBC Act also provides that certain actions taken by the Commonwealth, and actions affecting Commonwealth land, require approval.²⁷¹ Where an action is found to be a ‘controlled action’ according to the provisions of the Act an assessment is required.²⁷² The form of assessment is detailed.²⁷³

Under the EPBC Act an action will require approval from the Environment Minister if it is likely to have a significant impact on a matter of national environmental significance unless the action is approved under, and taken in accordance with, a State management plan that is accredited by the Commonwealth for the purposes of a bilateral agreement.²⁷⁴ A number of other exceptions apply.²⁷⁵ In fact:

‘a key element of the EPBC is the power of the Commonwealth to delegate its responsibilities to State governments by entering into arrangements relating to particular proposals, or more generally, through so-called “bilateral agreements”’.²⁷⁶

²⁷⁰ EPBC ss 12, 15B, 16, 18, 20, 21, 23. See also Environment Australia, *EPBC Act. Administrative Guidelines of Significance* (2000) Commonwealth of Australia, Canberra, Australia.

²⁷¹ EPBC ss 26, 28.

²⁷² EPBC s 67.

²⁷³ See EPBC Part 9.

²⁷⁴ EPBC s. 46.

²⁷⁵ See EPBC, ss 33, 43, 160.

²⁷⁶ Farrier D., *Regulation of Activities Impacting on Native Vegetation: Its Effect on Grain Growers* (2003) Institute for Conservation Biology and Law, University of Wollongong, Wollongong, Australia, 10.

Two types of bilateral agreements were envisaged for implementation of the Act, i.e. assessment and approval. Assessment bilaterals which accredit a State assessment processes for the purposes of the EPBC Act have been reached with Tasmania, Northern Territory and Western Australia. There does not appear to have been any moves to implement approval bilaterals at this stage.²⁷⁷

The EPBC Act contains a broad range of enforcement mechanisms and serious penalties for non-compliance. However, Environment Australia has not utilised these mechanisms, instead appearing to favour a cooperative approach to enforcement.²⁷⁸ The lack of formal compliance monitoring and the heavy reliance on non-punitive enforcement has been attributed to lack of resources.²⁷⁹ This has raised questions about the ability of the Commonwealth to cope with the range of duties and responsibilities under the Act.²⁸⁰

On other matters, the Intergovernmental Agreement on the Environment (1992) (IGAE) sought to clarify the respective responsibilities of the Commonwealth, States and Territories. The IGAE aims to define the roles of each level of government; reduce intergovernmental environmental disputes; provide certainty in government and business decision-making and provide better protection of the environment.²⁸¹ The IGAE provided for the establishment of a Ministerial Council, the National Environment Protection Council (NEPC). The NEPC is committed to establishing national goals and standards in environmental management²⁸² and environmental impact assessment in a limited number of areas primarily pollution and waste.

Coordination between the Commonwealth, States and territories is also a key function or concern of a number of intergovernmental ministerial councils and standing

²⁷⁷ Nugent A., "A Revolutionary Three Years in Environment Management? The Implementation of the Environment Protection and Biodiversity Conservation Act" (2003) (3) *National Environmental Law Review* 30-41.

²⁷⁸ Ibid.

²⁷⁹ Ibid. 37.

²⁸⁰ Ibid. citing Scanlon, J and Dyson, M "Will Practice Hinder Principle? – Implementing the EPBC Act", *Environmental and Planning Law Journal*, Volume 18, No. 1, February 2001: 19.

²⁸¹ Industry Commission, *A Full Repairing lease. Inquiry into Ecologically Sustainable Land Management* (1998) Industry Commission, Canberra, 83.

²⁸² The NEPC sets environmental protection standards, goals and guidelines related to air quality, marine estuarine and fresh water quality, noise, site contamination, hazardous wastes, reuse and recycling of used materials, motor vehicle noise and emissions.

committees. These include the Council of Australian Governments (COAG), which has been especially active in relation to water management; the Intergovernmental Committee on Ecologically Sustainable Development (ICESD), responsible for implementation and review of the IGAE, the National Greenhouse Response Strategy and the National Strategy for ESD; the Natural Resource Management Ministerial Council (NRMMC); and the Murray-Darling Basin Ministerial Council (MDBMC).

The NRMMC was formed in August 2001 and brings together Federal and State/Territory ministers responsible for the environment, water, natural resources and primary industries. It has a key role in overseeing major natural resource management policies including the Natural Heritage Trust (NHT) and the National Action Plan (NAP) for salinity and water quality.

Of particular significance has been the COAG Water Reform Framework ('the Framework'). The Framework covers water entitlements and trading, environmental requirements, institutional reform, public consultation and education, water pricing and research which are to be implemented by the States individually.²⁸³ Accordingly, the Framework has had a significant influence on institutional and legislative reform at the State level²⁸⁴ driven in part by incentive payments for completion of particular aspects of reform.²⁸⁵

The Commonwealth has an important role in monitoring and research and development. The recent National Land and Water Resources Audit (NLWRA) as well as the National State of the Environment Reports provide important data and indications of national trends in environmental conditions. The NLWRA was the first Australia-wide assessment of natural resources, including water availability and quality, dryland salinity, native vegetation and agricultural productivity and sustainability. The first phase of the audit was funded under the NHT between 1997 and 2002 with \$34

²⁸³ Environment Australia, *Council of Australian Governments Water Reform Framework* (n.d.) <http://www.ea.gov.au/water/policy/coag.html> (accessed 20 February).

²⁸⁴ See National Competition Council, *2002 National Competition Policy Assessment Framework for Water Reform* (2002) National Competition Council, Canberra, Australia for an overview of areas of reform and progress by the States in implementing reform.

²⁸⁵ Cullen P., "Water: The Key to Sustainability in a Dry Land" (Paper presented at the Rosenberg International Forum on Water Policy, Canberra, Australia, 2002).

million.²⁸⁶ The NLWRA has been provided with \$3 million to continue work until 2007.²⁸⁷

The Commonwealth provides considerable resources to environmental programs. Overall there has been a significant increase in levels of national funding over the last 10 years. In 1992 Commonwealth government spending on the environment totalled some \$80 million, by 2002 this had risen to \$1.557 billion.²⁸⁸ This however is only a small proportion of the total Commonwealth budget i.e. 0.9% in 2002/3.²⁸⁹ The Prime Minister's Science, Engineering and Innovation Council identified a need for remedial expenditure of between \$2 billion and \$6 billion each year to address the problem of land degradation.²⁹⁰ In this context the allocation of \$310 to \$360 million in the 2002/3 budget is inadequate.

A series of major Commonwealth programs have targeting natural resource management and environmental repair. Significant in this regard is the NHT which was funded by the partial sale of Telstra and has allocated some \$2.5 billion over the period 1996 – 2007 to a variety of programs including Bushcare, Landcare, the Murray-Darling 2001 Project and the National Reserve System. The programs are designed to 'redress the current decline, prevent further decline, in the quality of Australia's natural environment'.²⁹¹ The NHT funding and investment mechanism is based upon individual partnership agreements between the national government and individual States and Territories. It allocates funds and generates matching funds and in-kind resources. Between 40% and 60% of funds have bypassed State and local government to directly fund community-based projects.²⁹²

There has been wide review of the effectiveness of NHT and it has been claimed to be an 'innovative cross-departmental, intergovernmental project with a high level of community participation' able to generate significant investment in natural resource

²⁸⁶ Stirling E., *EnviroInfo - October 30, 2003* (2003) www.enviroinfo.com.au (accessed 30 October).

²⁸⁷ Ibid.

²⁸⁸ Christoff P., *In Reverse* (2002) ACF, Melbourne, Australia, 40.

²⁸⁹ Ibid. 40.

²⁹⁰ Prime Ministers's Science Engineering and Innovation Council, *Sustaining Our Natural Systems, report to the PMSEIC, Eighth Meeting* (2002).

²⁹¹ *National Heritage Trust of Australia Act 1997* (Cth) preamble.

²⁹² Crowley K., "Effective Environmental Federalism? Australia's Natural Heritage Trust" (2001) 3 *Journal of Environmental Policy and Planning* 255-272, 255.

repair.²⁹³ Unfortunately, the nexus between expenditure and environmental outcomes has not been demonstrated. Crowley (2001) concludes that, by failing to adequately plan and establish targeting, monitoring and evaluation processes, the NHT is in danger of failing as a national conservation measure. Its effectiveness in terms of environmental outcomes has been diminished by weaknesses in strategy, delivery and implementation, inadequate knowledge bases and analysis, and a lack of integrative, long-term planning.²⁹⁴

The most recent funding initiative is the Prime Minister's National Action Plan for Salinity and Water Quality ('the NAP'). The NAP has funding of around \$200 million per year, which will be allocated to accredited regional strategies after agreement with the States by the NRMCC. The determination of priority regions and actions represents a significant directive influence on natural resource management priorities at the State level. The design of the NAP addresses some of the concerns regarding planning and prioritisation that were raised by the reviews of the NHT. There is clearly an attempt to generate a regional perspective and move away from *ad hoc* community project support. In practice the decision by the Commonwealth to direct funds on a regional basis has driven reform by the States. The Catchment Blueprints in NSW and the Integrated Natural Resource Management Plans in SA have been a direct response to this initiative.

The policy direction of both the NHT and the NAP is towards national-state cooperatively funded regional action that is accredited by both levels of government. Unlike programs such as Save the Bush, One Billion Trees and the Decade of Landcare initiatives introduced in the 1980s by the previous Hawke Labor governments, the NHT Mark 2 and NAP have a stronger planning focus.

In addition to spending powers, the Commonwealth has a significant influence on natural resource management through the taxation system. The income tax and Goods and Services Tax ('GST') regimes, and in particular, the taxation provisions for primary

²⁹³ Ibid. 267.

²⁹⁴ Ibid. 267.

producers, can have positive and/or negative impacts on the environment.²⁹⁵ While the primary role of the taxation system is to raise revenue to fund the general functions of government it can also be used to provide incentives or disincentives for particular activities.

In a review of the potential effects of tax on the environment, Douglas (2002) found that both the income tax and GST systems take limited account of the potential impacts (both positive and negative) of transactions on the environment.²⁹⁶ With respect to the taxation provisions for primary producers, largely intended to act as an incentive, Douglas (2002) found a mix of effects, for example:

- The 'Landcare' taxation provisions which provide an incentive to undertake capital works to combat land degradation, were narrowly defined and did not cover expenditure in other environmental areas such as biodiversity conservation;
- The conveying and conserving water taxation provisions could have variable and unintended environmental impacts, such that for example, the provisions could assist in investment in water conserving technology but could equally provide assistance for construction of irrigation dams which would result in an increase in demand for water.²⁹⁷

Clearly these types of provisions need to be carefully and purposively designed to ensure a match between policy objective and effect.

The use of environmental taxes as a disincentive for harmful activities has not been adopted to any significant extent (despite their potential)²⁹⁸ and it seems unlikely that Australian governments would adopt this approach in the near future.²⁹⁹ There is however considerable potential for the taxation system to raise revenue for particular

²⁹⁵ Douglas R., *Potential Effects of Selected Taxation Provisions on the Environment* (2002) Productivity Commission, Canberra, Australia, xi.

²⁹⁶ Ibid. xi.

²⁹⁷ Ibid. xii–xiii.

²⁹⁸ See Zilberman D., "The Impact of Agriculture on Water Quality" in OECD (ed), *Sustainable Management of Water Resources - Issues and Policies. The Athens Workshop*. (1998), OECD, Paris, France. For a review of the potential of taxation provisions to address the water quality impacts of agricultural activities.

²⁹⁹ Gumley W., "The role of economic instruments in promoting sustainable land use." (2001) 7 (2) *The Australasian Journal of Natural Resources Law and Policy* 137-167, 165.

purposes, such as is the case with the Medicare levy. An environmental levy, similar to the Medicare levy, across all taxpayers could provide the necessary revenue for environmental restoration but would lack a clear mechanism for driving changes in the behaviour of landholders.³⁰⁰

In addition to policy explicitly concerned with natural resource management, a number of other Commonwealth initiatives significantly influence natural resource management at the State level. Of less apparent significance, but none the less influential on natural resource management, has been the range of Commonwealth initiatives aimed at improving the competitiveness of the Australian economy. The National Competition Policy (NCP) and related reforms³⁰¹ were designed to improve efficiency of the economy through competition; remove regulatory impediments to productivity; and ensure that public sector businesses operate along the same market- and profit-oriented lines as the private sector.³⁰² The underlying premise of the reforms was that competition would promote community welfare by increasing national income through improvements in efficiency. Under cl.5 of the Competition Policy Agreements, all governments agreed that legislation should not restrict competition unless it can be demonstrated that the benefits of the restrictions to the community outweigh the costs.³⁰³ The public interest is a legitimate consideration in certain areas.³⁰⁴

In the legislative reviews arising from the NCP, land and natural resource approval systems were the subject of considerable scrutiny. Lyster (2001) for example has argued that 'conventional environmental regulation was under the spotlight as never before.'³⁰⁵ She argued further that competition principles have infiltrated the deliberations of intergovernmental policy makers like COAG, and have influenced the development of natural resource strategies adopted at both the Commonwealth and State levels of government.³⁰⁶

³⁰⁰ Ibid. 167.

³⁰¹ COAG signed three agreements in 1995 : the Competition Principles Agreement, the Conduct Code Agreement and the Agreement to Implement the National Competition Policy.

³⁰² Lyster R., "(De)regulating the Rural Environment" (2001) 18 (5) *Environmental and Planning Law Journal* 445-468, 447.

³⁰³ Ibid. 447.

³⁰⁴ These include government legislation and policies that relate to ecologically sustainable development, social welfare and equity considerations and the efficient allocation of resources see cl.1(3) CPA.

³⁰⁵ Lyster R., "(De)regulating the Rural Environment" (2001) 18 (5) *Environmental and Planning Law Journal* 445-468, 448.

³⁰⁶ Ibid. 448.

There is significant support for the Commonwealth to take a leadership role in natural resource management. In May 2000 the Australian Conservation Foundation and the National Farmers Federation released a '5-Point Plan for Repairing the Country'.³⁰⁷ This included arguments for an enhanced role for the Commonwealth on the basis that there was a need for improved Commonwealth-State and interstate cooperation and substantial investment for landscape repair. The importance of national leadership was reiterated by the Wentworth Group in the 'Blueprint for a Living Continent'.³⁰⁸ Further argument for national intervention relates to the apparent inability of the States to deal with some natural resource issues, notably land clearing.³⁰⁹ However confidence in the Commonwealth to address controversial issues impacting on private land management such as land clearing may be misplaced.

In contrast to these calls for national leadership there is evidence that there has in fact been a devolution of responsibility for environmental matters to the States.³¹⁰ During the 1980's the Commonwealth was proactive in land-use decision-making and expansive in the use of its powers to achieve the protection of some of Australia's significant wilderness and land areas.³¹¹ The high point of this was the decision by the Commonwealth to prevent the construction of the Franklin-below-Gordon hydro-electric scheme, despite opposition from the States.³¹² It seems unlikely that the current political climate would support such an action today.

The purpose of this discussion has been to demonstrate the scope of influence of the Commonwealth on natural resource management. While it has been shown that the Commonwealth has extensive constitutional, fiscal and programmatic powers, it does not in the main take a directive role with the States, although it does attach conditions to

³⁰⁷ Australian Conservation Foundation & National Farmers' Federation, *5-Point Plan for Repairing the Country* (2000).

³⁰⁸ The Wentworth Group, *Blueprint for a Living Continent* (2002) WWF, Sydney, Australia.

³⁰⁹ ACF (2002) – press release. New data reveal Australian Landclearing rates 22% worse (than official estimates).

³¹⁰ Christoff P., *In Reverse* (2002) ACF, Melbourne, Australia, 37. Crowley K., "Effective Environmental Federalism? Australia's Natural Heritage Trust" (2001) 3 *Journal of Environmental Policy and Planning* 255-272, 257.

³¹¹ Economou N., "Backwards into the future: National policy making, devolution and the rise and fall of the environment" in Walker K., J. and Crowley K. (ed), *Australian Environmental Policy 2 Studies in Decline and Devolution* (1999), University of New South Wales Press Ltd, Sydney, Australia, 66.

³¹² Tasmanian Dam Case – *Commonwealth v Tasmania* (1983) 46 ALR 625.

funding. Rather in setting standards, devising policy, initiating reform and spending money it indirectly influences the direction of State government reform and natural resource management outcomes on the ground. There would appear to be two contradictory trends. On the one hand it can be argued that the Commonwealth is attempting to devolve responsibility to the States as evidenced by the IGAE and the EPBC. On the other, the specific targeting of resources to landscape repair at a regional level would appear to by-pass the States to some extent and maintain significant Commonwealth control.

2.6 Legal and Administrative arrangements for catchment, water and land-use planning – Overview and critique.

In practice, in spite of the potentially broad powers of the Commonwealth discussed in the previous section, the States have primary responsibility for the management of natural resources and land-use. State governments have principal control over, and regulate the use of water and other natural resources, such as vegetation. They legislate to control pollution and plan, direct and guide investment in infrastructure. Local governments have principal responsibility for the delivery of local services, local environmental regulation and land-use planning. The environmental management responsibilities of local governments have increased over recent years in relation to the enforcement of planning and environmental laws³¹³ and with regard to the planning and conduct of operations.³¹⁴

Traditionally the management of natural resources at the State level has been sectoral. There have been separate and unconnected legal regimes for the management of natural resources, such as water, vegetation and soil conservation. In addition, a range of legislation controls infrastructure development, such as railways, roads, housing, land settlement, Crown land management and electricity generation. These kinds of

³¹³ Howard T., "Prosecution of Environmental and Planning Offences in NSW - How Local Councils and Other Prosecuting Authorities can meet the Enforcement Challenge" (2001) 6 (1) *Local Government Law Journal* 136-147. For example, there was a transfer of responsibility for prosecution of many environmental offences from the State government to local government on enactment of the *Protection of the Environment Operations Act 1997* (NSW).

³¹⁴ Ellis-Jones I., "Environmental Legislation - New Responsibilities for Local Government" (2000) *Ibid.* 101-113.

developments significantly influence the management of natural resources through controlling the location, scope and scale of development.

Some resources, such as water, are subdivided even further. Commonly, for example, there are separate regimes for the control of surface and ground water, water quantity and quality, clean and dirty water, irrigation water and drinking water, point source pollution and diffuse pollution. Reforms in recent years have addressed some of these issues, particularly through the inclusion of surface and ground water into one legislative framework.³¹⁵ The disjunction between the regimes for the management of water quantity and quality continues to be problematic. Considerations of water quantity are inseparable from considerations of water quality. The difficulties this creates for effective water management have been widely documented.³¹⁶ The current legislative arrangements for water quantity and quality in NSW and SA are described in detail in Part Four.

Of particular concern is the traditional separation between the regulation of water and land-use. Generally, the regulation of water is a State government function while land-use control is primarily within the jurisdiction of local government. There is however considerable oversight of the planning function by the State government. Traditionally the siting of land-uses has been controlled through the zoning provisions in local land-use or development plans. A typical approach would see the separation of residential and industrial areas into different zones, historically prompted by public health concerns. Thus a manufacturer, using large quantities of water in the production process and discharging wastes into rivers would require a development consent from the local council, a water licence from one State government department and a pollution permit from another.

Land-use planning has traditionally held an urban bias although the protection of prime agricultural land has long been a concern of land-use planners. Consideration of the actual nature of agricultural development has been less well developed. The regulation of industrial and urban development has been the key concern of the planning system,

³¹⁵ See for example, the *Water Management Act 2000* (NSW) and the *Water Resources Act 1997* (SA).

³¹⁶ Burton J. R., *Managing the Water Resources of New South Wales* (1993) Centre for Water Policy Research. University of New England, Armidale, Australia.

and many agricultural land-uses are ‘permitted without consent’. While a licence may be required to take and use water, the use of that water on agricultural land may not be the subject of any assessment.³¹⁷ Activities with potentially significant environmental effects, such as land clearing and laser levelling on private land associated with irrigation development, could proceed unscrutinised until relatively recently.

The land-use planning system is concerned with new development and the ongoing management of development falls to other legal and administrative regimes. Land-use planning legislation exempts existing uses from the demands of new regulatory requirements imposed by plans.³¹⁸

The sectoral nature of the law is reflected in the arrangement and distribution of administrative responsibility. Responsibility for natural resource management is diffused across a number of agencies with different legislative responsibilities making coordinated and effective management difficult. Departments of agriculture, forests, town planning, mines and public works are set up primarily to plan and manage resources and provide services, and only secondarily to protect and enhance the quality of the environment.³¹⁹ Environmental legislation and agencies are often weak in comparison with development-oriented agencies.³²⁰ Potent economic and employment arguments, particularly in times of economic recession, often outweigh environmental protection considerations. The challenges the imperative of sustainability brings to traditional public administration are discussed in Chapter Four.

2.6.1 Natural resources law, environmental law and land-use planning law.

In the past, natural resources law, has been principally concerned with facilitating development and enabling legitimate access to resources to support the ‘grand narrative’ of progress. Access to natural resources was determined in accordance with the rules of law exercised by administrators on the basis of simple assessment of the availability of

³¹⁷ For a comprehensive discussion of these issues see D Farrier, A H H Kelly, M Comino and M Bond Integrated Land and Water Management in New South Wales : Plans, Problems and Possibilities, A Paper presented to the Integrated Water and Land Management Conference Brisbane, 10–12 July 1996.

³¹⁸ See for example the Environmental Planning and Assessment Act, ss 106-109.

³¹⁹ Conacher A. and Conacher J., *Rural Land Degradation in Australia* (1995) Oxford University Press, Melbourne, Australia, 105.

³²⁰ *Ibid.* 105.

a resource and the impact, if any, of extraction on any existing users. It tended to be process oriented, identify the range of controls, require approvals and permits and allocate decision-making.³²¹ Legislation vested broad discretion in administrative agencies to make decisions to grant or refuse permits and approvals.³²²

Environmental law (as distinct from natural resources law) has tended to be anthropocentric and concerned with managing the 'excesses' of development through 'end-of-pipe controls'.³²³ Separated from the rest of law, it only reflects a policy of peripheral interference, while the economic system and decision-making within it remain largely untouched.³²⁴ It has been effective in reducing point source discharges of pollution, although arguably the sectoral nature of these controls has simply resulted in shifting pollution around. It has been argued that perhaps the most significant contribution of environmental law, in terms of environmental protection, has in fact been the creation of third party rights, including rights to information, reasons for decisions and rights of appeal, and judicial review. It has been most unsuccessful in responding to pollution, which is diffuse in nature, such as land degradation. It has also proved inadequate to the task of protecting biodiversity. The effectiveness of current regulatory strategies and the role of law in providing opportunities for public participation are taken up in Chapter Five.

Land-use planning law has an entirely different background, emerging as it did from the early English town planning movement, with its reaction to the condition of industrialising cities. Key drivers in its early development were public health and social justice concerns and these are reflected in the early Australian planning initiatives.³²⁵ It is substantially urban in focus, is regulatory, focused on restricting development through zoning and fundamentally concerned with facilitating development, albeit in an 'orderly' manner. While the land-use planning system has evolved and moved beyond

³²¹ Whitehouse J. F., "Will the precautionary principle affect environmental decision-making and impact assessment?" in Harding R. and Fisher E. (ed), *Perspectives on the Precautionary Principle* (1999), Federation Press, Sydney, Australia, 63.

³²² Ibid. 63.

³²³ Wilkinson D., "Using Environmental Ethics to Create Ecological Law" in Holder J. and McGillivray D. (ed), *Locality and Identity: Environmental Issues and Law and Society* (1999), Dartmouth Publishing Co Ltd, England, 26–33.

³²⁴ Bosselmann K., "A Legal Framework for Sustainable Development" in Bosselmann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), New Zealand Centre for Environmental Law, Auckland, New Zealand, 156.

³²⁵ See for example County of Cumberland Plan, NSW.

its origins – it is still restricted by its origins. Decision-support tools, such as Environmental Impact Assessment ('EIA') have been important in assisting decision makers to consider the environmental impacts of certain types of development but not in the management of the cumulative impact of decisions. Planning in NSW has, for at least 25 years involved the community in plan-making. Planning legislation has also created important third party rights for both merit and judicial review of decisions about development.

2.6.2 Regulation.

Regulation in the environmental context has several limbs, most commonly through the creation of administrative systems which control access to resources through licensing, the establishment of standards supported by permits and licences, and requirements for consents and approvals usually associated with the land-use planning system but more recently extending to matters such as the control of vegetation clearance.

Natural resource legislation has traditionally relied upon 'processes' such as licences to use water, to discharge polluted water, to clear vegetation; and, approval for development on land. In the main the only 'prescriptive' natural resource legislation has been in the area of water pollution with, for example, point source discharge limits. There are very few cases of absolute prohibition of activities. The focus has been on *ad hoc* regulation, rather than a comprehensive regulatory regime concerned with the holistic and integrated management of natural resources.

The three legal frameworks of natural resources law, environmental law and land-use planning have profoundly influenced the current shape and form of the Australian environment. We can only speculate on what the environment would have been like without these controls. What is clear however is that these legal frameworks have not adequately managed the environmental consequences of development. Nor have they been particularly concerned with, or effective in, non-urban contexts. In general they have been reactive to, and accommodating of, the dominant economic and social imperatives. They have tended to focus on restraining activities through the creation of rules, rather than promoting activities with the use of tools.

Australia has a tradition of low or self-regulation in the agricultural sector – historically most Australian State and local governments reluctantly impose environmental controls or land-use planning regimes in rural areas.³²⁶ Grabosky and Gunningham (1998) argue that traditionally, regulation of agriculture has been informal, based upon the provision of information and persuasion by government authorities, whose fundamental role has been not to police agricultural producers but to assist them to do the right thing.³²⁷ This is contrary to numerous national inquiries recommending the implementation of land-use policies that regulate agricultural businesses and is in direct contrast to urban land-use, which is highly regulated.³²⁸

The reluctance of Australian governments to use and/or implement command regulation, as a tool in reducing the environmental impacts of agriculture, is a consequence of a number of factors including:

- the historical political power of the farm lobby,
- the physical vastness of the Australian land mass,
- the perceived difficulty of enforcement, and
- the diffuse landscape processes (which are inherently difficult to regulate).³²⁹

These problems are not unique to Australia and the search for effective tools for the management of the environmental impacts of agriculture is evident at both national and international levels.³³⁰ Clearly, however, the issue is not just about the right tools. Ongoing cultural issues concerning their application need also to be addressed. A question explored in Chapter Five, is the extent to which the context in which rules are developed, has a bearing on their enforceability.

³²⁶ Griffin/Alexandra & Assoc, *The Ecovine Project. From Agricultural Environmental Management Systems to Regional Outcomes*. (2002) Land and Water Australia, Southcorp & Australian Conservation Foundation, 11.

³²⁷ Grabosky P. and Gunningham N., "The Agriculture Industry" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation* (1998), Clarendon Press, Oxford, Great Britain.

³²⁸ Griffin/Alexandra & Assoc, *The Ecovine Project. From Agricultural Environmental Management Systems to Regional Outcomes*. (2002) Land and Water Australia, Southcorp & Australian Conservation Foundation, 11.

³²⁹ Ibid. 12.

³³⁰ ABARE, *Alternative policy approaches to natural resource management* (2001) Australian Bureau of Agricultural and Resource Economics, Canberra, Australia. and OECD, *Improving the Environmental Performance of Agriculture: Policy Options and Market Approaches* (2001) OECD, Paris, France..

Concern with the appropriateness and effectiveness of regulatory strategies in the agricultural sector has been widespread. Command regulation has not been successful in dealing with diffuse, non-point and multi-media sources of pollution or with complex and systemic environmental problems such as biodiversity loss.³³¹ The appropriateness of regulatory tools in the context of land degradation has long been of concern.³³² A review by Bradsen and Fowler (1987) of soil conservation legislation concluded that it was a 'species of crisis legislation destined to largely shut the door after the soil has bolted'.³³³ The authors argue that the regulatory tools available under such legislation are infrequently used, ineffective and probably unenforceable.³³⁴ These types of problems are extremely difficult to deal with and the efficacy of other approaches such as economic instruments remains questionable.³³⁵

Another critical area of concern with the current regulatory approach has been with fragmentation and lack of coordination or integration of regulatory approaches. The sectoral management of different aspects of the natural environment has been widely critiqued.³³⁶ Law is a web of interrelated social constructs, its aspects can be mutually reinforcing or can work at cross-purposes.³³⁷ Environmental degradation and a growing awareness of the interconnectedness of the natural environment have turned attention to the role institutions and laws play in the management of natural resources. The sectoral legal framework has been identified as contributing to the problems of environmental management.³³⁸ Indeed, catchment management has evolved in response to these issues.

One approach to the issue of legislative complexity is regulatory management. The proliferation of regulation and its impact on competition has been an issue of concern in

³³¹ Gunningham N., "Introduction" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Britain. supra note 14, 7.

³³² See Bradsen J. and Fowler R., "Land Degradation: legal issues and institutional constraints" in Chisholm A. H. and Dumsday R. H. (ed), *Land Degradation : Problems and Policies* (1987), Cambridge University Press, Sydney, Australia.

³³³ Ibid.

³³⁴ Ibid.

³³⁵ See for example ABARE, *Alternative policy approaches to natural resource management* (2001) Australian Bureau of Agricultural and Resource Economics, Canberra, Australia, 55-57.

³³⁶ Gilmour A., "Achieving Better Environmental Outcomes" (2001) 38 (2) *Australian Planner* 96-101.

³³⁷ Robinson N. A., "Sustainable Development: An Introduction to the Concept" in Owen Saunders J. (ed), *The Legal Challenge of Sustainable Development* (1990), Canadian Institute of Resources Law, Ottawa, 33.

³³⁸ See for example Health Rivers Commission (August 1998) *Independent Inquiry into the Hawkesbury Nepean River System*, Final Report, Chapter 5 Institutional Issues, 28-44.

Australia.³³⁹ It has been argued that the systematic response of governments to new regulatory challenges by the promulgation of command regulation has resulted in 'regulatory inflation'.³⁴⁰ That is the proliferation of detailed, prescriptive rules that may be difficult to implement and comply with,³⁴¹ result in the general devaluing of rules, create involuntary non-compliance, regulatory gaps, stifle innovation and increase business costs.³⁴²

There has been considerable effort to improve integration and reduce duplication at the level of project control.³⁴³ Initiatives such as the Integrated Development Approval System ('IDAS') in NSW have made significant progress through the use of concurrence and referral provisions to improve the integrated assessment of individual projects. Farrier (2002) has argued that better environmental outcomes require more than simply removing 'red tape', and that it is quite inadequate to concentrate on integrating the numerous approval processes which lead to decisions on particular projects.³⁴⁴ Rather, a concern with the strategic context within which decisions are made is of importance.

The NSW Government has considered the notion of regulatory innovation as a means of responding to the problem of regulatory inflation.³⁴⁵ Key approaches include performance-based regulation, negotiated rule-making, class exemptions (i.e. small business), regulatory flexibility and third party certification.³⁴⁶ The application of these approaches in the agricultural sector has not been considered in a systematic way. A consideration of some of these alternatives is undertaken in Chapter Five.

³³⁹ see National Competition Policy, discussed in the previous section.

³⁴⁰ New South Wales Government, *Regulatory Innovation. Regulation for Results* (1996) NSW Government, Sydney, Australia, 3.

³⁴¹ Aalders M., "Regulation and In-company Environmental Management in the Netherlands" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 250.

³⁴² New South Wales Government, *Regulatory Innovation. Regulation for Results* (1996) NSW Government, Sydney, Australia, 3.

³⁴³ Farrier D., "Fragmented Law in Fragmented Landscapes: The Slow Evolution of Integrated Natural Resource Management Legislation in NSW" (2002) 19 (2) *Environmental and Planning Law Journal* 89-108.

³⁴⁴ *Ibid.* 89.

³⁴⁵ New South Wales Government, *Regulatory Innovation. Regulation for Results* (1996) NSW Government, Sydney, Australia, 4.

³⁴⁶ *Ibid.* 5-6.

At the State level there is a poorly coordinated mix of regulatory strategies and there has been little thought given to overlaps or contradictions or whether instruments complement each other.

The Industry Commission, has painted a ‘disturbing picture’ of *ad hoc* State-based approaches to regulation of agriculture alongside the existence of financial incentives for unsustainable practices. Such incentives include drought relief, subsidy of irrigation water and so on.³⁴⁷ The harmonisation of the rules and tools of natural resource management is also an important matter. The issue is not simply about removing incentives for unsustainable practices, but strategically using incentives as tools to reinforce/facilitate behavioural change. Subsidies are very important in addressing the distributional burden of environmental policy and in engendering policy support among the actors who will be regulated.³⁴⁸ Combinations of instruments are acknowledged as being more valuable than individual instruments working alone. The Ecovine Project (2002) found that improved environmental management in agriculture requires the strategic use of a full range of policy instruments and that there needs to be a link between regulatory initiatives, training and targeted incentives.³⁴⁹ The relative immaturity of environmental law in this regard has been identified.³⁵⁰ An examination of the role of planning in facilitating the harmonisation of rules and tools is a key concern of this research.

2.6.3 Change – introducing a planning dimension.

There have been two key changes in the legal and administrative arrangement for natural resource management in recent years. These are the introduction of catchment planning and management, and reform of natural resource decision-making processes.

³⁴⁷ Industry Commission, *A Full Repairing lease. Inquiry into Ecologically Sustainable Land Management* (1998) Industry Commission, Canberra.

³⁴⁸ Lotspeich R., "Comparative Environmental Policy: Market-type Instruments in Industrialised Capitalist Countries" (1998) 26 (1) *Policy Studies Journal* 85-104, 88.

³⁴⁹ Griffin/Alexandra & Assoc, *The Ecovine Project. From Agricultural Environmental Management Systems to Regional Outcomes*. (2002) Land and Water Australia, Southcorp & Australian Conservation Foundation, 19.

³⁵⁰ Johnson D., "Sustainable Development: An Agenda for the 1990s" in Owen Saunders J. (ed), *The Legal Challenge of Sustainable Development*. (1990), Canadian Institute of Resources Law, Calgary, Canada. This research compared the range of instruments utilised in the compensation regime with those used in environmental protection. It found that there was a greater range of sanctions and rewards available under the former and that this had contributed to its effectiveness.

“Catchment management” refers to the practice of managing natural resources using water catchment systems as the unit of management. As an approach to managing land and water resources, catchment management involves integrating ecological, economic and social aspects of natural resource management around an identified catchment system.³⁵¹

Catchment management is commonly seen as a system that integrates environmental policy across government, community, and industry sectors through partnerships and extensive stakeholder inclusion.³⁵² It is associated with funding and investment activities as distinct from regulation and is largely agricultural in focus. There is widespread support for catchment management but its effectiveness has been questioned.

A further critical change that has occurred over the last 10 years in the natural resources context is reform of the decision-making framework, particularly with respect to access to natural resources. Catchment and water planning in both NSW and SA now engages a broad community process to establish the framework for decision-making about access to resources and the conditions attendant to their use.

It is the capacity of these initiatives to respond to the identified weaknesses of the legal and administrative arrangements for natural resources, which is the focus of this research. The extent to which they facilitate the integration of sectoral approaches, improve the appropriateness and effectiveness of regulatory strategies, and improve coordination of management actions will be examined in Part Four.

There is considerable confusion about the role of law in the establishment of natural resource planning frameworks.³⁵³ Legislation may:

- identify types of plans, their objectives and general contents;
- specify plan content i.e. they may be regulatory or a guide to investment;
- require plans to be made according to particular procedures;

³⁵¹ House of Representatives Standing Committee on Environment and Heritage, *Co-ordinating Catchment Management* (2000) The Parliament of the Commonwealth of Australia, Canberra, Australia, 25.

³⁵² Ibid. AFFA, Submission no. 142, 2 at 26.

³⁵³ Farrier D., "Legal Research for Natural Resource Management" in Mobbs C. and Dovers S. (ed), *Social, Economic, Legal, Policy and Institutional R&D for Natural Resource Management: Issues and Directions for LWRRDC* (1999), LWRRDC, Canberra, Australia, 74.

- require plans to be taken into account by decision-makers when making individual decisions;
- establish procedures to ensure an internally consistent hierarchy of plans;
- provide for environmental condition to be monitored, and for plans to be reviewed in light of this;
- authorise plans to constrain other government agencies in exercising their powers in relation to specified activities; and
- authorise plans which require government agencies to commit themselves to carry out positive management actions.

Not all of these components may be covered in legislation. There may for example, be a requirement under legislation to prepare a plan but no requirement that the plan be implemented. A plan may lack the appropriate tools for implementation or simply lack resources for implementation. A plan may be intended to be a guide to certain activities or it may generate regulations. The current law and its implementation in NSW and SA are described in Chapters Six, Seven and Eight.

2.7 Conclusion.

Agriculture and pastoralism continue to dominate the Australian landscape with some 60% of the land surface being devoted to such activities.³⁵⁴ Accordingly, any attempt to improve environmental management in Australia must address as a matter of priority and urgency management of private land.

The review of the environmental bottom line in Australia presents a picture of broadscale landscape degradation. There has been significant loss of species. Vegetation clearing and fragmentation, salinity, changed hydrological conditions, weeds and climate change threaten biodiversity. Extensive areas of vegetation have been cleared, modified and fragmented and this is ongoing. The land is affected by erosion, salinity, acidity and disrupted ecosystem function. Many surface and groundwater systems are over-extracted and subject to increasing pressure. Water quality is deteriorating in many systems as a consequence of direct impacts and past land-uses

³⁵⁴ Mercer D., *A Question of Balance. Natural Resource Conflict Issues in Australia*. (2000) Federation Press, Sydney, Australia, 273.

such as those resulting in dryland salinity. The environmental impacts of land-use are cumulative, interconnected and interdependent. The costs of environmental degradation are experienced directly by producers and borne by the broader society through investment in repair and replacement of ecosystem services. The loss of biodiversity is unquantifiable in economic terms and along with broader land and water degradation represents a terrible legacy for future generations. This generation is obliged to deal with the consequences of past land-use decisions and the impact of current practices is of pressing concern.

In terms of the social bottom line the picture is mixed. Some primary producers and some communities are doing very well. There has been a decline in overall employment in the sector, a loss of young people from the country and there is an emerging gender imbalance. Unemployment can be prolonged and there has been a loss of services in some rural areas as a result of micro-economic reform. There is a clear trend towards an increase in farm size. There is a small number of large farms that tend to be profitable and a large number of small farms whose viability is maintained by off-farm income. The educational standards of the farm community are below the national average. Expectations about intergenerational transfer are changing and this may influence ownership structure in the agricultural sector in the future. Social indicators in some rural communities are poor with high rates of substance abuse, stress related illness and youth suicide. Structural change is likely to continue. The pressure on farms in coastal catchments due to high land values, which inhibit the general trend towards expansion may influence their long term viability and capacity to adjust to change.

Economically, agriculture is significant but of declining importance to the overall economy. While the sector is less dependent on subsidies than in the past, governments still make a significant contribution. Australian agriculture is described as 'efficient' however the cost/price pressure has affected both product and production methods. There is a clear trend to a change in the product mix evidenced by an intensification in land-use and more irrigated agriculture. While most farms are family operated, 'commercial' farming is becoming more important. Contract farming and vertical integration are growing trends.

There are considerable challenges facing agriculture in the future and these are likely to significantly impact the long-term ecological sustainability of the sector. Economic globalisation is likely to facilitate high input agriculture, specialisation and more intensive land-use. Contract farming and vertical integration are shifting the locus of decision-making about land-use from the farm level to other actors and increasing pressure for high levels of productivity. The introduction of genetically modified crops poses considerable if unquantified threats to the natural environment. Climate change adds a new dimension of uncertainty. In short there are many challenges to the environmental, social and economic sustainability of agriculture in Australia.

The influence of attitudes to the environment is important. There is evidence that a stewardship ethic exists amongst many farmers. There is some potential for a duty of care to assist in improving the management of natural resources by individuals however its impact is likely to be limited. It was concluded, that while a change of attitudes is important in the longer term, reform in actual practice in the short term will depend on the provision of important enabling factors such as knowledge and resources.

It has been demonstrated that successive governments have implemented policies and provided funding to support the development of agriculture. Governments have in the main had a 'developmentalist' approach to natural resource management and there has been little concern about the environmental impact of this. Support for agriculture was seen to be analogous with the 'national interest'. Indeed agriculture has been highly influential on the Australian national identity and farming interests have been very influential in policy development. While there has been a policy shift in recent times, the historical role of governments has been influential in the current shape, function and form of agriculture in Australia.

The Commonwealth has constitutional and other powers and plays an important role in shaping natural resource management and outcomes at the State level. While the Commonwealth has been reluctant to directly regulate land-use at the State level, it has been influential through the exercise of a range of other powers. Of key importance are funding initiatives such as NHT, NHT2 and most recently NAP. These have had a significant influence on the approach to natural resource management by the States.

In practice, the States have the primary responsibility for the regulation and management of natural resources. The legal and administrative arrangements at the State level have been sectoral, complicated and fragmented. The separate regimes for the management of water quantity and quality, land-use and water have been of particular concern. Natural resources law has in the past been primarily concerned with the equitable distribution of access to resources, environmental law with the management of the ‘excesses of development’, and land-use planning law with the facilitation of ‘orderly’ development. Laws are often specific to particular sectors and one resource. Therefore, there can be many acts and administrative structures controlling various aspects of its use.³⁵⁵ Environmental law and land-use planning law have been little concerned with, nor effective in, the management of agricultural land-uses. The effective regulation of agriculture poses significant challenges to a system oriented towards urban and industrial development.

Recent legislative reform in relation to catchment planning and management and water planning has been directed at both improving the integrated management of natural resources, and the basis on which decisions are made. These legislative reforms are examined in detail in Chapter Six. This analysis examines the extent to which the new legislative frameworks for catchment and water planning operationalise the principles of sustainability, discussed in Chapters Three and Four. The question of the reform of regulation is examined in Chapter Five. The effectiveness of catchment and water planning frameworks in addressing the complex levers and drivers of unsustainable agricultural land-use, described in this chapter, are examined in the detailed case studies of implementation in Chapters Seven and Eight.

³⁵⁵OECD 1989 Water Resource Management – Integrated Policies, (OECD, Paris, 1989), 20–21.

Part Two

Chapter 3 - Sustainability

3.1 Introduction.

This chapter is concerned with sustainability at both a policy and conceptual level. Given Australia's commitment to the principle it is important to explore the concept in order to provide both an understanding of its content and give insights into its requirements. This should give some clarity about the potential for law to further the sustainable management of natural resources.

Firstly, this chapter will briefly describe the international commitment to sustainable development and its broad meaning in this context. Secondly, the Australian articulation of the concept at a policy level will be elaborated and its implementation by the Commonwealth will be reviewed. In the second part of this Chapter the literature on sustainability is discussed in order to explore its meaning at a conceptual level. I will argue that it is a 21st century 'grand narrative' that supersedes the story line of 'developmentalism' that pervaded for much of the 20th century. While a powerful concept, sustainability is not capable of easy definition. Accordingly, it is best seen as a 'process' of change. One key mechanism to facilitate the process of change is planning. To this end it is argued that law can be purposively designed to set in place a dynamic process that will enable an evolution in decision-making generally, and about natural resources conservation, protection and use, specifically.

3.2 Sustainable Development – international process.

The concept of and policy on sustainable development has evolved over a number of years. A series of United Nations ('UN') inspired discussions and events, including the 1972 UN Conference on Human Environment in Stockholm which recognised the 'importance of environmental management and the use of environmental assessment as a management tool', represented a major step forward in the development of the concept

of sustainable development.¹ In 1980 the International Union for the Conservation of Nature and Natural Resources ('IUCN'), the United Nations Environment Program ('UNEP') and the World Wide Fund for Nature ('WWF') published the *World Conservation Strategy: Living Resource Conservation For Sustainable Development*. This was important in focussing growing concern over the magnitude of environmental problems and, more crucially, their linkages with issues of development, poverty and security.² The concept of a model for development based on notions of sustainability was first espoused in the Strategy.³

The idea of sustainability, as we now understand it, was articulated in the 1987 Report of the World Commission on Environment and Development, *Our Common Future* ('the Brundtland Report'). The Brundtland Report defined sustainable development as '[d]evelopment that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.'⁴ The Brundtland Report constructed an agenda linking environmental and resource concerns with those of the human condition; poverty, development, economic management, equity and security.⁵ From that time sustainable development became part of a broad public policy debate.

The conceptual definition of the Brundtland Report identified two key concepts that are tied to the process of sustainable management of the earth's resources:

- the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs.⁶

¹ Commonwealth of Australia, *Ecologically Sustainable Development Working Groups. Final Report - Executive Summaries* (1991) AGPS, Canberra.

² Mebratu D., "Sustainability and sustainable development: Historical and conceptual review" (1998) 18 (6) *Environmental Impact Assessment Review* 493-520., 500.

³ Furuseth O. and Cocklin C., "An Institutional Framework For Sustainable Resource Management: The New Zealand Model" (1995) 35 (2) *Natural Resources Journal* 243-273., 244.

⁴ World Commission on Environment and Development, *Our Common Future* (1990) Oxford University Press, Melbourne, Australia., 43.

⁵ Dovers S., "Institutionalising Ecologically Sustainable Development: Promises, Problems and Prospects" in Walker R. J. and Crowley K. (ed), *Australian Environmental Policy 2 Studies in Decline and Devolution* (1999), University of New South Wales Press Ltd, Sydney Australia., 208.

⁶ Palmer J. A., "Gro Harlem Brundtland" in Palmer J. A. (ed), *Fifty Key Thinkers on the Environment* (2001), Routledge, London, Britain., 277.

By doing so, the Report emphasised the strong linkage between poverty alleviation, environmental improvement, and social equity through sustainable economic growth.

The next major development was the UN Conference on Environment and Development ('UNCED') held in June 1992 (also known as the 'Rio Conference' or the 'Earth Summit'). UNCED led to the production of major international documents such as the *Rio Declaration on Environment and Development* ('the Rio Declaration'),⁷ *Agenda 21*, and multilateral conventions on desertification, biodiversity, and climate change. The Rio Declaration is a statement of 27 principles setting out the rights and responsibilities of nations with respect to environment and development. *Agenda 21* constitutes a non-binding action plan on environment and development. It is divided into 40 chapters covering: sectoral issues such as atmosphere, oceans and fresh water, and land resources; cross-sectoral issues such as poverty, demographics, and human health; and means of implementation, including financial, institutional and legal issues.⁸ It emphasises that solutions to sustainable development problems need to be both global and local in nature, both centralised and decentralised mechanisms have to be used, and relationships between stakeholders need to be competitive yet cooperative.⁹

The 2002 UNCED Earth Summit in Johannesburg, South Africa, both reported on the progress towards sustainable development and continued the process of refinement of the concept. Sustainable development is firmly established as a principle, if not a rule of international law.¹⁰

3.3 The path to sustainability — the Australian approach.

In Australia, Ecologically Sustainable Development ('ESD') has been formally established as a policy goal at national, state and local levels. The peak policy document on ESD in Australia is *The National Strategy for Ecologically Sustainable*

⁷ United Nations, *Report of the United Nations Conference on Environment and Development* (1992) United Nations, Rio de Janeiro, Brazil.

⁸ Malanczuk P., "Sustainable development: some critical thoughts in the light of the Rio Conference" in Ginther K., Deters E. and de Waart P. (ed), *Sustainable Development and Good Governance* (1995), Martinus Nijhoff Publishers, The Netherlands., 41.

⁹ Backstrand K., Kronsell A. and Soderholm P., "Organisational Challenges to Sustainable Development" (1996) 5 (2) *Environmental Politics* 209-230., 210.

¹⁰ Fisher D. E., *Australian Environmental Law* (2003) Thomson Lawbook Co, Sydney, Australia. p 56.

Development ('NSES D'). The NSES D above all else is concerned with a process for change.

'[G]overnments recognise that there is no identifiable point where we can say we have achieved ESD. Some key changes to the way we think, act and make decisions, however, will help ensure Australia's economic development is ecologically sustainable.'¹¹

The inherently dynamic character of the concept of sustainable development necessitates a dynamic understanding of the interconnected process of social, political and legal change.¹²

In Australia, the World Conservation Strategy provided a framework for the development in 1984 of a National Conservation Strategy. Subsequently, in July 1989, the Prime Minister made a Statement on the Environment, *Our Country Our Future*.¹³ The summit of industry, union and conservation organisations which followed led to a Commonwealth Discussion Paper on Ecologically Sustainable Development (1990) which defined ESD as:

'using, conserving and enhancing the community's resources so that the ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.'¹⁴

Nine working groups were established to consider the implementation of ESD principles in sectors of Australia's economy with major impacts on the environment. Key stakeholders and government representatives participated in the working groups and there was wide ranging public consultation.¹⁵

¹¹ Commonwealth Government, *National Strategy for Ecologically Sustainable Development* (1992) AGPS, Canberra.

¹² Ginther K. and de Waart P., "Sustainable development as a matter of good governance : an introductory view" in Ginther K., Deters E. and de Waart P. (ed), *Sustainable Development and Good Governance* (1995), Martinus Nijhoff Publishers, The Netherlands., 9-10.

¹³ The Hon R J L Hawke, MP, Prime Minister of Australia (1989), *Our Country Our Future*, Department of Prime Minister and Cabinet, AGPS, Canberra.

¹⁴ Commonwealth Government, *Ecologically Sustainable Development: A Commonwealth Discussion Paper* (1990) AGPS, Canberra.

¹⁵ Commonwealth of Australia, *Ecologically Sustainable Development Working Groups. Final Report - Executive Summaries* (1991) AGPS, Canberra.

This ultimately led in 1992 to *The National Strategy for Ecologically Sustainable Development* ('NSES D'). The NSES D defined the characteristic features of an ESD approach to development, core objectives and seven guiding principles.

The two features which distinguish an ecologically sustainable approach to development were identified as:

- the need to consider, in an integrated way, the wider economic, social and environmental implications of decisions and actions for Australia, the international community and the biosphere; and
- the need to take a long-term rather than short-term view when taking those decisions and actions.¹⁶

The core objectives of the NSES D are:

- to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- to provide for equity within and between generations; and
- to protect biological diversity and maintain essential ecological processes and life support systems.¹⁷

There are seven guiding principles.

- Decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations.
- Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- The global dimension of environmental impacts of actions and policies should be recognised and considered.
- The need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised.
- The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised.

¹⁶ Commonwealth Government, *National Strategy for Ecologically Sustainable Development* (1992) AGPS, Canberra.

¹⁷ Ibid.

- Cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms.
- Decisions and actions should provide for broad community involvement on issues which affect them.¹⁸

The NSESD makes clear that the principles of ESD are a package of interconnected principles which should be given equal weight in decision-making. The principles of ESD contained in the NSESD are a mixture of outcomes (intergenerational equity and the conservation of biological diversity), mechanisms (incentives and markets), and procedural requirements (integrated decision making processes).¹⁹

The core objectives and guiding principles are the most commonly cited aspects of the NSESD. However, the NSESD included a broad strategic framework for key industry sectors, including agriculture, and guidance on a range of intersectoral issues, including the role of government institutions and machinery.

A number of specific objectives for agriculture were incorporated in the NSESD. These commitments were very limited in scope²⁰ and, while emphasising the need for integration, maintained the traditional emphasis on voluntarism.²¹

The NSESD also included a number of objectives for ‘Government Institutions and Machinery’ which recognised the need, firstly, to incorporate ESD principles as a fundamental objective of relevant government authorities; secondly, to define the respective roles of each level of government; and thirdly, to reflect the principles in government purchasing policy.²²

¹⁸ Ibid.

¹⁹ Fisher D. E., *Australian Environmental Law* (2003) Thomson Lawbook Co, Sydney, Australia., 353.

²⁰ A framework for integrated government policies and programs, integrated planning, improved pest plant and animal management, improved kangaroo management and effective and safe management of agricultural and veterinary chemicals.

²¹ Commonwealth Government, *National Strategy for Ecologically Sustainable Development* (1992) AGPS, Canberra. Chapter 1.

²² Ibid. Chapter 16.

The Intergovernmental Agreement on the Environment ('IGAE'), signed by the Commonwealth and State and Territory governments in May 1992, formalised the Australian government's commitment to ESD.

The IGAE commits the Commonwealth and the various State and Territory governments to the principles of ESD set out in the Agreement as follows:

- The Precautionary Principle – where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- Intergenerational equity – the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
- Biological diversity and ecological integrity are to be conserved.
- Valuation, pricing and incentive mechanisms are to be improved.²³

In incorporating a commitment to continued economic growth, the NSESD clearly reflects a weak or even very weak sustainability position.²⁴ It focussed on production issues and barely considered questions such as Australia's dependence on the non-renewable resource sector or consumption patterns. In the IGAE the issues of social equity and equity within generations were lost.

The adoption of the NSESD was an important beginning, but it provided little real guidance on what should be done to achieve sustainable development.²⁵ While ESD has through the NSESD and IGAE been accepted at a broad policy level, its broad principles and goals have yet to be operationalised. It lacks measurable constraints on unsustainable behaviour.²⁶ One of the critical weaknesses of the Australian ESD

²³ Intergovernmental Agreement on the Environment (1992) cl 3.5.

²⁴ Brunton N., "Environmental Regulation. The Challenge Ahead" (1999) 24 (3) *Alternative Law Journal* 137-142., 141.

²⁵ Wilkinson D., "Using Environmental Ethics to Create Ecological Law" in Holder J. and McGillivray D. (ed), *Locality and Identity: Environmental Issues and Law and Society* (1999), Dartmouth Publishing Co Ltd, England., 320.

²⁶ Diesendorf M., "Models of Sustainability and Sustainable Development" (Paper presented at the Beyond growth: policies and institutions for sustainability. 5th Biennial conference of International Society for Ecological Economics., Santiago, Chile, 1998) 1-15., 8.

process was a 'lack of questioning of existing institutional arrangements'²⁷ and this is reflected in the limited scope of objectives for 'Government Institutions and Machinery' cited above.

The Commonwealth ESD process has been described as the 'most comprehensive and inclusive attempt at policy formulation across the field up until then'.²⁸ Even so, there were a number of deficiencies in the process. These include: lack of comprehensive coverage of cross-sectoral issues; limited public discussion and biases in the representation of interest groups in the working group process; and a watering down of recommendations in the final strategy.²⁹ It is significant that the key conservation groups declined to endorse the final strategy.

The implementation of ESD in federal systems, such as Australia, is problematic since the distribution of powers means that the Commonwealth does not directly control resource use. However, fundamental reforms in areas within the control of the Commonwealth, such as the 'greening' of taxation, budget and accounting, and evaluation and accountability mechanisms³⁰ were not adequately addressed in the NSESD. These weaknesses are reflected in the content of the recommendations on agriculture, which fail to address the structural issues underlying current patterns of degradation, such as land clearing.

While there are significant differences in certain respects, Australia like Canada, has adopted a 'comprehensive approach', which implies a capacity to spread a coherent message to all levels of government and oversee implementation through steering and coordination mechanisms. According to the OECD, if not well managed this approach can promote a culture of 'talking rather than acting'.³¹ The main constraint to implementing sustainable development across levels of government is the inadequacy of the coordination mechanisms needed to establish truly integrated practices between

²⁷ Dovers S., "Institutionalising Ecologically Sustainable Development: Promises, Problems and Prospects" in Walker R. J. and Crowley K. (ed), *Australian Environmental Policy 2 Studies in Decline and Devolution* (1999), University of New South Wales Press Ltd, Sydney Australia., 213.

²⁸ Ibid., 208.

²⁹ Ibid., 208 and Harding R., *Environmental Decision Making - the role of scientists, engineers and the public* (1998) The Federation Press, Australia., 31-32.

³⁰ OECD, *Governance for Sustainable Development. Five OECD Case Studies* (2002) OECD, Paris, France., 23.

³¹ Ibid. 14.

levels of government.³² In Australia, the IGAE sought to define the respective responsibilities of the different levels of government but may in fact have served to entrench the traditional distribution of powers and responsibilities.³³

The fate of the NSESD was adversely affected by the change in political leadership at the Commonwealth level.³⁴ Being weakly institutionalised it was vulnerable and key institutional reforms such as the Resource Assessment Commission ('RAC') were the victims of this change.³⁵ Nevertheless ESD remains a key priority for Australian Governments.

3.3.1 Implementation by the Commonwealth.

There have been several reviews of the implementation of ESD at the Commonwealth level. The first in 1996 by the Intergovernmental Committee for ESD reported mixed results.³⁶ It concluded that although some progress had been made, especially in the resource sector (including agriculture through, for example, landcare programs), the use of pricing and taxation measures had not gone far enough to have a significant effect.³⁷

The most recent assessment by the Productivity Commission (May 1999) reported on the implementation of ESD by Commonwealth Departments and Agencies.³⁸ The Productivity Commission found that there was a lack of clarity regarding what ESD means for government policy and that ESD was often equated with the environment.³⁹ Key issues included furthering ESD in other areas such as industry policy and improving responses to environmental issues such as dryland salinity and water reform,

³² Ibid. 20.

³³ Toyne P., *The Reluctant Nation* (1994) ABC Books, Sydney, Australia., 179-184 and Fowler R., "New Directions in Environmental Protection and Conservation" in Boer B., Fowler R. and Gunningham N. (ed), *Environmental Outlook* (1994), The Federation Press, Australia., 145.

³⁴ See generally Dryzek J. S., "Including Australia: A Democratic History" in Brennan G. and Castles F. G. (ed), *Australia Reshaped* (2002), Cambridge University Press, Australia.

³⁵ Buhrs T. and Alpin G., "Pathways towards sustainability: The Australian Approach" (1999) 42 (3) *Journal of Environmental Planning and Management* 315-. and Fowler R., "New Directions in Environmental Protection and Conservation" in Boer B., Fowler R. and Gunningham N. (ed), *Environmental Outlook* (1994), The Federation Press, Australia..

³⁶ Commonwealth of Australia, *Report on the Implementation of the National Strategy for Ecologically Sustainable Development, 1993-1995* (1996) Intergovernmental Committee for ESD, Canberra.

³⁷ Ibid.

³⁸ Productivity Commission, *Implementation of Ecologically Sustainable Development by Commonwealth Departments and Agencies* (1999) AusInfo, Canberra, Australia.

³⁹ Ibid. xviii.

which have significant economic and social implications.⁴⁰ The need to make policy capable of meeting multiple objectives was found to be particularly challenging, and improved integration of economic, environmental and social considerations into policy was recommended.⁴¹ A key impediment in this regard related to the traditional advocacy role implied by the portfolio structure of governments, where certain departments and agencies have taken a lead role in emphasising particular policy objectives — often economic or environmental — or representing particular interest groups.⁴² These same concerns were reflected in an OECD report on the implementation of sustainability.⁴³ Administrative reform is a key challenge of sustainability and is discussed in depth in Chapter Four.

A strong theme in the Productivity Commission's Report was a correlation between good practice policy-making and the achievement of ESD. Recommendations focused on improving policy development processes at the departmental level, and between departments and jurisdictions. Transparency of the decision-making process — including a clear statement of objectives, consideration of alternative policy options, assessment of the potential impacts of preferred options, and wide consultation (with stakeholders and the community) — was recommended to help decision-makers achieve integrated policy outcomes.⁴⁴ In addition, an emphasis was placed on the need for regular monitoring and review of policy initiatives, and the need to encourage long-term strategic thinking. Long-term commitment to monitoring environmental indicators, comparable to existing commitment for economic and social trends was recommended.

The Productivity Commission Report, in emphasising the relationship between ESD and 'good policy practice', neglected the political context within which decisions are made. It implied to some extent that the transition to sustainable practice is value neutral and fundamentally compatible with the existing system of production and consumption.

⁴⁰ Ibid. xxxvi.

⁴¹ Ibid. 141.

⁴² Ibid. xxv.

⁴³ OECD, *Governance for Sustainable Development. Five OECD Case Studies* (2002) OECD, Paris, France., 11-12.

⁴⁴ Productivity Commission, *Implementation of Ecologically Sustainable Development by Commonwealth Departments and Agencies* (1999) AusInfo, Canberra, Australia., xxv.

The different values impacting on the interpretation of sustainability and its application have been widely discussed.⁴⁵

Since the adoption of the NSESD, a significant micro-economic reform agenda has been progressed by the Commonwealth. In a review of three areas of reform⁴⁶ by the National Competition Council (NCC), Hollander and Curran (2001) explored the claims that National Competition Policy (NCP) is good for both the economy and the environment. They argued that the NCP has employed the logic of ecological modernisation (EM), with its marriage of economic and ecological goals to promote positive environmental outcomes.⁴⁷ They were pessimistic about the capacity of EM and ESD to reconcile and synthesise economic and ecological goals. The authors provided three observations from their analysis:

- ESD and EM processes often disregard the political context in which decision-making is located. The capacity of interest groups and electoral pressures to influence the policy formulation and evaluation process is only informally acknowledged, if at all.
- Despite the considerable promise market tools offer for environmental problem resolution, many tools are limited in their applicability and cross-transferability. The difficulty of developing accurate pricing mechanisms that reflect the real price of environmental degradation is further complicated by the need to accommodate the range of environmental values into traditional economic valuation.
- The penetration of ecological criteria into institutional and production designs remains relatively peripheral to economic considerations.⁴⁸

Throsby (2001) has commented that ESD has been broadly accepted by politicians, bureaucrats, industry leaders and the community⁴⁹ and that there has been a:

⁴⁵ See generally Harding R., *Environmental Decision Making - the role of scientists, engineers and the public* (1998) The Federation Press, Australia., 35-38.

⁴⁶ Electricity, Regulatory Review and Rural Water.

⁴⁷ Hollander R. and Curran G., "The Greening of the Grey : National Competition Policy and the Environment" (2001) 60 (3) *Australian Journal of Public Administration* 42-55., 53.

⁴⁸ Ibid. 53.

⁴⁹ Throsby D., "The environment, sustainable development and the Australian economy" in Nieuwenhuysen J., Lloyd P. and Mead M. (ed), *Reshaping Australia's Economy* (2001), Cambridge University Press, Australia.

‘diffuse but significant shift in the ethos within which decisions are made in many parts of the federal and state bureaucracies whereby the need for ESD as a guiding principle is recognised, even if this recognition is only rarely translated fully into practice.’⁵⁰

Hollander and Curran (2002) concluded that while sustainability concerns have indeed penetrated the economic and political landscape, environment continues to be the junior partner in the environment-economy relationship.⁵¹ ESD, however weakly articulated, is a policy goal in Australia. The NSESD has facilitated a process for its implementation however implementation of the core principles of ESD by the Commonwealth has been mixed.

Clearly ESD requires more than the allocation of resources to environment agencies and funds for the improvement of the environment. ESD must pervade the activities undertaken by or on behalf of government, and be central to government policies, which affect the actions of industry, including taxation, micro-economic reform and industry policy.⁵² However, the political acceptability of the substance of the concept, even in its mildest form — which includes constraints on resource use and changing patterns of consumption of non-renewable resources, democratisation of decision-making and greater social equality — poses considerable challenges to its achievement in the short term.⁵³ Other barriers to the implementation of the policy of ESD include the lack of awareness of the issues, the opposition of entrenched interests, and the inadequacy of institutional mechanisms for integrating environment and development.⁵⁴

⁵⁰ Ibid., 119.

⁵¹ Hollander R. and Curran G., "The Greening of the Grey : National Competition Policy and the Environment" (2001) 60 (3) *Australian Journal of Public Administration* 42-55., 53.

⁵² Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW., 72.

⁵³ Furusest O. and Cocklin C., "An Institutional Framework For Sustainable Resource Management: The New Zealand Model" (1995) 35 (2) *Natural Resources Journal* 243-273., 245-246.

⁵⁴ Reid D., *Sustainable Development: An Introductory Guide* (1995) Earthscan Publications, London, Britain.

While the fate of the NSESD itself has been mixed, its ‘catalytic value’ in mobilising more substantive changes at State and local government level has been argued.⁵⁵ It is change at this level, which is the key of concern of this research.

3.4 Sustainability – conceptual framework

The concept of sustainable development has emerged over the last 30 years to describe a new framework for development aimed at achieving economic and social development whilst maintaining the long-term integrity of ecological systems. The development and articulation of the concept of sustainable development has a number of antecedents. As Dovers (1999) wrote: ‘[s]ustainability as an idea has deep and diverse roots, in classical economics, energy analysis, renewable resource management and elsewhere’.⁵⁶ Many writers and thinkers have contributed to the development of the concept of sustainability, which embraces ideas about environmental limits, the need to conserve biodiversity, the responsibility of humans to nature and the destructive influence of current systems of production and consumption. This contribution is selectively and briefly discussed below.

The basic message of Thomas Robert Malthus (1766–1834), for example, was ‘that production will be outrun by reproduction’.⁵⁷ Although Malthus was concerned with population and poverty, this work introduced the idea of ‘environmental limits’. Paul Ehrlich (1932–), described as a neo-Malthusian, was the author of *The Population Bomb* (1968) published by the Sierra Club. This and later work drew attention to the link between population, resource use and environmental impact.⁵⁸ The idea that growth was not boundless was compellingly articulated by the Club of Rome’s first report, *The Limits to Growth* (1972), which was concerned with population growth, poverty, the excessive use of finite resources and the human impact on global

⁵⁵ Buhrs T. and Alpin G., "Pathways towards sustainability: The Australian Approach" (1999) 42 (3) *Journal of Environmental Planning and Management* 315-.

⁵⁶ Dovers S., "Institutionalising Ecologically Sustainable Development: Promises, Problems and Prospects" in Walker R. J. and Crowley K. (ed), *Australian Environmental Policy 2 Studies in Decline and Devolution* (1999), University of New South Wales Press Ltd, Sydney Australia., 205.

⁵⁷ Clarke J. I., "Thomas Robert Malthus, 1766-1834" in Palmer J. A. (ed), *Fifty Key Thinkers on the Environment* (2001), Routledge, London, England., 73.

⁵⁸ Simmons I. G., "Paul Ehrlich, 1932-" in *Ibid.*, 254-56.

environmental change.⁵⁹ While the Report proved to be overly pessimistic in the short-term, it facilitated recognition of ecological limits for industrial society.

Aldo Leopold (1887–1948) was important in advancing ideas about the importance of biological conservation and ecosystem health.⁶⁰ Leopold was a key founder of the discipline of environmental ethics. He believed that conservation would only succeed if an appropriate ‘land ethic’, was adopted by individual, private landowners.⁶¹ Leopold saw humans, not as conquerors of the land, but as citizens of it.⁶²

The impact of attitudes to the environment and the role of religion in their development, has also been influential on current thinking. Lynn White Jr. (1967) for example, asserted that the current rate of environmental change is not simply a result of an increase in our ability to manipulate our context with the tools of modern science and technology. He argued that the Judeo-Christian tradition, which emphasises the separation of humans from nature, was the root cause of the environmental crisis.⁶³ White asserts that, to solve our environmental crisis, we must ‘clarify our thinking’, ‘think about fundamentals’ and ‘rethink our axioms’.⁶⁴ Despite an extensive literature on the subject of the impact of the dominant religions of east and west on the current environmental crisis, Mebratu (1998) concluded that:

‘[a] critical review of the writing on both sides leads to the conclusion that religions have neither been simple agents of environmental degradation nor unmixed repositories of ecological wisdom.’⁶⁵

The destructive capacity of humans was brought to the forefront by the detonation of the atomic bomb at Hiroshima, Japan in 1945. Rachel Carson (1907–64) combined an understanding of this destructive capacity (through her research on pesticides) with the idea of a personal environmental ethic and responsibility to nature.⁶⁶ *Silent Spring*,

⁵⁹ Clarke J. I., "Thomas Robert Malthus, 1766-1834" in Ibid., 73.

⁶⁰ Callicott J. B., "Aldo Leopold, 1887-1948" in Ibid., 176-77.

⁶¹ Ibid., 178.

⁶² Ibid., 179.

⁶³ Nelson M. P., "Lynn White, Jr" in Ibid., 202.

⁶⁴ Ibid., 204.

⁶⁵ Mebratu D., "Sustainability and sustainable development: Historical and conceptual review" (1998) 18 (6) *Environmental Impact Assessment Review* 493-520., 498.

⁶⁶ Corcoran P. B., "Rachel Carson, 1907-64" in Palmer J. A. (ed), *Fifty Key Thinkers on the Environment* (2001), Routledge, London, England.

published in 1962, is considered a seminal work in environmentalism and is credited with bringing popular recognition of the seriousness of the environmental crisis.⁶⁷

Ernest F Schumacher (1911–1977) argued in *Small is Beautiful* (1973) that the fight against pollution would not be successful until the existing patterns of production and consumption were challenged. This work expressed concern with industrial systems as destructive to the human spirit, the rapid depletion of natural resources, the need for appropriate technology at the human scale, the failure of traditional economics to include non-economic factors in policy making, and the need for humans to be close to the nurturing land in both fact and spirit.⁶⁸ The concept of appropriate technology (defined as technology that takes heed of the skill, levels of population, availability of natural resources) and pressing social needs (defined by the people themselves) is an immediate precursor to the concept of sustainable development.⁶⁹

Finally, the ‘charismatic and courageous leader of the Brazilian rubber trappers’ union’,⁷⁰ Chico Mendes (1944–1988) and colleagues drew the link between environmental protection, social development and human rights protection.⁷¹ This movement did not eschew the idea of any development. Rather its members campaigned for development that is socially, culturally and environmentally sustainable.

From this can be gleaned the core ideas of sustainability. These are, the idea of the existence of an environmental constraint to development, the need to protect and care for the land and the role of attitudes in it, the potential for technology to be destructive, the need to reform patterns of production and consumption and the relationship between environmental protection and social equity.

Beyond this core there is a diversity of perspectives on sustainable development. To some it is a political fudge, a convenient form of words, while to others it steers a middle course. Its adoption can be strong or weak depending on the degree of priority

⁶⁷ Ibid., 198.

⁶⁸ Kumar S., "E F Schumacher, 1911-1977" in Ibid., 209.

⁶⁹ Ibid., 210.

⁷⁰ Palmer J. A., "Chico Mendes 1944-88" in Ibid.(ed), London, Britain. 306.

⁷¹ Ibid., 306.

given to the environment. Yet still others see it as a fundamental shift in philosophical orientation, a new 'grand narrative'. A more pragmatic perspective sees it not as an endpoint but as a process of change.

3.4.1 The middle line or political fudge?

There is considerable debate as to whether sustainable development is a middle line or political fudge. According to Furuseth and Cocklin (1995), the appeal of a sustainable approach to global environmental problems is that it steers a middle course,

‘avoiding the substantial government intervention demanded by neo-Malthusian or limits to growth proponents, as well as the technology and growth-based assumptions posited by revisionist solutions.’⁷²

The neo-Malthusian perspective warns of resource scarcity and environmental collapse without strict control of population and economic growth; the ‘revisionist’ perspective dismisses the impacts of population growth and argues instead that market forces and technological innovation will permit continuous economic growth.⁷³

Sustainable development, broadly speaking, ‘is the result of a synthesis between a conservationist environmentalism and a pro-growth development discourse’.⁷⁴ It is defended on just this basis, that is, that it is an integrative ‘umbrella’ concept under which a complex of interrelated issues can be gathered.⁷⁵

In exploring the diversity of definitions of sustainable development, Mebratu (1998) reaches the conclusion that each fundamentally reflects the tenets of the specific group or organisation developing the definition.⁷⁶ According to Richardson (1997):

‘Sustainable development is a political fudge: a convenient form of words ... which is sufficiently vague to allow conflicting parties, factions and interests to adhere to it without losing credibility.

⁷² Furuseth O. and Cocklin C., "An Institutional Framework For Sustainable Resource Management: The New Zealand Model" (1995) 35 (2) *Natural Resources Journal* 243-273., 146.

⁷³ Ibid. 145.

⁷⁴ Backstrand K., Kronsell A. and Soderholm P., "Organisational Challenges to Sustainable Development" (1996) 5 (2) *Environmental Politics* 209-230., 212.

⁷⁵ Malanczuk P., "Sustainable development: some critical thoughts in the light of the Rio Conference" in Ginther K., Denters E. and de Waart P. (ed), *Sustainable Development and Good Governance* (1995), Martinus Nijhoff Publishers, The Netherlands., 26.

⁷⁶ Mebratu D., "Sustainability and sustainable development: Historical and conceptual review" (1998) 18 (6) *Environmental Impact Assessment Review* 493-520., 512.

It is an expression of political correctness which seeks to bridge the unbridgeable divide between the anthropocentric and biocentric approach to politics.⁷⁷

Or expressed another way, 'it "fudges" the conflict between expansionist industrialism and a finite globe.'⁷⁸ Treanor (2002), for example, argues that:

'it is a fundamentally anthropocentric concept concerned with the survival of humans, the concern with intergenerational equity frames future life in our current terms and it legitimises the status quo of power relations.'⁷⁹

In order to reach consensus at an international level, many controversial issues such as population growth, consumption patterns and the international debt of developing countries were avoided.⁸⁰ Thus, the most basic questions about sustainability remain unanswered. The principle weaknesses of the concept have been identified as: the manner in which the problems of poverty and environmental degradation are characterised; the way the objectives of development, sustainability and participation are conceptualised; and the viability of a strategy based on incomplete knowledge and uncertainty.⁸¹ As such it is argued it is a flawed and weak concept – a political fudge.

The lack of a universally accepted definition has been variously thought, on the one hand to ensure its staying power and, on the other hand, to risk the concept becoming meaningless.⁸² The very ambiguity of sustainable development may prove

⁷⁷ Richardson D., "The politics of sustainable development" in (ed), *The Politics of Sustainable Development: theory, policy and practice within the European Union* (1997), Routledge, London, Britain., 43.

⁷⁸ Crowley K. and Walker K. J., "Introduction" in Walker K. J. and Crowley K. (ed), *Australian Environmental Policy 2. Studies in Decline and Devolution* (1999), University of New South Wales Press, Sydney, Australia., 19.

⁷⁹ Treanor P., *Why sustainability is wrong* (2002) <http://web.enter.nl.net/users/Paul.Treanor/sustainability.html> (accessed 3 July).

⁸⁰ Malanczuk P., "Sustainable development: some critical thoughts in the light of the Rio Conference" in Ginther K., Denters E. and de Waart P. (ed), *Sustainable Development and Good Governance* (1995), Martinus Nijhoff Publishers, The Netherlands., 41.

⁸¹ Ibid., 26.

⁸² Bradbury A., "Reality or rhetoric? The implementation of ecologically sustainable development in the New South Wales environmental planning system." (1997) 3 (November) *Local Government Law Journal* 86-105.

advantageous, permitting the reconciliation of differing viewpoints and sustaining institutional and policy diversity.⁸³

3.4.2 Strong or weak?

Within the literature there is a further dichotomy between notions of ‘strong’ and ‘weak’ sustainability. Another version of the same distinction is to define sustainability in ecocentric or anthropocentric terms.⁸⁴

Strong sustainability is defined as a requirement to preserve intact the environment as we find it today and in all its forms.⁸⁵ A more moderate approach than strong sustainability involves a search for consistency in all matters involving the economy and society within the capacity of the environment. This approach encourages (economic and social) development within the parameters of ecology and challenges the current economic growth paradigm.⁸⁶ Arguments for ‘strong’ sustainability i.e. development which does not result in the degradation of the natural environment, relate to issues of non-substitutability, uncertainty, irreversibility, equity and resilience.⁸⁷

‘Weak’ sustainability on the other hand allows for some natural resources to be depleted as long as adequate compensation is provided by increases in other resources, including human-made capital.⁸⁸ Beder (1996) has described ‘weak’ sustainability as that which permits the consumption and degradation of the natural environment as long as it is compensated with human capital (skills, knowledge and technology) and human made capital (buildings, machinery etc).⁸⁹ It leaves the traditional economic paradigm

⁸³ Crowley K. and Walker K. J., "Introduction" in Walker K. J. and Crowley K. (ed), *Australian Environmental Policy 2. Studies in Decline and Devolution* (1999), University of New South Wales Press, Sydney, Australia., 19.

⁸⁴ Pearce D., *Blueprint 3: Measuring Sustainable Development* (1993) Earthscan, London, England., 18-19.

⁸⁵ Dobson A., "Environment Sustainabilities: An Analysis and Typology" (1996) 5 (3) *Environmental Politics* 401-428., 410.

⁸⁶ Bosslemann K., "The Concept of Sustainable Development" in Bosslemann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), The New Zealand Centre for Environmental Law, Auckland, New Zealand., 92.

⁸⁷ Beder S., *The Nature of Sustainable Development* (1996) Scribe Publications Pty Ltd, Newham, Victoria, Australia., 149-150.

⁸⁸ Dobson A., "Environment Sustainabilities: An Analysis and Typology" (1996) 5 (3) *Environmental Politics* 401-428., 410.

⁸⁹ Beder S., *The Nature of Sustainable Development* (1996) Scribe Publications Pty Ltd, Newham, Victoria, Australia., 146-147.

unchallenged.⁹⁰ Further, 'weak' sustainability qualifies the precautionary principle; 'strong' sustainability embraces it.⁹¹

3.4.3 A 'grand narrative'.

A third view is put by writers such as Myerson and Rydin (1996) who describe sustainability as the post-modern equivalent of a 'grand narrative', replacing the modernist grand narrative of progress which dominated for much of the 20th Century.⁹² They go further to describe it as:

'an exhortatory concept, an appeal to change, including the menace of disaster, whereas progress is (or, perhaps was) a confirmatory concept, a demand to "push ahead"'.⁹³

Some have argued that sustainable development is an ethical concept or overarching societal value, akin to concepts such as justice or democracy.⁹⁴ It is not a technically definable goal but rather represents a belief in:

'[the] absolute necessity for current generations to act as stewards of the earth for future generations, a belief which is fuelled by technical and scientific evidence but which is not determined by this.'⁹⁵

It involves a broadening of the concept of development so that it covers not only economic growth but also social and cultural development.⁹⁶

⁹⁰ Bosslemann K., "The Concept of Sustainable Development" in Bosslemann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), The New Zealand Centre for Environmental Law, Auckland, New Zealand., 92.

⁹¹ Hay P., *Main Currents in Western Environmental Thought* (2002) University of New South Wales Press Ltd, Sydney, Australia., 231. The concept of the precautionary principle is described in detail in Chapter Four.

⁹² Myerson G. and Rydin Y., "Sustainable Development: The Implications of the Global Debate for Land Use Planning" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England., 23.

⁹³ Ibid., p 23 and Bosslemann K., "The Concept of Sustainable Development" in Bosslemann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), The New Zealand Centre for Environmental Law, Auckland, New Zealand.

⁹⁴ See Bosslemann K., "The Concept of Sustainable Development" in Bosslemann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), The New Zealand Centre for Environmental Law, Auckland, New Zealand.

⁹⁵ Buckingham-Hatfield S. and Evans B., "Achieving sustainability through Environmental Planning" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England., 4.

Conceptualised as a ‘grand narrative’, sustainability is the subject of significant criticism. For example, the Brundtland Report’s definition of development, has been described as a ‘western cultural paradigm which disregards the true complexity and inter-relationships of all processes on earth.’⁹⁷ Palmer (2001), quoting Shiva and Bandyopadhyay, describes the western pattern of development’s emphasis on private endeavour, interests and profits, and refers to its non-sustainability.⁹⁸ Geisinger (1999) takes this further to argue that the rise of the norm of sustainable development is evidence of the spread of the western ideology of nature.⁹⁹ He argues that the principal of sustainable development is built on the ideological separation of people and nature underlying free-market democracy. Further, that equating development with material well-being entrenches the economic growth paradigm at the expense of environmental protection and other cultural values.¹⁰⁰ The emphasis on ‘ecologically’ sustainable development in Australia i.e. a concern with biological diversity and the maintenance of ecosystem function, mitigates in theory at least, this criticism.

3.4.4 Endpoint or process?

Within the literature on sustainability there is a considerable focus on definition. For example, at the time of writing Dobson (1996) noted that there were over 300 definitions of sustainability.¹⁰¹ On the one hand, attempts are made to explicitly and more completely define sustainable development, while on the other it is argued that sustainable development cannot be defined, as it is not static but rather is an ever-evolving process of change.

The principle of sustainable development has been criticised for being undefined and amorphous because it fails to prescribe concrete standards, criteria and measures with

⁹⁶ Hossain K., "Evolving principles of sustainable development and good governance" in Ginther K., Denters E. and de Waart P. (ed), *Sustainable Development and Good Governance* (1995), Martinus Nijhoff Publishers, The Netherlands., 19.

⁹⁷ Palmer J. A., "Gro Harlem Brundtland" in Palmer J. A. (ed), *Fifty Key Thinkers on the Environment* (2001), Routledge, London, Britain., 280.

⁹⁸ Ibid., 280.

⁹⁹ Geisinger A., "Sustainable development and the domination of nature: Spreading the seed of the Western ideology of nature" (1999) 27 (1) *Boston college Environmental Affairs Law Review* 43-73., 65.

¹⁰⁰ Ibid. 65-68.

¹⁰¹ Dobson A., "Environment Sustainabilities: An Analysis and Typology" (1996) 5 (3) *Environmental Politics* 401-428.

which to shape society's relationship with the environment.¹⁰² In the agricultural context, for example, attempts have been made to define the physical and biological parameters of sustainable systems.¹⁰³ Ruhl (1999) argues that this approach misses the point because sustainable development is a constantly evolving relationship between environment, equity and economy.¹⁰⁴

While there is broad agreement that sustainable development fundamentally recognises the interconnectedness of environment, economy and equity, beyond that there is much debate. For Paehlke (2001), sustainability leads to a multi-dimensional valuation of societal performance in terms of three bottom lines, rather than one¹⁰⁵ i.e. in terms of economy, social well-being and environmental quality. According to Susan Smith, sustainable development means maximising the quality of life of current generations while preserving the natural capital for future generations. This is achieved by accepting four constraints. These are:

- maintaining a sustainable yield in renewable resources;
- conserving and replacing exhaustible resources as we use them;
- maintaining ecological support systems; and
- maintaining biodiversity.¹⁰⁶

For Gibbon and Jakobson (1999), the common principles of sustainability include:

- continued support of human life and the right of future generations to access the same resources we do currently;
- long-term maintenance of the diverse stock of biological resources and products of agricultural systems;
- stable human populations;

¹⁰² Ruhl J. B., "Sustainable Development: A Five-Dimensional Algorithm for Environmental Law" (1999) 18 (1) *Stanford Environmental Law Journal* 31-64., 63.

¹⁰³ The biological ecological school consider sustainable agricultural systems to include features such as diversity of crop species, tightening of nutrient cycles to minimise nutrient losses, maintenance of protective cover on soil. See Gibbon D. and Jakobsson K. M., "Towards Sustainable Agricultural Systems" in Dragun A. K. and Tisdell C. (ed), *Sustainable Agriculture and the Environment* (1999), Edward Elgar Publishing Ltd, Cheltenham, England., 111.

¹⁰⁴ Ruhl J. B., "Sustainable Development: A Five-Dimensional Algorithm for Environmental Law" (1999) 18 (1) *Stanford Environmental Law Journal* 31-64., 63.

¹⁰⁵ Paehlke R., "Environmental Politics, Sustainability and Social Science" (2001) 10 (4) *Environmental Politics* 1-22., 9.

¹⁰⁶ Smith S., "Ecologically Sustainable Development: Integrating Economics, Ecology and Law" (1995) 261 *Williamette Law Review*.

- limited growth economies;
- autonomy and self reliance; and
- continued maintenance of environmental and ecosystem quality.¹⁰⁷

Dobson (1996) argues that a definitional approach will do little to clarify the essential elements of an approach to sustainability. He rather adopts an analytical and typological approach to consider what the implicit and explicit questions of sustainability are.¹⁰⁸ For him the explicit questions of sustainability are:

- ‘What to sustain?’ and ‘Why?’
- ‘What are the primary and secondary objects of concern i.e. present and future human needs and wants, present and future generation non-human needs?’
- ‘Can there be, and if so to what extent, substitution between human-made and natural capital?’

His implicit questions relate to justice:

- ‘What is to be distributed?’ and
- ‘Among whom?’¹⁰⁹

Alternatively, sustainable development is described as an evolving concept. Meppem and Gill (1998) describe sustainability as ‘a state that is in transition continually, the objective of sustainability is not to win or lose and the intention is not to arrive at a particular point.’¹¹⁰ Ruhl (1999) considers that sustainable development requires more than adopting a policy goal; we also need to develop a policy approach. For Ruhl the key elements of this approach are multi-goal optimisation and adaptive evolutionary decision-making.¹¹¹ According to Paehlke (2001), sustainability is an organising concept that can compete with economism.

¹⁰⁷ Gibbon D. and Jakobsson K. M., "Towards Sustainable Agricultural Systems" in Dragun A. K. and Tisdell C. (ed), *Sustainable Agriculture and the Environment* (1999), Edward Elgar Publishing Ltd, Cheltenham, England, 107.

¹⁰⁸ Dobson A., "Environment Sustainabilities: An Analysis and Typology" (1996) 5 (3) *Environmental Politics* 401-428, 404-406.

¹⁰⁹ Ibid. 407.

¹¹⁰ Meppem T. and Gill R., "Planning for sustainability as a learning concept" (1998) 26 (2) *Ecological Economics* 121-137.

¹¹¹ Ruhl J. B., "Sustainable Development: A Five-Dimensional Algorithm for Environmental Law" (1999) 18 (1) *Stanford Environmental Law Journal* 31-64, 44.

Some insight into the definitional debate has been provided by a recent publication by the Canadian Institute for Environmental Law and Policy (2001) which argues that the debate about the definition of sustainable development arises for three reasons. These are that:

- our struggle to define sustainable development is an inevitable component of our struggle to attain the thing itself;
- the act of defining sustainable development will require us to select certain strategies and participants over others and that these choices will have an impact on the eventual success of the endeavour; and
- the concept is necessarily relative and, to a greater or lesser extent, constantly changing.¹¹²

Sustainability is ultimately about value-laden alternative visions of the future.¹¹³ It is a goal that does not lend itself to specific definition in time or place. It is almost easier to define what is unsustainable, than to define what is sustainable.

Several broad perspectives on the concept of sustainable development have been described. The optimistic view is that it is a middle line that attempts to balance environmental protection with a concept of development which embraces social equity. Its implementation can be 'strong' or 'weak' and a key questions in this regard is the rate of non-renewal resource consumption. It is also a Western philosophical concept, a change in the 'story line' of our society that challenges 'developmentalism' that has dominated for much of the 20th century. Sustainable development is not easy to define so a preferred approach is to see it as a 'process' of change that has begun and must continue.

Debate aside, sustainable development is a powerful political concept that is here to stay. The three factors which have led to the political importance of the concept of sustainable development according to Bosselmann (2002) are :

- the new, morally legitimate field of discourse and action created by international debate;

¹¹² Clarke K., McKay J. and Mitchell A., *Sustainable Development in Canada* (2001) Canadian Institute for Environmental Law and Policy, Toronto, Canada, 12.

¹¹³ Paehlke R., "Environmental Politics, Sustainability and Social Science" (2001) 10 (4) *Environmental Politics* 1-22, 14.

- the broad ambiguous meaning of ESD; and
- its integrative character which allows the inclusion of diverse groups into a process of dialogue.¹¹⁴

Ultimately however, sustainable development is about a process of change. A key strategy for enabling the process of change to occur is planning.

3.5 Process – planning for sustainability.

A key process for the advancement of sustainability is planning. If environmental sustainability is the policy goal, however defined, planning is the mechanism for getting us there.¹¹⁵ Following the international adoption of the concept of sustainable development a gradual change in environmental policy-making has taken place, the most visible expression of which is the broad diffusion and adoption of strategic and integrative environmental planning.¹¹⁶ The policy innovation resulting from the sustainability debate lies in the emphasis placed on setting long-term goals on a broad political and societal basis, the integration of environmental policy objectives into other policy areas (intersectoral integration), a cooperative target group policy, and the mobilization of decentralised societal capacities.¹¹⁷

The core values of sustainability are collective in that they acknowledge a commitment to a sharing of common futures and fates, and a willingness to make decisions in the interest of unborn generations.¹¹⁸ This points to public action and decision-making in

¹¹⁴ Bosslemann K., "The Concept of Sustainable Development" in Bosslemann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), The New Zealand Centre for Environmental Law, Auckland, New Zealand, 82.

¹¹⁵ Buckingham-Hatfield S. and Evans B., "Achieving sustainability through Environmental Planning" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England, 3.

¹¹⁶ Janicke M. and Jorgens H., "Strategic environmental planning and uncertainty: A cross-national comparison of green plans in industrialised countries" (2000) 28 (3) *Policy Studies Journal* 612-632. and OECD, *Governance for Sustainable Development. Five OECD Case Studies* (2002) OECD, Paris, France.

¹¹⁷ Janicke M. and Jorgens H., "Strategic environmental planning and uncertainty: A cross-national comparison of green plans in industrialised countries" (2000) 28 (3) *Policy Studies Journal* 612-632, 614.

¹¹⁸ Buckingham-Hatfield S. and Evans B., "Postscript : Sustainability, Planning and the Future" in Buckingham-Hatfield S. and Evans B. (ed), *Sustainability and Planning* (1996), John Wiley and Sons, England, 177.

the public interest. Environmental planning is a process for achieving environmental sustainability.¹¹⁹

Janicke and Jorgens (2000) argue that strategic environmental planning is a way of dealing with the uncertainties of environmental policymaking. The uncertainty in environmental policy is manifested in four ways:

- uncertainty of prognosis about environmental changes and their possible negative impacts;
- political uncertainty about the need for actions regarding long-term problems still invisible to the general public;
- uncertainty about the environmental, social and economic consequences of policy decisions and non-decisions; and
- uncertainty of environmental pioneers about the chances and risks of innovative behaviour.¹²⁰

The principles of sustainability planning, according to McLaren (1996), are simple.

‘Sustainable development can only be achieved if human activity is kept within the constraints set by environmental capacity. If technical information is poor or lacking, then to locate these constraints, the precautionary principle must be applied. From such sustainability constraints, political planning processes are needed to set targets which can be met through the application of a range of appropriate policy tools.’¹²¹

Planning can respond to long-term problems of environmental degradation by embracing flexibility and participation as well as giving more weight to scientific expertise in describing problems and setting priorities.¹²² A key issue is the separation of political and technical decision-making.

The key components of the sustainable planning framework are:

¹¹⁹ Ibid. 177.

¹²⁰ Janicke M. and Jorgens H., "Strategic environmental planning and uncertainty: A cross-national comparison of green plans in industrialised countries" (2000) 28 (3) *Policy Studies Journal* 612-632, 613.

¹²¹ McLaren D., "The Constraints on Sustainability Planning in the UK" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England, 146.

¹²² Janicke M. and Jorgens H., "Strategic environmental planning and uncertainty: A cross-national comparison of green plans in industrialised countries" (2000) 28 (3) *Policy Studies Journal* 612-632, 617.

- accountability, transparency, freedom of information and other statutory rights to enable participation;
- coordination of policy (including effective environmental assessment) integrating environmental and economic goals; and
- timetabled target setting, reflecting environmental capacity, supported by a regulatory framework which uses a package of measures (including demand management) to meet targets.¹²³

Participation in plan-making can lead to a consensus on goals, and the involvement of target groups helps reduce resistance to change.

Janicke and Jorgens (2000) see the need for institutionalisation of environmental planning processes through legal and administrative reform. The authors argue that it helps establish environmental planning in the political agenda and makes it less vulnerable to changing political priorities and public attention.¹²⁴ The time frames or planning horizons for sustainable development extend beyond terms of office and legislative periods. Indeed, '[t]he extent to which green plans are institutionalised may well be the most important condition for successful environmental planning.'¹²⁵

A number of questions are raised by institutionalisation, for example: 'Does the plan have a legal basis?' 'Has a responsible, appropriate institution been established or designated to coordinate the planning process?' 'Is the plan-making process specified, including appropriate community participation?' 'Is the role of scientific information specified?' 'Does it require development of targets?' 'Does the plan provide for regular, obligatory reports and evaluation of progress?' 'Does it provide resources for implementation?' These questions are taken up in Chapter Four.

3.6 Implementing ESD in Australia – the role of law.

¹²³ McLaren D., "The Constraints on Sustainability Planning in the UK" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England, 145.

¹²⁴ Janicke M. and Jorgens H., "Strategic environmental planning and uncertainty: A cross-national comparison of green plans in industrialised countries" (2000) 28 (3) *Policy Studies Journal* 612-632, 620.

¹²⁵ Ibid. 620.

Sustainable development requires broad societal change, including change in understanding of the environment and its capacity, change in attitudes and values, change in the way society evaluates its performance and change in patterns of production and consumption. Broadly, this means change in the way individuals behave and the way governments do business. Is there a role for law?

Much of the hoped-for transition from unsustainable to sustainable development can be accomplished without the compulsion of law. Many changes have occurred, for example, in farming practice, building design, recycling and domestic consumption of natural resources such as water, without the coercion of law. However, there is broad agreement that current economic and social processes are unlikely to lead to an automatic adjustment towards ESD.

It has been demonstrated that the concept of sustainable development is capable of many interpretations. Further, the international directives, such as Agenda 21, 'are notoriously vague and areas of ambiguity, imprecision, or apparent self-contradiction weaken their force.'¹²⁶ These types of international commitments are generally referred to as 'soft law', meaning that they are not binding on signatory nations but rather operate as a set of normative principles that will guide the development of specific laws and treaties in the future.¹²⁷ It is therefore apparent that national and state legislation which aims to implement sustainable development must define more clearly the priorities which will assist in the transition to sustainability. Thus the importance of national interpretation and implementation cannot be underestimated. Australia's policy commitment to ESD has been described. However its implementation through law is yet to be explored.

The following discussion will consider the role of the law in facilitating a transition to sustainability. It will be demonstrated that the law is in transition. Since the adoption of ESD as a policy goal, the law has slowly evolved from an objectives-led approach to

¹²⁶ Brown D. A., "The Role of Law in Sustainable Development and Environmental Protection Decision Making" in Lemons J. and Brown D. A. (ed), *Sustainable Development: Science, Ethics, and Public Policy* (1995), Kluwer Academic Publishers, Dordrecht, The Netherlands. quoting Westra L (1994) Ecosystem Integrity and Agenda 21: Science, Sustainability and Public Policy. In *Proceedings on Ethical Dimensions of the United Nations Program on Environment and Development Agenda 21*, D A Brown (ed) Earth Ethics Research Group, Harrisburg, PA, pp 383-392.

¹²⁷ Ibid. 67.

implementation, to the formalisation of processes, which attempt to operationalise the principle.

The transition to sustainability necessarily involves law reform, even if only to shift legislation from a development focus, to one with a priority for management. The options range from minimum amendments to existing (environmental) legislation, through to fundamental law reform guided by the principle of sustainability.¹²⁸ The transformation of old environmental law to new sustainable development law is a process of incremental integration of all sectors of law.¹²⁹ This includes the introduction of integrated mechanisms for the generation and implementation of economic and environmental policy, and the enactment of legislation to ensure that policies can be carried out within a consistent and enforceable legal framework.¹³⁰

Law must assume a proactive role:

‘... if sustainability is to be progressed it will be because it has been purposively and objectively promoted through policies informed and empowered by a substantive theory of what sustainable development must be and how it can be brought about and maintained.’¹³¹

Law is a key tool in the purposive direction of society. It is a more reliable and stronger driver of ESD than voluntary programs.¹³²

The law can be proactive in directing change. Voluntarism can only achieve so much¹³³ but equally, prescriptive approaches have limits. Regulatory theory suggests that command regulation by itself will not be enough to facilitate change and that it must be

¹²⁸ Bosselmann K., "A Legal Framework for Sustainable Development" in Bosselmann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), New Zealand Centre for Environmental Law, Auckland, New Zealand, 146.

¹²⁹ Ibid. 146.

¹³⁰ Boer B., "Implementation of international sustainability at a national level" in Ginther K., Denters E. and de Waart P. (ed), *Sustainable Development and Good Governance* (1995), Marinus Nijhoff Publishers, The Netherlands, 119.

¹³¹ Gibbs D., "Integrating Sustainable Development and Economic Restructuring: a Role for Regulation Theory" (1996) 27 (1) *Geoforum* 1-10, 7.

¹³² Clarke K., McKay J. and Mitchell A., *Sustainable Development in Canada* (2001) Canadian Institute for Environmental Law and Policy, Toronto, Canada, 32.

¹³³ Bradsen J., "Alternatives for Achieving Sustainable Land Use" in Cosgrove L., Evans D. and Yencken D. (ed), *Restoring the Land* (1994), Melbourne University Press, Carlton, Victoria. see generally for a discussion of the weakness of the landcare approach.

combined with changes in values and attitudes.¹³⁴ Jenkins (2002) has argued the need for regulation to constrain activities on the one hand and to provide impetus for proactive management on the other.¹³⁵ These issues are taken up in Chapter Five of this thesis.

The literature is not very specific with respect to the role of law in achieving sustainable development. While it is possible to derive some concepts and general principles about the role of law in achieving sustainability, actual direction as to its content is notably absent. Bosselmann (2002), for example, has argued that this is because of conceptual preferences (i.e. local cultural and historical conditions) and political choice (i.e. between stronger and weaker forms).¹³⁶ Decleris (2000) is an exception to this trend and, from the Greek experience, is willing to propose a series of legal principles for the implementation of sustainable development. The principles of sustainable law are described as follows:

- The new Law is systemic in nature. Action in any element of the system of law should be harmonised with the system as a whole.
- It embodies sustainability and justice. The law of sustainable development consists of the creation of broader concepts of Ethics, which recognise moral obligations to nature and to future generations, and the restoration of justice in relations between people and nations.
- It adopts scientific methods. The law of sustainable development will largely consist of implementing the precepts of the appropriate science, interwoven with moral rules and governance principles.
- It is dynamic and continuously formulated. The law of sustainable development is a dynamic system with a continuous flow of information and decisions. It will move away from rules and towards decisions, because it has to discover the practical objectives of sustainable society with the aid of fixed general principles.

¹³⁴ Gibbs D., "Integrating Sustainable Development and Economic Restructuring: a Role for Regulation Theory" (1996) 27 (1) *Geoforum* 1-10, 7-8.

¹³⁵ Jenkins B., "Organisation for Sustainability" (2002) 9 (4) *Australian Journal of Environmental Management* 243-251, 247.

¹³⁶ Bosselmann K., "A Legal Framework for Sustainable Development" in Bosselmann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), New Zealand Centre for Environmental Law, Auckland, New Zealand, 145-146.

- It is an open system in continual communication with society. A series of procedural principles will ensure the open character of the law of sustainable development and these include: the principle of transparency, the principle of information, the principle of popular participation, and the principle of accountability.¹³⁷

In plain terms Declaris's principles might be briefly summarised as integration, protection of the environment and the rights of future generations, the adoption of scientifically-based decision-making explicitly limited by uncertainty, the use of adaptive management, participation, and good governance.

According to the Environmental Defender's Office (1994), the law has three roles in the management of natural resources:

- to act as an agent of change by providing processes and institutions that facilitate change;
- to provide equitable processes to mediate disputes between human interests; and
- to protect the public interest by ensuring that unrepresented interests are protected and promoting shared social values.¹³⁸

Environmental management law is as much about the processes it establishes as the substantive matters for which it provides.¹³⁹

3.6.1 The law in transition.

There has been a subtle infiltration of the concepts of ESD, from statement in treaties, to domestic implementation through (non-binding) intergovernmental agreements and the implication of the terms of treaties into domestic law by the courts, to inclusion in first the objects, and then substantive provisions, of domestic legislation.¹⁴⁰ The law is in a

¹³⁷ Decleris M., *The law of sustainable development - General Principles* (2000) Office for Official Publications of the European Communities, Luxembourg, 42-43.

¹³⁸ Environmental Defender's Office, *Inland Rivers. Regulatory Strategies for Ecologically Sustainable Management* (1994) Environmental Defender's Office Ltd, Sydney, Australia, 12.

¹³⁹ Ibid. 13.

¹⁴⁰ Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW, 58.

state of transition. Initially ESD was simply included in the objects clause and while of educative and symbolic value, this approach has a number of limitations. Gradually, legislation has included ESD in the substantive provisions of environmental and natural resource legislation as well as legislation not directly concerned with the environment. The argument in this thesis is that ESD is now being incorporated in law through provisions concerned with planning. These provisions define and refine the approach to decision-making which internalise a process to achieve sustainable outcomes.

For at least fifteen years ESD has been included in the objects clause of environmental and natural resources legislation. The *Catchment Management Act 1989* (NSW) was the first legislation to include ESD in the objects clause.¹⁴¹ The purpose of the objects clause is to provide guidance on the administration of legislation and the exercise of discretion, it can aid interpretation where questions of ambiguity arise.¹⁴² The benefits of an objects clause include direction and purpose, public education and accountability.¹⁴³

Increasingly new legislation has at least some reference to ESD and its core provisions. A review by Stein and Mahony (1999) found that the weight and priority given to ESD varies widely between legislative instruments.¹⁴⁴ The issue of priority between a number of objectives in an objects clause centre around questions of flexibility and continuity.¹⁴⁵ It leaves administrators with the responsibility of determining between a range of priorities through the exercise of discretion. An example of an uneven and confusing inclusion of ESD is found in the *Environmental Planning and Assessment Act 1979* (NSW). ESD is just one of a number of objects¹⁴⁶ and one of many principles which guide the administration of the Act.¹⁴⁷

¹⁴¹ CMA s.4 and s.5(1).

¹⁴² Mascher S. and Sidebotham N., "Water Resources Management Objectives" in Bartlett R. H., Gardner A. and Mascher S. (ed), *Water Law in Western Australia: Comparative Studies and Options for Reform* (1997), The Centre for Commercial and Resources Law, Nedlands, Western Australia, 16-19.

¹⁴³ Ministry for the Environment, *Resource Management Law Reform: Objectives for Resource Management - Why, What and How* (1988) Ministry for the Environment, New Zealand, 22.

¹⁴⁴ Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW, 61.

¹⁴⁵ Ministry for the Environment, *Resource Management Law Reform: Objectives for Resource Management - Why, What and How* (1988) Ministry for the Environment, New Zealand, 24.

¹⁴⁶ EPAA (NSW) s. 5(vii).

¹⁴⁷ EPAA s. 115(H)(a).

While the inclusion of ESD in the objects clause of legislation may be difficult to enforce, it at least promotes the idea that ESD should be applied in making decisions under that particular legislation. Within legislative frameworks adopted so far there has been little precise guidance as to the weight to be given to the principles of ESD, nor their particular role in the balancing of considerations in arriving at a decision.¹⁴⁸ To a substantial extent, ESD remains merely a factor 'to be taken into account' in decision making. Australian courts are reluctant to disturb the exercise of such a discretion by politicians or bureaucrats.¹⁴⁹ Whitehouse (1999) considers that the incorporation of ESD principles, particularly the precautionary principle, will involve a reduction in the scope of discretion or clearer guidelines for its exercise.¹⁵⁰

Fisher (2001) has argued that it is possible to formulate ESD as a legally enforceable obligation, suggesting provisions along the lines of:

- no person shall undertake development that is not ecologically sustainable; development that is not ecologically sustainable shall not be permitted; and
- no resource shall be used unless its use is sustainable.¹⁵¹

The Courts have not to date considered the question of the interrelationship between the different principles of ESD.¹⁵² A number of cases involving judicial review of decisions involving ESD have turned to the question of the application of the precautionary principle. Fisher (2001) in a review of such cases has concluded that the end product has been 'an affirmation of present decision-making practices with the vague coda that decision-makers should "be cautious"'.¹⁵³

¹⁴⁸ Stein P. L., "Are Decision-makers too Cautious with the Precautionary Principle?" (2000) 17 (1) *Environmental and Planning Law Journal* 3-21, 8.

¹⁴⁹ Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW, 66.

¹⁵⁰ Whitehouse J. F., "Will the precautionary principle affect environmental decision-making and impact assessment?" in Harding R. and Fisher E. (ed), *Perspectives on the Precautionary Principle* (1999), Federation Press, Sydney, Australia, 63.

¹⁵¹ Fisher D. E., "Sustainability - The Principle, its Implementation and its Enforcement" (2001) 18 (4) *Environmental and Planning Law Journal*, 366-367.

¹⁵² Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW, 69.

¹⁵³ Fisher E. C., "The precautionary principle as a legal standard for public decision-making: The role of judicial and merits review in ensuring reasoned deliberation." in Harding R. and Fisher E. (ed), *Perspectives on the Precautionary Principle* (1999), The Federation Press, Annandale, Australia, 88.

As noted by Pearson (1996) it is likely that ESD is a factor which the courts may take into account, and their decisions would not be vitiated by taking it into account.¹⁵⁴ None the less, decisions made without regard to the principle will rarely be successfully challenged, due to the absence of mandatory language in legislation.¹⁵⁵ Even in the absence of an express legislative mandate to apply the principles of ESD, the judiciary in NSW (and elsewhere in Australia), has sought to apply such principles.¹⁵⁶

A shortcoming of objective-led ESD is that the substantive activities and decisions made under the legislation are not circumscribed by the principles of ESD.¹⁵⁷ However, increasingly ESD principles are found in the substantive provisions of legislation. The *Native Vegetation Act 1991* (SA)

‘exemplifies ESD in practice by including a presumption against land clearing and by removing administrative discretion in relation to activities if they would contravene ESD principles.’¹⁵⁸

The Act goes further, to direct decision-makers both with respect to what they must take into account and the scope of application i.e. they must not make a decision seriously at variance with the principles.¹⁵⁹

ESD is included in the objects clause of the *Rural Fires Act 1997* (NSW).¹⁶⁰ In addition the Act requires the Rural Fire Service to have regard to the principles in carrying out any function that affects the environment.¹⁶¹ The *Local Government Act 1993* (NSW) includes the requirement that councils take into account ESD principles in carrying out their functions¹⁶² and requires the consideration of and reporting on the environmental effects of a range of activities. More recently the *Water Management Act 2000* (NSW)

¹⁵⁴ Pearson L., "Incorporating ESD principles in Land Use Decision Making: Some Issues after Teoh" (1996) 13 (2) *Environmental and Planning Law Journal*, 50.

¹⁵⁵ Ibid.

¹⁵⁶ Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW, 67.

¹⁵⁷ Ibid. 62.

¹⁵⁸ Ibid. 65.

¹⁵⁹ NVA (SA) 1991 s. 29(1).

¹⁶⁰ RFA (NSW) s. 3.

¹⁶¹ RFA (NSW) s. 9.

¹⁶² LGA (NSW) s. 7(e).

includes ESD in the objects clause¹⁶³ and requires decision-makers to exercise their functions consistent with the principles of ESD.¹⁶⁴

ESD principles are now being adopted in legislation, which is not expressly concerned with the environment. For example, the *Energy Services Corporations Act 1995* (NSW) includes ESD as one of the principle objectives of generators, energy transmission operators and energy distributors.¹⁶⁵ This is an indication that sustainability concerns are being integrated into laws not directly concerned with the environment, and that at least to some degree a more whole-of-government approach to environmental issues is being adopted.¹⁶⁶

Lee (2003) has argued that environmental law is maturing to a new phase which has a combined focus on both outcomes and on the processes by which those outcomes are achieved.¹⁶⁷ She provides as an example the *Environment Protection (Resource Efficiency) Act 2002* (Vic) which introduced new provisions into the *Environment Protection Act 1970* (Vic) aimed at increasing resource efficiency and decreasing ecological impacts of corporations in their ongoing operations. These amendments are the farthest reaching attempt to incorporate sustainability principles in legislation.¹⁶⁸

Fisher (2000) has observed that environmental law in Australia has traditionally been prescriptive but more recently a trend to purposive legislation is apparent.

‘The significance of a purposive approach is ... [t]he legislation positively states what the system is to achieve rather than merely prescribes how it is to operate. The system is proactive rather than reactive. Further, it is a system of management rather than simply a system of regulation.’¹⁶⁹

A purposive approach links responsibilities and duties with policy objectives.¹⁷⁰

¹⁶³ WMA s.3.

¹⁶⁴ WMA s. 14(3) & s. 370 (4).

¹⁶⁵ ESCA (NSW) s. 5, s. 6B & s. 8.

¹⁶⁶ Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW, 63.

¹⁶⁷ Lee M., "Sustainability - more than just a decision-maker's duty" (2003) 4 (1) *National Environmental Law Review* 38-43, 38.

¹⁶⁸ Ibid. 41.

¹⁶⁹ Fisher D. E., "Considerations, Principles and Objectives in Environmental Management in Australia" (2000) 17 (6) *Environmental and Planning Law Journal* 487-501, 487.

Within the natural resources area, notably catchment and water law, legislation has been re-written to include a planning dimension. These planning frameworks involve, ostensibly at least, determining sustainable extraction levels, the environmental impact of extraction and use, and engaging communities in an adaptive, precautionary decision-making process. The assertion in this research is that this represents an attempt to re-engineer the decision-making framework to operationalise the principles of ESD. This legislation is described in detail in Chapter Six. The analytical framework for this is developed in Chapter Four.

3.7 Conclusion

In this Chapter I have described the concept of, and the policy commitment to, sustainable development both internationally and nationally. The Australian NSESD is a mixture of process and outcomes, which confounds to some extent its clarity. The implementation of ESD by the Commonwealth has been tentative and patchy. There tends to be a correlation between sustainability and environment, which does not fully represent the breadth of its implications. In significant areas, such as micro-economic reform, environmental considerations remain the junior partner to economic and social concerns. There is still some way to go before Australia truly evaluates policy from a triple bottom line perspective.

In the second part of this Chapter, the literature on the concept of sustainability was reviewed. The conclusion was drawn that it is a ‘grand narrative’, a new story line for society into the 21st century. Sustainability is a process of change, which requires an evolution in attitudes and values and a reappraisal of priorities so that environmental and social concerns sit at the table with economic interests. To enable this process a purposive redesign of decision-making is required, planning is an important part of this process and the law has a crucial role to play. There is clear evidence that legislation is progressively incorporating the concept of sustainability. Firstly, ESD appeared in the objects clause of natural resource legislation, then in the substantive provisions and most recently in legislation not directly concerned with the environment. Catchment

¹⁷⁰ Ibid. 499.

and water legislation now include requirements for a planning process to inform decision-making. The proposition is, that this represents an attempt to operationalise the principles of ESD through legislation. The extent to which this is the case can be determined by the comprehensiveness of the incorporation of the full dimensions of the concept. In order to provide a framework for this analysis the elements of a sustainable natural resource planning process need to be defined. Accordingly, the next chapter interrogates the literature on sustainability to discern these elements. This provides the basis on which the analysis of legislation and its implementation in the case study areas is undertaken.

Chapter 4 – Elements of sustainable planning

4.1 Introduction.

Sustainable development is a broad policy goal at the international level. Despite this, it is a highly contested concept. It is not something capable of easy definition and it is not an endpoint. Rather it is a process of change, which reforms the traditional approach to decision-making.

Australia is committed to its own conceptualisation of the concept i.e. ecologically sustainable development (ESD), the principles of which are contained in the NSESD and the IGAE discussed in the previous chapter. I have argued that sustainability is a process of change and that planning is a key tool for its achievement. Planning does not just result in an outcome – a plan – it is also a decision-making procedure which if appropriately designed, can facilitate a change in values and understanding. Planning however is not a new idea and features that distinguish planning for sustainability need to be identified. From this the purposive design of legislation can be undertaken. This chapter has two purposes i.e. to review the literature on sustainability to identify and define the elements of a sustainable planning framework and to provide the basis for the analysis of catchment and water planning legislation in SA and NSW, undertaken in Chapter Six.

Sustainability problems are difficult for governments to deal with in traditional terms. This is because larger policy problems in sustainability have a number of attributes:

- problematic spatial and temporal scales;
- possible absolute ecological limits;
- irreversibility and urgency;
- connectivity and complexity;
- pervasive risk, uncertainty and ignorance;
- cumulative effects;
- new moral dimensions (future generations, other species);
- ‘systematic’ problem causes (deeply embedded in patterns of production and consumption and governance);

- requirements (substantive and political) for community participation; and
- sheer novelty.¹

The nature of sustainability problems pose particular challenges to society. The law has an important role in moving society towards sustainability. The importance of law in institutionalising planning has been recognised. This section will discuss the elements of sustainability and consider the function and role of law in institutionalising a sustainable planning framework. The challenges this poses to traditional administrative frameworks will be identified.

It will be argued that sustainability means that priority must go to the environment. This is not however to the exclusion of all other concerns. Equity considerations, that is, both within and between generations, are also a key priority. Precaution is perhaps the most important and challenging element of the sustainability process. Effective integration of environmental, social and economic factors into decision-making and integration of sectoral management of natural resources are also thorny issues. Public participation at all levels of planning is critical to the process of change. Lastly, planning, decision-making and management must be adaptive.

4.2 Priority to the Environment.

To achieve sustainability, priority in the first instance must go to the environment. Pardy (1993) has argued that if an activity is not evaluated according to its effect on ecosystem function, ecological sustainability cannot be achieved. 'Non-ecological questions, such as whether an activity is socially, economically, or culturally advantageous are important, but separate to the question of ecological sustainability which must be determined as a priority.'² Bosselmann (2002) has argued that the emphasis within the conception of sustainability on 'carrying capacity' excludes any anthropocentric limitation, such that development can only be sustainable if it respects

¹ Dovers S., "Institutionalising Ecologically Sustainable Development: Promises, Problems and Prospects" in Walker R. J. and Crowley K. (ed), *Australian Environmental Policy 2 Studies in Decline and Devolution* (1999), University of New South Wales Press Ltd, Sydney Australia, 206 & Dovers S. and Lindenmayer D., "Managing the Environment: Rhetoric, Policy and Reality" (1997) 56 (2) *Australian Journal of Public Administration* 65-80, 76.

² Pardy B., "Sustainability: An Ecological Definition for the Resource Management Act, 1991." (1993) 15 (4) *New Zealand Universities Law Review* 351-366, 366.

the limitations of the Earth's ecosystems.³ Giving priority to the environment satisfies two key aspects of sustainability i.e. precautionary decision-making and inter-generational equity.

From a legal perspective, the entrenchment of ecological values may be achieved either by adopting an Environmental Bill of Rights and/or by embedding ecological values in constitutional law.⁴ Legal priority to the environment can be achieved by a constitutional guarantee, giving natural objects standing, or through the creation of a statutory priority. A key shift is recognition of the need to act before harm has occurred. This challenges 'liberalism's proscription of interference except on grounds of harm to others'.⁵

The *Australian Constitution* does not contain any express or implied rights to life or a healthy and sustainable environment, nor is it likely to be amended to provide these.⁶ The idea however is not without precedent.⁷ A rights-based approach to environmental protection was advocated by Christopher Stone in *Should Trees have Standing? Towards Legal Rights for Natural Objects*. Stone (1974) argued that granting natural objects legal standing would improve their protection since it would not be necessary to prove damage in order to prevent it and would amount to explicit recognition of intrinsic value.⁸ This approach is morally appealing but practically difficult. The

³ Bosslemann K., "The Concept of Sustainable Development" in Bosslemann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), The New Zealand Centre for Environmental Law, Auckland, New Zealand, 84.

⁴ Wilkinson D., "Using Environmental Ethics to Create Ecological Law" in Holder J. and McGillivray D. (ed), *Locality and Identity: Environmental Issues and Law and Society* (1999), Dartmouth Publishing Co Ltd, England, 41.

⁵ Ibid. 39.

⁶ Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW, 61.

⁷ The Constitution of the Republic of South Africa, 1996 s 24 creates a fundamental right to an environment of a particular quality : to an environment that is not harmful to their health or well-being, and to have the environment protected for the benefit of present and future generations; to prevent pollution and ecological degradation; to promote conservation; and to secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development.

⁸ Benson J., *Environmental Ethics. An introduction with readings*. (2000) Routledge, London, England, 14.

assignment of rights to nature does not resolve the priority question, i.e. between the intrinsic rights of nature and the use of it. These two positions are in conflict.⁹

The most feasible response in the Australian context is for a statutory priority to be given to the environment through the objects clause and other provisions within the legislation. The limits of an objects-led approach to ESD implementation have been discussed in the previous chapter. Priority to the environment can be attained by the prior determination of environmental needs and constraints ahead of consideration of the impacts, if any, on current usage patterns. This is not to say that alignment of environmental needs with usage can occur immediately. However the determination of environmental needs should not be diluted with political concerns about the short-term feasibility of implementation. In short, the technical determination should not be embedded in political planning processes. The limit of this is the lack of knowledge about environmental needs. It is here that precautionary decision-making and adaptive management have a role. Arguably when the science is more uncertain the decision-making process should be more political because the critical question concerns the degree of risk that society is willing to bear. A conserver society would choose the lowest risk pathway and be supported by a reversal of the onus of proof in decision-making.

In short, planning concerned with sustainability should determine environmental constraints and needs first.

4.2.1 The fundamental challenge of ESD to administration.

The fundamental purpose of administration has been to support order and progress¹⁰ in society conceived in mainly economic development terms. Environmental problems have been viewed as aberrations and not considered in a manner which fundamentally challenges the 'grand narrative' of 'progress'. Accordingly, the administrative response has been to the specific problem at hand dealing with the 'excesses' of development as

⁹ Godden L., "Incorporating the Environment in the Utilitarian Calculus of the Greatest Good" in Rogers N. (ed), *Green Paradigms and the Law* (1998), Southern Cross University Press, Lismore, NSW, Australia, 72.

¹⁰ Torgerson D., "Limits of the Administrative Mind: The Problem of Defining Environmental Problems" in Paehlke R. and Torgerson D. (ed), *Managing Leviathan. Environmental Politics and the Administrative State* (1990), Broadview Press Ltd, Ontario, Canada, 121.

an adjunct to the primary objective of development. Thus, for example, pollution is treated as a 'manageable' problem and the administrative response is piecemeal, sectoral and reactive.¹¹

Dryzek (1990), for example, has considered the question of the inability of the administrative state to effectively protect the environment.¹² His diagnostic of the weaknesses of the current system of administration has several features.

- Priority to the environment conflicts with key economic imperatives of government. Certain groups have undue influence on policy development and agencies can be captured by these interests.
- Decision-making is dominated by an instrument-analytic approach which breaks complex problems into smaller units. This has resulted in single medium approaches and problem displacement rather than problem resolution.
- Top-down administrative structures, which control both information and power are ill-suited to deal with the complexity of environmental problems.¹³

Giving priority to the environment profoundly challenges traditional views of economy and development. 'Established interests, upheld in current practices and mirrored in organisational and administrative values and practices, oppose change and resist measures advocated by organisations oriented towards sustainable development.'¹⁴ Current practices influence both the way we think about responding and the way we actually respond.

In public administration utilitarian concepts of the greatest good have traditionally been predicated upon ensuring the greatest economic benefits to the greatest number as a means of ensuring social justice.¹⁵ Paehlke (2001) examines the presupposition that the size of an economy is a proximate (if not a precise) measure of the quality of human life. While this view is rarely stated explicitly, it frequently guides public policy

¹¹ Ibid. 137.

¹² Dryzek J. S., "Designs for Environmental Discourse: The Greening of the Administrative State" in Ibid.

¹³ Ibid. 97-101.

¹⁴ Backstrand K., Kronsell A. and Soderholm P., "Organisational Challenges to Sustainable Development" (1996) 5 (2) *Environmental Politics* 209-230, 210.

¹⁵ Godden L., "Incorporating the Environment in the Utilitarian Calculus of the Greatest Good" in Rogers N. (ed), *Green Paradigms and the Law* (1998), Southern Cross University Press, Lismore, NSW, Australia, 65.

decision-making.¹⁶ Paehlke (2001) finds, for example, that while there is a rough correlation between wealth and health in nations, the relationship is complex and issues of equity and distribution of wealth are important aspects of the analysis. Despite the acceptance of an altered view of the public interest encapsulated in the commitment to ESD, Godden (1998) considers that public officials continue to see the public interest calculation in terms of economic outcomes.¹⁷

The fundamental challenge of ESD is to reconfigure the administrative approach to the assessment of societal performance. The triple bottom line of environment, equity and economy must underpin this reconfiguration.

4.3 Equity.

Equity in the sustainability context is concerned with both inter-generational and intra-generational equity. Intra-generational equity has been a central concern in the international sustainability debate but has been less prominent in the Australian context, where it has not featured in statutory definitions of ESD. The access of most Australians (with the exception of a number of Indigenous communities) to primary environmental resources, such as clean drinking water, has meant that this issue has been of less explicit concern than in the international context. At an international level inequity between the rich 'north' and the developing 'south' has been an important concern and conditioned much of the response to sustainability. Intra-generational equity in the Australian conversation has not featured significantly. However, questions of distribution are also important within rich countries. The relative economic and social disadvantage of sections of the rural population was described in the context part of this thesis. In the urban context the relationship between economic disadvantage and inferior environmental quality has been of considerable concern, particularly in parts of North America. The emerging environmental justice movement is a response to intra-generational concerns.¹⁸

¹⁶ Paehlke R., "Environmental Politics, Sustainability and Social Science" (2001) 10 (4) *Environmental Politics* 1-22, 2.

¹⁷ Godden L., "Incorporating the Environment in the Utilitarian Calculus of the Greatest Good" in Rogers N. (ed), *Green Paradigms and the Law* (1998), Southern Cross University Press, Lismore, NSW, Australia, 79.

¹⁸ Low N. and Gleeson B., *One Earth: Social & Environmental Justice* (1999) Australian Conservation Foundation, Fitzroy, Australia, 16-20.

Generally, the question of intra-generational equity is dealt with through the proxy of economic indicators. This however does not convey the full dimensions of the equity debate. Development is not the same as economic growth. Development involves an 'advance in utility and well-being (which may include monetary income), preservation or advance in freedoms, and increasing self-respect and self-esteem.'¹⁹ If average well-being improves at the cost of a worsening of the position of the most disadvantaged, it seems reasonable to say that such a society is not developing.²⁰

Beder (1996) describes the relationship between intra-generational equity and environmental concerns in the following way.

- Proximity to existing environmental problems can be determined by a person's economic status and even by their race.
- Inequities can themselves cause environmental problems.
- Measures to protect the environment can affect people in different ways.
- Decision-making procedures aimed at achieving sustainable development may neglect the concerns of some groups of people.
- Increasing population concentrations may have environmental and equity outcomes.²¹

The customary jobs-versus-environment debate must be reframed as: 'Whose jobs?' and 'Whose environment?' The distributive element of sustainability is a complex ethical question. In an agricultural context, for example, the degradation of water catchments can have distributive impacts to the extent that urban water users may be obliged to pay for water purification. The question must be asked if urban water users prefer investment in water purification or landscape repair.

The notion of inter-generational equity has enormous intuitive appeal. Beyond that there is considerable debate. The concept of inter-generational equity has been

¹⁹ McLaren D., "The Constraints on Sustainability Planning in the UK" in Buckinham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England, 149 quoting Pearce et al (1989).

²⁰ Ibid. 149 quoting Pearce et al (1989) 29.

²¹ Beder S., *The Nature of Sustainable Development* (1996) Scribe Publications Pty Ltd, Newham, Victoria, Australia, 151.

described by Young (1995) as a partnership among all generations who may use, or expect to benefit from, the nation's resources.²² As a minimum, the principle requires acceptance of the proposition that each generation inherits a resource endowment and is obliged to pass it on in a state which offers as many physical opportunities as were available to any previous generation and provides equivalent opportunity for social and economic opportunity.²³ It is very difficult to calculate what the needs of future generations will be, but what is clear is that any diminution of the planet's diversity and quality carries the risk of reducing future options.²⁴ Thus we need to preserve what we have rather than guess what the future may require. Critical questions in a reformed decision-making framework are how, who or what should represent future generations. A 'Council of Posterity' has been proposed in Britain, a 'Court of Generations' in the US.²⁵

The idea of inter-generational equity is complicated by the debate on trade-offs between renewable and non-renewable resources, human-made assets (substitution), intellectual (technology) and cultural capital. In actuality, with the environment as a priority and in the context of extensive degradation, there is limited scope for substitution.

The natural resource base can be divided into three categories: resources which are unconditionally renewable, such as the wind and sun; those which are conditionally renewable, such as trees, fish stocks and soil; and those which are non-renewable, such as minerals and fossil fuels. This means that conditionally renewable resources should not be used at a rate greater than their regeneration. But what about non-renewable resources? One approach is to balance any reduction in the stock of non-renewable resources with an equivalent increase in the value of renewable resources. At the very minimum, consumption of non-renewable resources should be as efficient as possible.

Hunt (1986) has grappled with the question of the application of the concept of inter-generational equity which she argues raises a number of ethical and intellectual

²² Young M. D., "Intergenerational equity, the precautionary principle and ecologically sustainable development" (1995) 31 (1) *Nature and Resources* 16-27.

²³ Ibid.

²⁴ Bosselmann K., "A Legal Framework for Sustainable Development" in Bosselmann K. and Grinlinton D. (ed), *Environmental Law for a Sustainable Society* (2002), New Zealand Centre for Environmental Law, Auckland, New Zealand, 153.

²⁵ Ibid. 151.

dilemmas associated with resource use decisions. According to Hunt, the questions embedded in the concept include:

- ‘How far into the future should we look when considering the consequences of present actions?’;
- ‘Do future generations have rights?’ with a common conclusion being that because they do not now exist they are not the present holders of anything;
- ‘Are the resources renewable or non-renewable?’ and ‘What is a sustainable pattern of resource use?’
- ‘Are the resources non-renewable?’ with questions of substitution arising; and
- ‘What is the relationship between inter-generational equity and intra-generational equity?’²⁶

These questions can be approached from a conventional economic perspective or from a sustainability perspective. A conventional economic approach involves:

- applying a discount rate to future benefits;
- a belief that all resources can be substituted;
- the faith/confidence that the accumulation of capital and the progress of technology will provide access to resource substitutes; and
- a belief that while people of the future may inherit fewer resources than we have, they will be compensated for this by inheriting improved technology and accumulated capital.²⁷

In contrast, a sustainable society is one whose patterns of resource use can be maintained indefinitely. The main elements of this approach are that:

- we should regard future people as we regard ourselves;
- we must plan an orderly transition to a society based primarily on the use of renewable resources;
- non-essential and obviously substitutable (non-renewable) resources can be discounted and the search for substitutes should be directed to renewable resources; an essential and non-substitutable (non-renewable) resource should be

²⁶ Hunt D., "Responsibility to Future People" in Howell J. (ed), *Environment and Ethics - A New Zealand Contribution* (1986), Centre for Resource Management, Lincoln College and University of Canterbury, Canterbury, New Zealand, 61-71.

²⁷ Ibid. 71-72.

used at a rate no greater than that required to meet society's basic needs so that its use may be extended as long as possible; and

- renewable resources should be managed in a sustainable fashion.²⁸

Hunt (1986) concludes that both schools of thought prescribe certain rates of resource use, and certain conservation strategies, but in each case difficult questions remain unresolved.²⁹ While critical of the economic perspective which holds that all resources are ultimately substitutable, she finds that the sustainability approach fails to answer the question of the rate at which non-renewable resources should be consumed.³⁰ Reconciliation of the two approaches may be achieved by a change in the time perspective of society. The application of a lower discount rate to non-renewable resources and improved accounting of the quantifiable and non-quantifiable costs and benefits of renewable resource use will protect the long-term health of those resources.³¹

Sustainability concerns are typically only visible on a time scale of decades or centuries. The cumulative impact of biodiversity losses, urban sprawl, extractive activities, slowly shifting human health statistics, climate change, and even deforestation may escape the attention of a society fixated on the present and immediate future, especially when that society is one with an abiding faith in technology.³²

The current pace of Western industrial capitalism is anchored in a concern with the present, and its media and businesses operate in very short time frames. Long-term impacts of decisions are not adequately considered in decision-making because of the frequency of electoral cycles, the short-term nature of most economic agendas, and the difficulties in evaluating long-term trends.³³

Long-term problems require long-term solutions. A key role for law is establishing planning time frames that are sufficiently long to allow a consensus for change to be

²⁸ Ibid. 72.

²⁹ Ibid. 74.

³⁰ Ibid. 74-75.

³¹ Ibid. p 75.

³² Paehlke R., "Environmental Politics, Sustainability and Social Science" (2001) 10 (4) *Environmental Politics* 1-22, 12.

³³ OECD, *Governance for Sustainable Development. Five OECD Case Studies* (2002) OECD, Paris, France, 56.

built. Thinking in terms of our grandchildren provides enough time for vision but is not so far away as to be incomprehensible to the human mind.

Inter-generational equity needs to be considered further in many contexts. It needs to be framed in two directions, namely, that of the responsibility of this generation to pass on an undiminished natural resource base and that of the responsibility of this generation to restore the damage of past generations.

In summary, sustainability planning must incorporate inter- and intra-generational equity. This can be done by planning for the long-term, ensuring representation for the 'unborn' in deliberations, restoring environmental damage and using resources only at their rate of renewal. Intra-generational equity can be incorporated by looking at the distributional burden of both the costs and benefits of actions. These costs and benefits must be conceptualised in environmental, social and economic terms.

4.4 Precaution.

The precautionary principle first emerged in Germany in the 1960s. The concept developed in parallel with the hypothesis of 'implementation shortfalls'.³⁴ That is, a discrepancy between legal provisions and the goals of environmental policy, on the one hand, and its practical application on the other.³⁵ The precautionary principle was originally used as a yardstick on which to judge political decisions.³⁶

The NSESD defines the precautionary principle in the following terms:

'Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation'.³⁷

³⁴ Stein P. L., "Are Decision-makers too Cautious with the Precautionary Principle?" (2000) 17 (1) *Environmental and Planning Law Journal* 3-21, 3.

³⁵ Ibid. 3.

³⁶ Ibid. 4.

³⁷ Commonwealth Government, *National Strategy for Ecologically Sustainable Development* (1992) AGPS, Canberra.

The routine inclusion of the precautionary principle as a core principle of ESD demonstrates that a more anticipatory and precautionary approach is generally held to be a necessary pre-requisite for progress toward sustainability.³⁸ Fisher (1999) has argued that the precautionary principle should not be an isolated legal requirement but rather a broad package of decision-making requirements.³⁹ Farrier (1995) argues that the precautionary principle should be an overriding rule in decision making, rather than merely one of a series of factors to be considered.⁴⁰ Sperling (1999) concurs that the inclusion of the precautionary principle as a factor to be taken into account is insufficient.⁴¹

O’Riordan and Cameron (1994) see six basic notions in precaution. These are:

- willingness to take action in advance of scientific proof or evidence of the need for the proposed action;
- recognition that margins of tolerance should not even be approached, let alone breached;
- a bias to conventional cost/benefit analysis to include a weighting function for ignorance;
- recognition that there is a duty of care, or onus of proof on those who propose change;
- promotion of the cause of intrinsic natural rights by inclusion of the need to allow natural processes to function in such a manner as to maintain the essential support for all life on earth; and
- an understanding that those who have already created a large ecological burden should be more precautionary than those whose ecological footprints have to date been lighter.⁴²

³⁸ Harding R. and Fisher E., "Introducing the precautionary principle" in Harding R. and Fisher E. (ed), *Perspectives on the Precautionary Principle* (1999), Federation Press, Sydney, Australia, 17.

³⁹ Fisher E. C., "The precautionary principle as a legal standard for public decision-making: The role of judicial and merits review in ensuring reasoned deliberation." in Ibid.(ed), The Federation Press, Annandale, Australia, 84.

⁴⁰ Farrier D., "Policy Instruments for Conserving Biodiversity on Private Land" in Bradstock R., Auld D., Keith D., Kingsford R., Lunney D. and Sivertsen D. (ed), *Conserving Biodiversity: Threats and Solutions* (1995), Surrey Beatty and Sons, Sydney, Australia.

⁴¹ Sperling K., "If Caution Really Mattered" (1999) 16 (5) *Environmental and Planning Law Journal* 425-440, 427.

⁴² T O’Riordan and J Cameron, 'The History and Contemporary Significance of the Precautionary Principle' in T O’Riordan and J Cameron (eds) *Interpreting the Precautionary Principle*, (Earthscan,

The precautionary principle requires decision-makers to take both the problems of lack of evidence and the policy of environmental protection very seriously.⁴³ The precautionary principle by its very nature directly challenges a model of public administration based on the precept that the only valid action is that based on facts.⁴⁴ The precautionary principle embodies the notions of long-term planning to avoid damage to the environment, early detection of dangers to health and environment through comprehensive research, and acting in advance of conclusive scientific evidence.⁴⁵ Key questions about its application, however, concern the notion of 'scientific uncertainty', which potentially involves notions of 'risk', 'uncertainty', 'ignorance' and 'indeterminacy'.⁴⁶ Its operation will also be influenced by perceptions about what constitutes a 'threat' and what is regarded as 'serious and irreversible'. Clearly, though, the precautionary principle legitimises government action to prevent environmental damage in advance of proof. It has resulted in questions about the prevailing modes of decision-making including who should bear the onus of proof, the role of science, and the relative roles of 'experts' and the public.⁴⁷

Essentially, the precautionary principle, like most elements of ESD, is value laden. There are many different factors which influence the interpretation and institutionalisation of the concept, and these include:

- attitudes to risk management;
- the role of science and scientists in decision-making processes;
- the relative openness of decision-making processes both in terms of public access to information on decision-making and the extent of their participation within the process;
- the influence of the environment lobby;
- accountability in decision-making;

London, 1994) 292–98 quoted by Hay P., *Main Currents in Western Environmental Thought* (2002) University of New South Wales Press Ltd, Sydney, Australia, 231.

⁴³ Fisher E. C., "The precautionary principle as a legal standard for public decision-making: The role of judicial and merits review in ensuring reasoned deliberation." in Harding R. and Fisher E. (ed), *Perspectives on the Precautionary Principle* (1999), The Federation Press, Annandale, Australia, 89.

⁴⁴ Ibid. 90.

⁴⁵ Harding R. and Fisher E., "Introducing the precautionary principle" in Ibid.(ed), Federation Press, Sydney, Australia, 4.

⁴⁶ Ibid. 10.

⁴⁷ Ibid. 21.

- the nature of the nation's economy including level of development and the relative importance of raw materials extraction which impacts on natural ecosystems; and
- the nature of the natural environment⁴⁸.

Young (1999) has considered the question of the appropriate type and level of precautionary measures. He has suggested the following approach to the application of the precautionary principle:

- When the cost of degradation may be serious or irreversible, the strict precautionary principle should be applied.
- When the cost of degradation may be serious but reversible, a large safety margin should be maintained and the use of best-available technology be required.
- As confidence and knowledge grow, a transition to arrangements that require best-available technology should be allowed but only when this does not involve excessive cost.
- Where the threat of damage is neither serious nor irreversible, conventional cost/benefit analysis should be used.⁴⁹

In essence, any environmental regulatory procedure will be precautionary if it reduces the scope and magnitude of environmental impacts whose effects are uncertain but which are deemed to carry a non-negligible environmental risk.⁵⁰ This provides general rules of operationalisation, i.e. regulatory standards will tend to be more precautionary, the closer their point of application is to the point at which impacts are generated.⁵¹

One important step is to try to anticipate likely problems in resource and environmental management and appreciate the broad nature of constraints necessary to maintain inter-generational equity.⁵² One way of doing this is to develop strategies that identify the

⁴⁸ Ibid. 14.

⁴⁹ Young M. D., "The precautionary principle as a key element of ecologically sustainable development" in Ibid. 137.

⁵⁰ Cameron J., "The precautionary principle: core meaning, constitutional framework and procedures for implementation" in Ibid. 49.

⁵¹ Ibid. 49.

⁵² Young M. D., "The precautionary principle as a key element of ecologically sustainable development" in Ibid. 139.

constraints required to prevent irreversible damage, maintain opportunity sets, and prevent serious environmental damage.⁵³

Much of the discussion on the precautionary principle centres around individual decisions. However planning can provide the context in which decisions are made and go some way to operationalising the principle of precaution. In the first instance long-term planning can avoid damage by facilitating a move from *ad hoc* decision-making that neglects the cumulative impact of individual decisions. It can set the parameters by establishing in advance the environmental constraints on resource use. Tolerance limits should not even be approached so as to minimise the likelihood of irreversible damage. Precautionary planning would acknowledge and account for uncertainty, such as the impact of climate change, and seek to anticipate future threats. It would mobilise action in advance of conclusive scientific proof.

The law could introduce provisions such as the collection of baseline data as a basis for decision-making; explicit attention to the level of certainty of information; exposure of information to peer review; monitoring so that the quality and certainty of information can be reviewed; and assessment of the accuracy of predicted impacts.

A critical element of precautionary decision-making involves values. This centres in particular around the question of risk in the face of scientific uncertainty. Sustainability planning stands at the interface between the technical and political processes in decision-making. When there is uncertainty, there must be processes that engage a broad range of stakeholders in decision-making about the level of risk acceptable to the community. This will facilitate the incorporation of a wide range of values and knowledge in the determination and improve transparency in decision-making. The issue of public participation then is a very important one and is considered in detail later in this chapter.

⁵³ Ibid. 139.

4.4.1 The challenge to administration.

A number of common principles of precautionary public administration can be gleaned from the previous discussion. These include:

- that in cases of scientific uncertainty, decisions cannot be based only on scientific evidence;
- that since these decisions affect how a community wants to live, decision-making under conditions of scientific uncertainty is complex and should involve numerous interests, issues and uncertainties; and
- the decision-making process should be transparent, inclusive and consultative.⁵⁴

The precautionary principle challenges ‘rationalism’, ‘expert’ decision-making and traditional decision-making tools.

4.4.2 The challenge to rationalism.

The centralised, State-centred and sectoral approach to policy-making is unlikely to facilitate sustainable management. The dominance in administration of rational decision-making approaches has lent itself to reductionist problem definition (i.e. reduced to a set of simple problems). An instrumental-analytic⁵⁵ approach relies on the application of fixed rules and presupposes predictable responses and effective control. It produces a divide between policy formulation and implementation based on the idea that, once rational decisions are made and commands given, predictable effects will emerge. According to Torgerson (1990), this approach has resulted in very weak problem definition.⁵⁶ This can result in the marginalisation of certain aspects of a problem and a narrow focus on particular environmental problems. It does not support precautionary or adaptive decision-making.

⁵⁴ Fisher E. C., "The precautionary principle as a legal standard for public decision-making: The role of judicial and merits review in ensuring reasoned deliberation." in Ibid.(ed), The Federation Press, Annandale, Australia, 90-91.

⁵⁵ Backstrand K., Kronsell A. and Soderholm P., "Organisational Challenges to Sustainable Development" (1996) 5 (2) *Environmental Politics* 209-230, 215.

⁵⁶ Torgerson D., "Limits of the Administrative Mind: The Problem of Defining Environmental Problems" in Paehlke R. and Torgerson D. (ed), *Managing Leviathan. Environmental Politics and the Administrative State* (1990), Broadview Press Ltd, Ontario, Canada, 135.

According to the model followed in much of the developed world (including Australia), government agencies staffed by technical experts break down environmental problems into 'objective' technical problems and a 'subjective' policy component.⁵⁷ When making a decision, the decision-maker looks at the guidance contained in the law, then applies it to the objective technical facts.⁵⁸ Commonly, laws give general guidance and leave administrators to develop more specific rules in policies and regulations that are consistent with the general guidance offered by the authorising legislation. Administrators then apply the 'facts' to politically derived rules in day-to-day decision-making.⁵⁹

However, it can be seen that if the law is not specific in its interpretation of sustainable development, so as to include mandatory provisions and prescriptions, a great deal of discretion must be exercised by the decision-maker in interpreting the meaning of the concept and in formulating appropriate rules for its application. Brown (1995) has argued that only if law gives clear prescriptive direction can it overcome the short-term political forces that work against its implementation.⁶⁰ This is particularly relevant to the application of the precautionary principle.

Whitehouse (1999) considers that the incorporation of ESD principles, particularly the precautionary principle, will involve a reduction in the scope of discretion or clearer guidelines for its exercise.⁶¹ The objects clause and heads of consideration have a role in guiding the exercise of discretion. However, these generally do not guide decision-makers about the relative weight of the variety of factors that should be taken into account.

A critical challenge for the implementation of ESD is finding a mechanism to place environmental values within a decision-making context. The tendency, for example, to develop 'objective' criteria for the environment means that the implicit values

⁵⁷ Brown D. A., "The Role of Law in Sustainable Development and Environmental Protection Decision Making" in Lemons J. and Brown D. A. (ed), *Sustainable Development: Science, Ethics, and Public Policy* (1995), Kluwer Academic Publishers, Dordrecht, The Netherlands, 66.

⁵⁸ Ibid. 66.

⁵⁹ Ibid. 66.

⁶⁰ Ibid. 66.

⁶¹ Whitehouse J. F., "Will the precautionary principle affect environmental decision-making and impact assessment?" in Harding R. and Fisher E. (ed), *Perspectives on the Precautionary Principle* (1999), Federation Press, Sydney, Australia, 63.

associated with economic outcomes are given full weight but other non-instrumental values, such as the retention of biodiversity, are devalued.⁶² The history, philosophy and sociology of science shows that 'scientific' results also contain value (i.e. subjective) judgements embedded in them.⁶³ These value judgements are incorporated in, for example, selection of data, method, theoretical structure, definitions, language and onus of proof.⁶⁴

It has been shown that 'rationalism' in public administration has led to a reductionist approach to problem definition and an artificial divide between technical aspects of a problem and values about its resolution. Commonly implicit political pressures drive the problem solving approach while maintaining an appearance of 'objectivity'. Administrators exercise considerable discretion in the application of the law and this needs to be constrained to ensure that decision-making reflects the broader priority of sustainability.

Sustainability planning can provide a framework for more holistic consideration of problems if it is based on a comprehensive analysis of the environmental, social and economic parameters. If the full range of values are to be incorporated in decision-making they need to be brought to the fore and represented adequately. Planning which engages a wide range of interests has the potential to open-up administration and make it more transparent, inclusive and accountable. Plans have the potential to provide expanded guidance to decision-makers on the exercise of discretion. For example, water sharing plans and water allocation plans, discussed in detail in Part Four of this thesis, have developed in a local context a comprehensive set of rules which are to be applied in decision-making. In theory at least this leaves little room for the exercise of discretion by administrators and insulates them to some extent from short-term political pressure. The question of whether these plans developed by government and community are in themselves precautionary is discussed in detail in the case studies.

⁶² Godden L., "Incorporating the Environment in the Utilitarian Calculus of the Greatest Good" in Rogers N. (ed), *Green Paradigms and the Law* (1998), Southern Cross University Press, Lismore, NSW, Australia, 70.

⁶³ Diesendorf M., "Models of Sustainability and Sustainable Development" (Paper presented at the Beyond growth: policies and institutions for sustainability. 5th Biennial conference of International Society for Ecological Economics., Santiago, Chile, 1998) 1-15, 6.

⁶⁴ Ibid. 6.

4.4.3 The challenge to 'expert' decision making.

The precautionary principle represents a challenge to 'expert decision-making' because it demands that decisions should not be based on 'data' alone. Science is tackling increasingly complex and hence debatable and uncertain issues. Some critical issues are emerging that challenge the usual form of governance in democratic societies. These include:

- science revealing its own uncertainty;
- new socio-cultural frameworks in which all opinions have merit; and
- attitudes of society to science and technology.⁶⁵

Consultative processes need to intervene at the point where information is uncertain because complex issues are viewed differently by the various interests and this diversity should be brought to bear in the development of solutions. Consultative processes can bring assumptions into the open and create the opportunity for the development of 'shared mental models' of the issues and problems.⁶⁶ This is not to diminish the value of 'expertise' but rather to provide space for non-traditional knowledge to find a seat at the decision-making table.

4.4.4 The challenge to traditional decision-making tools.

In the environmental context two key decision-making tools have been Environmental Impact Assessment ('EIA') and Cost/Benefit Analysis ('CBA').

A key innovation in decision-making during the 1970s was the requirement for EIA. EIA has been adopted through planning legislation to assist decision-making about individual developments. Both technical and political problems have constrained the influence of EIA on decision-making.

The scientific validity of EIA has been questioned as environmental impact statements are often produced quickly without defensible methodology; produce diffuse,

⁶⁵ Demasure M., "New Governance for a New Society" (Paper presented at the OECD Forum Highlights. Sustainable Development and the New Economy, 2001) 3, 3.

⁶⁶ Meppem T. and Gill R., "Planning for sustainability as a learning concept" (1998) 26 (2) *Ecological Economics* 121-137, 128.

descriptive data; and involve weak predictive modelling, which is rarely tested.⁶⁷ EIA does not provide a framework for consideration of the cumulative impact of decisions; nor does it generally provide a sound basis from which to monitor predicted impacts or use the results of monitoring (where it occurs) to alter the conditions of operation where appropriate; nor does it contribute to the development of a comprehensive information base.⁶⁸

The main political problem, however, is that decision-makers often do not use EIA the way it was intended and that it does not have a real effect on decisions about development.⁶⁹ Consideration of the political context in which decisions are made and the pressure on government to promote and support development has meant that EIA can become a way of retrospectively rationalising and legitimating decisions made on other grounds.⁷⁰

EIA has however been defended on a number of grounds. Bartlett (1990) considers that it has the potential to facilitate the subtle infiltration of ecological rationality into administration.⁷¹ Procedural requirements, such as the information gathering necessary for EIA, are important tools to provide decision-makers with appropriate information to make decisions consistent with ESD principles.⁷² In addition, participation rights associated with EIA, such as the right to comment and a subsequent right to challenge decisions on both technical and procedural grounds, have been important developments.

EIA focuses on individual decisions, which in isolation may have little impact on the environment, but in their sum can be extremely damaging. Tools such as EIA can

⁶⁷ Amy D., "Decision Techniques for Environmental Policy : A Critique" in Paekhlke R. and Torgerson D. (ed), *Managing Leviathan. Environmental Politics and the Administrative State* (1990), Broadview Press Ltd, Ontario, Canada, 60-61.

⁶⁸ McLaren D., "The Constraints on Sustainability Planning in the UK" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England, 161.

⁶⁹ Amy D., "Decision Techniques for Environmental Policy : A Critique" in Paekhlke R. and Torgerson D. (ed), *Managing Leviathan. Environmental Politics and the Administrative State* (1990), Broadview Press Ltd, Ontario, Canada, 61.

⁷⁰ Ibid. 62.

⁷¹ Bartlett R. V., "Ecological Reason in Administration: Environmental Impact Assessment and Administrative Theory" in Paekhlke R. and Torgerson D. (ed), Ibid.

⁷² Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW, 64.

improve decision-making about individual developments but this must be contextualised within a comprehensive environmental baseline.

CBA has been another key tool developed to assist decision-making. CBA is said to allow decision-makers to systematically investigate and quantify the advantage and disadvantages of policy and then objectively choose the option which produces the most public benefit.⁷³ However, there are serious technical, political, moral and philosophical flaws in this approach to decision-making. Among flaws identified have been: problems of quantifying non-economic benefits; the value of the discount rate of benefits and costs to future generations; a failure to include public participation; and an inability to consider distributive effects of decisions.⁷⁴

According to Meppem and Gill (1998), the framework underlying public administration has -

‘tended to remain with the conventional neoclassical wisdom of economists, using tools such as cost-benefit analysis, which appeal to the prevailing cultural need for apparent objectivity, quantitative precision and theoretical rigour’.⁷⁵

The use of such tools should be seriously questioned. These approaches favour easily quantifiable variables, at the cost of ‘intangibles such as aesthetic, cultural and distributive impacts’⁷⁶ and assume scientific certainty. This can disguise inherent risks and preclude precautionary decision-making.

⁷³ Amy D., "Decision Techniques for Environmental Policy : A Critique" in Paekhlke R. and Torgerson D. (ed), *Managing Leviathan. Environmental Politics and the Administrative State* (1990), Broadview Press Ltd, Ontario, Canada, 65.

⁷⁴ Ibid. 66-69

⁷⁵ Meppem T. and Gill R., "Planning for sustainability as a learning concept" (1998) 26 (2) *Ecological Economics* 121-137, 125.

⁷⁶ Ibid. 126.

4.5 Integration.

According to Christie (1992), serious environmental problems are part of

‘socio-biophysical systems characterised by both complexity, that is many relevant factors in an unclear relationship, and a high level of interaction, which means the relationship is constantly changing’.⁷⁷

Ruhl (1999) agrees.

‘Problems are a result of complex, coevolving interactions between environmental, economic, and social forces and lasting solutions will arise only when these three domains can be harmonised over time and space.’⁷⁸

The holism required for sustainability and informed by ecology implies that environmental problems can only be resolved if the complete picture of human interactions with the environment are considered. This requires an integrated approach.

There are a number of aspects to integration in the sustainability context. Firstly, integration of environmental, social and economic information into planning and decision-making is crucial. The organisation of natural and social science into compartmentalised disciplines has led to inadequate definition of environmental problems and impedes the integration of scientific knowledge with the relevant social and economic knowledge.⁷⁹ A key shift involves the incorporation of these aspects into planning and a broader analysis of societal performance than the use of economic indicators as a proxy for societal well-being.

A second aspect is the need for integrated solutions to the complex of factors which drive unsustainable land use practices. The integration of environmental, social and economic policies and programs, so that they are harmonised and mutually reinforcing, is essential to the achievement of sustainability. Not only does this integration need to

⁷⁷ Carley M. and Christie I., *Managing Sustainable Development* (1992) Earthscan Publications Ltd, London, Britain, 151.

⁷⁸ Ruhl J. B., "Sustainable Development: A Five-Dimensional Algorithm for Environmental Law" (1999) 18 (1) *Stanford Environmental Law Journal* 31-64, 32.

⁷⁹ Carley M. and Christie I., *Managing Sustainable Development* (1992) Earthscan Publications Ltd, London, Britain, 155.

occur across levels of government but between levels of government. This is a particular challenge for Australia with its three levels of government.

The sectoral nature of economic, social and environmental programs and their administration by different departments or agencies means that often little attention is given to their interaction. For example, policies, such as fertilizer rebates, designed to support agricultural production may conflict with policies aimed at protecting water quality through the management of diffuse pollution. What flows from this is the need to build links between incentives and disincentives to strategically target change. The importance of the relationship between rules and tools is examined more closely in Chapter Five.

In this context, the integration of the sectoral natural resource management systems is also crucial. A sector-specific approach has traditionally been utilised to respond to environmental concerns and can work reasonably well until it encounters problems of a very broad and integrated nature, such as land degradation. There is a common mismatch between the nature of environmental problems and the sectoral problem-solving structures in government.

The law can facilitate integrated approaches by a number of means. For example, the *Resource Management Act 1991* (NZ) has been a unique example of legal and administrative reform to integrate natural resource management, environmental regulation and land use planning within one institutional framework.

Less radical institutional approaches involve the law to the extent of: formally requiring environmental, social and economic information to be used; consistency between plans; establishing inter-agency planning frameworks; and introducing referral and concurrence provisions in the approvals context.

Integration can occur in a number of ways. At one extreme it can be essentially voluntary based on the assumption that there is 'sufficient goodwill, trust, respect and willingness' among agencies so that policy or administrative decisions will be sufficient

to achieve integration.⁸⁰ At the other end of the spectrum, the approach involves ‘conscious intervention or coercion’ to achieve integration through specific prescription, deliberate restructuring or refinement of power.⁸¹

4.5.1 The challenge of integration to administration.

Integration is particularly challenging for administrative systems. Any attempt to set up overarching organisational structures or problem solving methods ‘will typically meet with resistance due to the existence of standard operating procedures, ‘turf battles’ and organisational rivalries’.⁸² Integrated decision-making requires a shift from that of a central controlling authority to a more decentralised interactive model, ‘a move from cognition to interaction and from closed processes to ones which are open and dialogical’.⁸³ These issues are also relevant to the design of regulation, which is discussed in Chapter Five.

Sustainable development is a challenge to specialisation within the public sector. There are two possible institutional responses i.e. development of new working practices within government in order to overcome traditional segmentation or the establishment of new institutions to foster integration.⁸⁴ In Australia both approaches have been adopted for catchment management. The SA approach has been to make institutional changes and create specific integrative bodies i.e. catchment boards. In NSW the approach until recently was to create a planning body which sat over the individual agencies and attempted to achieve coordination through policy direction. These arrangements are discussed in detail in the case studies in Chapters Seven and Eight.

⁸⁰ Hooper B. P. and McDonald G. T., "Facilitating integrated resource and environmental management: Australian and Canadian perspectives" (1999) 42 (5) *Journal of Environmental Planning and Management* 747-758.

⁸¹ Ibid.

⁸² Backstrand K., Kronsell A. and Soderholm P., "Organisational Challenges to Sustainable Development" (1996) 5 (2) *Environmental Politics* 209-230, 215.

⁸³ Torgerson D., "Limits of the Administrative Mind: The Problem of Defining Environmental Problems" in Paehlke R. and Torgerson D. (ed), *Managing Leviathan. Environmental Politics and the Administrative State* (1990), Broadview Press Ltd, Ontario, Canada, 141.

⁸⁴ OECD, *Governance for Sustainable Development. Five OECD Case Studies* (2002) OECD, Paris, France.

Constraints to integration also include the lack of incentives for intersectoral approaches when the tradition is for departments to compete for influence and limited resources.⁸⁵ These issues, have been studied by Clarke and McCool (1996). Their study of natural resource agencies in the United States found that responses to legislative direction was not uniform. Two factors i.e. expertise and political support, were critical to understanding agency response to legislative direction aimed at integration.⁸⁶ Interagency coordination and integration may be subverted by the existence of relative differences in power. Clarke and McCool (1996) found that differentials in agency power arise from two variables, which can be divided into component parts. These are:

Expertise and control of information, which is divided into:

- the nature of the mission originally given to the agency;
- the extent to which the agency embodies a highly-regarded profession;
- the degree to which the leadership of the agency can capitalise on the knowledge base of the organisation; and
- whether a sense of *esprit de corps* permeates the organisation.

Political support, which is divided into:

- the existence of an optimal size constituency on which the agency generally can count;
- the extent to which the agency's mission is linked to identifiable economic interests in society;
- whether it is a service or regulatory agency; and
- its relative position in relation to central government.⁸⁷

There is considerable concern within this literature on organisational reform. However, this type of change should be viewed cautiously. The bringing together of diverse administrative groups into one organisation will not automatically result in integrated outcomes. Professional specialisation, working practices and specific legal mandates need to be considered as well.

⁸⁵ Carley M. and Christie I., *Managing Sustainable Development* (1992) Earthscan Publications Ltd, London, Britain, 160.

⁸⁶ Clarke J. N. and McCool D. C., *Staking Out the Terrain : Power and Performance among Natural Resource Agencies* (1996) State University of New York Press, Albany, United States.

⁸⁷ Ibid. 6.

Margerum and Born (2000) argue that a rules framework avoids the tendency to focus only on structural changes (such as new organisations). Instead the concern is with the processes through which integration should occur.⁸⁸ Clearly specified arrangements are a prerequisite for developing an effective integrated approach. These arrangements should be structured around a common base of understanding, which includes:

- definition of the problems or range of issues to be addressed;
- rules that specify the entities involved and their roles;
- authority rules defining the activities in which participants can be involved (for example, information exchange, conflict resolution), how binding or permissive the integration initiatives are, and specifying the basis of authority (e.g. law, plan, administrative policy, informal agreement);
- information rules specifying the content of the information that participants must exchange, the form of the information and the timing of the exchange;
- decision rules specifying the processes by which decisions are made (e.g. general consensus or voting etc).⁸⁹

Margerum (1999) has described a typology of integration styles and their appropriateness to specific contexts:

- Coordinated Administration - an ongoing effort to bring into harmony the policies, rules and norms of participating organisations. This approach recognises that changing settings, new information, and changing political and organisational environments require the joint administration of policies and programs. However, the participants do not wish to become involved in individual decisions, only the policies that influence those individual decisions. Therefore, policies undergo a continuous joint decision-making process, but the actions stemming from the policies are carried out individually.
- Coordinated operation - an ongoing effort to jointly decide about resource use and regulation. The complexity and overlap produced by an interdependent setting requires coordination of individual decisions. Participants may be guided by higher level rules, but within those rules there is usually considerable latitude in interpretation. Therefore, this approach involves an array of organisations and users

⁸⁸ Margerum R. D. and Born S., "A co-ordination diagnostic for improving integrated environmental management" (2000) 43 (1) *Journal of Environmental Planning and Management* 5-.

⁸⁹ Ibid.

jointly deciding about the details of resource use or the application of rules and regulations.

- Cooperative administration - achieves integration primarily through independent action based on the resolution of administrative level differences. It is distinct from coordinated management in that it relies primarily on the outputs of the consensus-building process (agreement on goals, objectives and actions) rather than relying on on-going, adaptive management interaction. Cooperative administration may involve monitoring and future reassessment, but the approach assumes that the parties will carry out most of the actions independently.
- Cooperative operation - also assumes that interaction has been largely satisfied through consensus building. However this approach relies on participants to independently implement a series of actions or projects identified during the planning process. While coordinated operation involves continuous interaction over resource use decisions, the participants in cooperative operation limit themselves to a set of specified problems or issues.⁹⁰

There is no specific formula for integration, although arrangements for it will have particular characteristics. For catchment planning - which is fundamentally integrative in character - to be effectively implemented, a focus on administrative arrangements which support it, is vital. It has been argued that integration can be subverted by particular professional groups, existing 'ways of doing' and lack of incentives for its achievements. Lowe *et al* (1999) suggest that traditions of policy-making and styles of regulation differ between sectors. Agriculture has traditionally been a particularly closed policy community, embracing agriculture ministries and mainstream farming lobbies to the exclusion of other interests.⁹¹ This would suggest that there are particular challenges for effective integration in the agricultural sector.

⁹⁰ Margerum R. D., "Implementing integrated planning and management" (1999) 36 (3) *Australian Planner* 155-161, 156-157.

⁹¹ Lowe P., Ward N. and Potter C., "Attitudinal and Institutional Indicators for Sustainable Agriculture" in Brouwer F. and Crabtree B. (ed), *Environmental Indicators and Agricultural Policy* (1999), CABI Publishing, United Kingdom, 275.

4.6 Adaptive management.

The complexity of natural, social and economic systems means that there can be no certainty about the impact of policy measures. It is difficult to foresee how a policy measure may affect a complex system with numerous interactions and variables⁹². Adaptive management is a response to both complexity and uncertainty. Adaptive management is defined as applying 'the concept of experimentation to the design and implementation of natural resource and environmental policies.'⁹³ It requires the opening up of the decision-making process to continuous change, based on a continuous input of information and analysis. Adaptive management emphasises directed experimentation with policy initiatives, learning from experience and systematically adapting strategies in response to what is learned.⁹⁴ Adaptive management is an aspect of precaution and a key strategy for sustainability.

Adaptive management means a movement away from a top-down, centralised and static structure towards a bottom-up, dispersed and changing process.⁹⁵ It proposes explicit framing of management as experiment with feedback to inform further evolution of management and policy. However, there can be a real tension between structures that allow adaptation and the need for certainty by resource users.

The generic features of adaptive management, relevant to the design of planning, as described by Tiles (1996) include:

- adequate information against which to measure progress, test assumptions and so on;
- a framework to establish which policy measures can be designed and employed as hypotheses about whether specific management actions are effective;
- feedback mechanisms to enable the constant revision of management policies;
- mechanisms to sustain systematic and comprehensive learning; and

⁹² Tiles A., "Adaptive Management: Making Environmental Law and Policy more Dynamic, Experimentalist and Learning" (1996) August 1996 *Environmental and Planning Law Journal* 288-308, 290.

⁹³ Lee K., *Compass and Gyroscope: Integrating Science and Politics for the Environment* (1993) Island Press, Washington D.C., United States.

⁹⁴ Tiles A., "Adaptive Management: Making Environmental Law and Policy more Dynamic, Experimentalist and Learning" (1996) August 1996 *Environmental and Planning Law Journal* 288-308, 288.

⁹⁵ Ibid. 291.

- the creation of supple and dynamically changing management structures and processes.⁹⁶

Environmental law aimed at achieving ESD must be designed with policy adaptation and evolution in mind.⁹⁷ Traditional legal frameworks contain significant obstacles to adaptive management because of the tendency to institutionalise solutions, which are slow to respond to changed conditions. Generally they also provide standard policy responses, which may not be appropriate in specific local contexts. Regionally-based planning can provide the context for the development of location-specific policy responses. Traditional legal frameworks have difficulty dealing with uncertainty and open-ended management processes.⁹⁸

The law can facilitate adaptation and learning by establishing procedural steps for its implementation through planning. It can require the collection of baseline data, monitoring of conditions and feedback into policy review. These conditions can be time-bound through cyclical review processes. The generation of specific requirements to take relevant information into account in assessing performance is important, as is the need for criteria to assess policy experimentation.⁹⁹ Specific goals and concrete indicators are absolutely vital for adaptive management without which it is impossible to review the impact of policy measures. This is an area of considerable weakness in current approaches.

According to Carley and Christie (1992) adaptive management often requires:

- the development of an emerging consensus among all vested interests as to the real dimensions and boundaries of the problem, and a shift in professional orientation and organisational culture towards more holistic problem definition;
- a partnership approach to implementation among all the relevant agencies; and

⁹⁶ Ibid. 291-292.

⁹⁷ Ruhl J. B., "Sustainable Development: A Five-Dimensional Algorithm for Environmental Law" (1999) 18 (1) *Stanford Environmental Law Journal* 31-64, 63.

⁹⁸ Tiles A., "Adaptive Management: Making Environmental Law and Policy more Dynamic, Experimentalist and Learning" (1996) August 1996 *Environmental and Planning Law Journal* 288-308, 298.

⁹⁹ Ibid. 303.

- the development of new skills and responses as dictated by the changing nature of the problem, and the need to mediate among the differing objectives of various agencies.¹⁰⁰

Planning can be designed to facilitate adaptive approaches and to build a consensus for change. The importance of long-term goal setting is essential to overcome the uncertainties connected to the choice of specific policy instruments.¹⁰¹ Given the uncertainties about outcomes of policy choice, goals and principles can provide guidance for decision-making which can then be tailored to the specific context. Goals about the desired quality of the environment need to be precise if they are to stimulate innovation and learning.¹⁰² These goals need to be quantified within specific timeframes.

The Canadian Institute for Environmental Law and Policy proposes for example the adoption of a 'Four-Step Sustainable Development Strategy'.¹⁰³ This involves:

- identifying long-term ESD objectives (50–100 years) which ascribe priority and build broad public consensus for action;
- setting short-term goals (6–12 years), which are evaluated every 3 years, and developing rules (i.e. limits) and tools (which create incentives, provide alternative methods, direct innovation etc);
- evaluating and adjusting rules and tools as appropriate;
- testing for sustainability against a triple bottom line i.e. if goals and targets are met the strategy must be tested to assess how sustainable its results actually are.

4.6.1 The challenge of adaptive administration.

Flexible institutional arrangements and management strategies that promote continual adaptability and learning are particularly challenging to traditional administrative approaches. The focus in this approach is to

¹⁰⁰ Carley M. and Christie I., *Managing Sustainable Development* (1992) Earthscan Publications Ltd, London, Britain, 153.

¹⁰¹ Janicke M. and Jorgens H., "Strategic environmental planning and uncertainty: A cross-national comparison of green plans in industrialised countries" (2000) 28 (3) *Policy Studies Journal* 612-632, 619.

¹⁰² Ibid. 620.

¹⁰³ Clarke K., McKay J. and Mitchell A., *Sustainable Development in Canada* (2001) Canadian Institute for Environmental Law and Policy, Toronto, Canada, 38-41.

‘manipulate or apply leverage to feedback relationships to move a system in a desired direction as opposed to the management of perturbations from some preconceived optimal target or goal’.¹⁰⁴

The real issue is to acknowledge a lack of complete knowledge and embrace notions of uncertainty, so that problem-solving is interactive, generates information, enables learning and adaptation, and encourages innovation and change.

In a situation of regional planning government needs to provide a broad policy goal, set targets and enable a suite of measures to achieve those targets. They must also ensure regular measurement of progress and provide a feedback loop that allows for adjustments to the policies and measures in the light of new information.

Attributes of administrative and legal arrangements designed for adaptation and sustainability include:

- purposeful mandate – stated vision and goals;
- longevity – ability to persist, experiment, learn and adapt;
- appropriate resources – human, financial and informational;
- legal basis – in statute law, ensuring transparency and accountability, and a higher probability of persistence;
- independence – from short-term political pressure evidenced by temporary mandate or resource base;
- informed and informing – with a priority given to information generation, use and wide ownership, with an emphasis on long-term monitoring and evaluation;
- multi-functional – including research, planning and management, within an organisation or through coordination with other organisations;
- applied – operational in a region, sector or issue;
- integrative – across environmental, social and economic aspects;
- coordinated and coordination;
- inter-jurisdictional;

¹⁰⁴ Meppem T. and Gill R., "Planning for sustainability as a learning concept" (1998) 26 (2) *Ecological Economics* 121-137, 131.

- participatory – structure and process that is clear, genuine, predictable and maintained;
- comparative – ability and mandate to engage in comparative analysis across sectors, issues and methods;
- experimental – mandate and ability to experiment with approaches and methods, and to move across disciplinary and professional boundaries; and
- politically supported.¹⁰⁵

A careful design of planning law can incorporate these elements and ensure that the administrative arrangements supporting plan preparation and implementation are adaptive in their approach.

4.6.2 The challenge of measurement.

The preceding discussion makes clear that adaptive management is predicated on information, specific targets, indicators and cycles of monitoring and review. In short, it requires ‘measurement’. However, this in itself can create problems.

As Carley and Christie (1992) observe,

‘[w]ithin the traditional bureaucracy there is often little motivation to learn from past experience and even less to admit, analyse and learn from past mistakes’.¹⁰⁶

The need for program evaluation is widely accepted and the adoption of adaptive management approaches provides the rationale for regular monitoring and incremental adjustments to policy. The specification of environmental targets is necessarily provisional as they will be adjusted in light of improved scientific understanding and changing social priorities.

Indicators are important tools for achieving ESD. They are useful for communication and helpful in decision-making. However, having information is no guarantee of action.

¹⁰⁵ Dovers S., *Institutions for Sustainability* (2001) Australian Conservation Foundation, Melbourne, Australia, 14-15.

¹⁰⁶ Carley M. and Christie I., *Managing Sustainable Development* (1992) Earthscan Publications Ltd, London, Britain, 161.

Indicators perform three basic functions i.e. they describe trends; they can provide enough information to identify areas for policy response; and they can, once programs have been put in place, assist in evaluating how effective the program has been.¹⁰⁷ There are limits to the value of indicators, however, and these include that they do not provide solutions, explain trends nor reveal causal relationships.¹⁰⁸

Lowe *et al* (1999) caution against an over-reliance on quantitative indicators because as they express only what is quantifiable, they may lead to the misrepresentation of the issues and the distortion of priorities.¹⁰⁹ Importantly in the context of landscape management, the problem of time is evident, such that current trends are unlikely to be a reliable indicator of the performance of current policies.¹¹⁰ The full environmental consequences of measures taken in recent years to counter the adverse effects of contemporary agricultural practices, for example, will not become clear for a number of years because the response of the natural environment may be particularly prolonged.

Lowe *et al* (1999) have emphasised the importance of monitoring change in terms of both key environmental indicators and also attitudinal and institutional indicators.¹¹¹ The authors propose the proxy of institutional indicators to overcome the quantification problems inherent in the use of environmental indicators with long response times. Such attitudinal and institutional indicators could include, for example, measurement of farmer attitudes and education and provision of advice to primary producers on conservation and environmental protection.¹¹²

The inability of base-line environmental indicators to show change over the short-term is a limitation to their use for adaptive management. Some environmental attributes, such as faecal contamination in water, are responsive in the short-term, others which measure landscape-scale change, are not. This however should not diminish their

¹⁰⁷ Clarke K., McKay J. and Mitchell A., *Sustainable Development in Canada* (2001) Canadian Institute for Environmental Law and Policy, Toronto, Canada, 15.

¹⁰⁸ Ibid. 17.

¹⁰⁹ Lowe P., Ward N. and Potter C., "Attitudinal and Institutional Indicators for Sustainable Agriculture" in Brouwer F. and Crabtree B. (ed), *Environmental Indicators and Agricultural Policy* (1999), CABI Publishing, United Kingdom, 266-267.

¹¹⁰ Ibid. 267.

¹¹¹ Ibid.

¹¹² Ibid. 273-4.

importance for planning but rather indicate the need for proxy measures of change in the short term.

4.7 Public Participation.

Arguments for public participation are woven through almost all the elements of sustainability discussed above. Participation is now seen as integral to the development of sustainable societies. It is a fundamental component of sustainable development because it provides the opportunity for people to share in decision-making about the goals and means of development, and also to be able to take an active role in pursuing them.¹¹³ The nature of this participation is not one of simple 'consultation' but a genuine exchange of information and a role in decision-making.¹¹⁴ Participation must involve all sectors and levels of government, NGOs, the private sector and relevant communities.¹¹⁵

Public participation is one of the guiding principles in the NSESD and has become a fundamental tenet of natural resource decision-making in Australia. Often the objects clause of legislation fails to include public participation, however the Environmental Defenders Office in NSW has argued that they should.¹¹⁶ Public participation has been a key component in the land-use planning context for many years in which it generally takes the form of exhibition and comment. Only more recently has there been a shift from *ad hoc* approaches to public participation in natural resource management to formalised and institutionalised approaches. The participation of stakeholders in regional planning is becoming the norm in both NSW and SA and its form and content is detailed in the case studies in Chapter Six, Seven and Eight.

The arguments for, and expectations of, community participation are expansive. If we see sustainability as a normative concept, then the role of public participation is to

¹¹³ McLaren D., "The Constraints on Sustainability Planning in the UK" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England, 151.

¹¹⁴ Boer B., "Implementation of international sustainability at a national level" in Ginther K., Denters E. and de Waart P. (ed), *Sustainable Development and Good Governance* (1995), Marinus Nijhoff Publishers, The Netherlands, 125.

¹¹⁵ Ibid. 1125.

¹¹⁶ Stein P. and Mahony S., "Incorporating Sustainability Principles in Legislation" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No 3 Law and Policy* (1999), The Federation Press, Leichhardt, NSW, 66.

change values and expand the range of issues relevant to discourse. Broad participation is seen as a way of fostering the evolution of the values of individuals, communities and decision-makers. Structuring discussion to include a wider range of participants than just government and industry is important in changing the parameters of debate.

If knowledge is a major source of power, then discourse is part of the practical tactics and techniques of power relations.¹¹⁷ In the discourse, considerable power can be generated through funding, expert knowledge and instrumental economic argument.¹¹⁸

‘On one side discourse transmits and produces power and reinforces it. But there is a flip side: competing discourses also undermine and expose power and knowledge, render it fragile and make it possible to thwart it.’¹¹⁹

Rydin (1999) has considered the question of discourse management for the purpose of achieving sustainability. She has examined the value of control and management of discourse with a view to leveraging normative change.¹²⁰ This work draws attention to the discursive nature of environmental policy; the way that the outcomes of the policy process may be affected and how this interacts with prevailing structures of interests.¹²¹ Collaborative planning can result in new, shared understanding and commitment and help build a consensus for change. The planning task is to bring together stakeholders in a variety of arenas to manage the discourse so as to identify commonalities and overcome conflicts and barriers to action.¹²²

The need to build consensus for change arises from political uncertainty about the need for action regarding long-term problems that are still invisible to the general public (such as land degradation). Such problems cannot rely on the resource of political mobilisation, as they do not result in immediate public awareness. Consensus can be built by anticipatory efforts, which involve political and scientific actors and

¹¹⁷ Cocklin C. and Blunden G., "Sustainability, Water Resources and Regulation" (1998) 29 (1) *Geoforum* 51-68, 65.

¹¹⁸ Ibid. 65.

¹¹⁹ Ibid. 65 quoting Foucault, 1978, 101.

¹²⁰ Rydin Y., "Can We Talk Ourselves into Sustainability? The Role of Discourse in the Environmental Policy Process." (1999) 8 (4) *Environmental Values* 485-497, 472.

¹²¹ Ibid. 473.

¹²² Ibid. 475.

participation by target groups and others, in the process of policy formulation and implementation.¹²³

If normative change is to be achieved it must be reflected through reform of decision-making. This means that decision-makers must consider not only 'scientific' criteria, but also the values and needs of the relevant community, especially indigenous communities¹²⁴. Scientific criteria may themselves be elusive because of uncertainty. The explicit inclusion of non-technical values in the decision-making process can be achieved through effective public participation. The function of public participation in this context is to ensure that the broadest range of values may be included in the decision-making process. The extension of public participation in decision-making challenges the traditional hegemony of professional groups. It necessarily involves a shift of power from an explicit knowledge and technical approach to one, which more readily examines the implicit value position of the information and its relevance within a broader values-based approach.

The precautionary principle can be used to justify improved community involvement in plan making.¹²⁵ Fisher and Harding (1999) believe application of the precautionary principle requires a 'deliberative transdisciplinary problem-solving process' because, in the absence of sufficient facts, some other basis for a decision is required; the terms 'threat', 'measures' and 'scientific uncertainty' are wholly or partly socially determined; and the only way quality and reliability of knowledge can be improved is through a deliberative process.¹²⁶

Arguments for public participation, also include the idea of functional legitimization. If people feel they own decisions made, then they are more likely to want to comply with them.¹²⁷ Complex social problems require participatory processes in which people can

¹²³ Janicke M. and Jorgens H., "Strategic environmental planning and uncertainty: A cross-national comparison of green plans in industrialised countries" (2000) 28 (3) *Policy Studies Journal* 612-632, 626.

¹²⁴ Brunton N., "Environmental Regulation. The Challenge Ahead" (1999) 24 (3) *Alternative Law Journal* 137-142, 143.

¹²⁵ Banfield K. and Sperling K., "ESD in Plan Making" (Paper presented at the NSW RAPI Conference, 1999).

¹²⁶ Harding R. and Fisher E., "Introducing the precautionary principle" in Harding R. and Fisher E. (ed), *Perspectives on the Precautionary Principle* (1999), Federation Press, Sydney, Australia.

¹²⁷ Buckingham-Hatfield S. and Evans B., "Achieving sustainability through Environmental Planning" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England, 10.

solve problems with reference to relevant values and interests. This issue is taken up more fully in Chapter Five.

Public involvement is seen as an important way to integrate social and economic concerns into environmental management.

The educative role of environmental law resides in the provision of opportunities for individuals and interest groups to become involved in the process of environmental governance.¹²⁸ Participation in the process of environmental governance is important, because through such activities people define themselves as environmental citizens and become educated about the problems involved; it builds an understanding of common interests.¹²⁹ The educative value for government is also important. Administrators involved in planning which involves broad participation, have the opportunity to more fully understand the constraints to, and drivers of, change in the broader community.

Public participation can foster greater transparency in policy-making and encourage accountability through direct public scrutiny and oversight, increase trust in institutions, and improve the substantive quality of decisions.¹³⁰ Agency capture by private interests has been regarded as a key weakness of public administration of natural resources. Decisions are never exclusively technical in nature, they are political and value laden.¹³¹ Practice shows that development runs the risk of being not sustainable if the pertinent decision-making process is not transparent.¹³² One response to this is to open decision-making to the broader public and explicitly consider both technical matters and issues of value. Good governance requires that political systems are transparent, political leaders are accountable, and that access to and distribution of resources is regulated in an

¹²⁸ Wilkinson D., "Using Environmental Ethics to Create Ecological Law" in Holder J. and McGillivray D. (ed), *Locality and Identity: Environmental Issues and Law and Society* (1999), Dartmouth Publishing Co Ltd, England, 42.

¹²⁹ Ibid. 42.

¹³⁰ OECD, *Governance for Sustainable Development. Five OECD Case Studies* (2002) OECD, Paris, France, 42.

¹³¹ Paehlke R., "Democracy and Environmentalism: Opening the Door to the Administrative State" in Paehlke R. and Torgerson D. (ed), *Managing Leviathan. Environmental Politics and the Administrative State* (1990), Broadview Press Ltd, Ontario, Canada, 39.

¹³² Ginther K. and de Waart P., "Sustainable development as a matter of good governance : an introductory view" in Ginther K., Denters E. and de Waart P. (ed), *Sustainable Development and Good Governance* (1995), Martinus Nijhoff Publishers, The Netherlands, 8.

equitable manner.¹³³ The realisation of this depends on the participation of key sectors of society, including the private sector, NGOs, popular movements and community organisations.¹³⁴

A participatory process is required to enable the evolution of stakeholder perceptions and values through learning, and to shift the relationship between experts and the public. Community action has an important role to play in social change processes. It may help bypass the barriers erected by vested interests, empower stakeholders, provide a mutual learning experience, cross sectoral boundaries and, by involving all stakeholders, facilitate the implementation of decisions.¹³⁵

4.7.1 Will participation radicalise debate?

‘Bottom up participation has the potential to facilitate and catalyse radical social change but participation, seen as an institutional process, is a framework for bargaining and negotiation in which certain groups of people can become involved and, as such, may not necessarily reinforce ecological sustainability.’¹³⁶

Triandafyllidou and Fotiou (1998) used a frame theory method to analyse discourse in two case studies of environmental policy-making aimed at sustainability. Their study shows how policy actors seek to legitimise their positions by appealing to generally accepted norms and principles and by adapting pre-existing frames to their own view. The authors argue that the institutional framework for participation and the adoption of specific discursive strategies, such as the ‘scientification’ of debate, can influence the capacity of particular groups to participate in debate.¹³⁷ They describe the sustainability policy process as one characterised by rhetoric, persuasion and negotiation, such that participants are constrained to adopt ‘realistic’ viewpoints if they want to stay at the

¹³³ Ginther K., "Sustainable development and good governance: development and evolution of constitutional orders" in Ibid. 157.

¹³⁴ Ibid. 157.

¹³⁵ Diesendorf M., "Models of Sustainability and Sustainable Development" (Paper presented at the Beyond growth: policies and institutions for sustainability. 5th Biennial conference of International Society for Ecological Economics., Santiago, Chile, 1998) 1-15, 11.

¹³⁶ Rydin Y., "Can We Talk Ourselves into Sustainability? The Role of Discourse in the Environmental Policy Process." (1999) 8 (4) *Environmental Values* 485-497, 477.

¹³⁷ Triandafyllidou A. and Fotiou A., "Sustainability and Modernity in the European Union: A Frame Theory Approach to Policy-Making" (1998) 3 (1) *Sociological Research Online* para 6.3-6.4.

discussion table.¹³⁸ They conclude that the institutional framework for policy making militates against a radical reassessment of current arrangements and will not result in a challenge to the dominant processes of capitalism and modernity.¹³⁹

4.7.2 Making it work

Cocklin and Blunden (1998) argue that the creation of a right for particular interests to be considered in decision-making doesn't guarantee their effective representation. They argue for example, that differential access to economic power, information and knowledge can inhibit meaningful participation.¹⁴⁰ Further, some types of knowledge, such as expert knowledge, are more readily recognisable by the legal system than others, for example, Indigenous knowledge.¹⁴¹

Participation is mainly concerned with involving, informing, and consulting the public in planning, management and other decision-making activities.¹⁴² A precondition of effective participation is the availability of adequate information.¹⁴³ However, illiteracy or low functional literacy, inadequate administrative arrangements and poor resourcing can be significant obstacles to effective participation.¹⁴⁴

The model of public participation generally embraced in the land-use planning context has been criticised because it involves an essentially one-way exchange.¹⁴⁵ Simply making provision for public participation does not ensure its effectiveness or representativeness. Indeed the mode of participation may privilege particular groups (the literate vs the illiterate) or particular types of information (technical vs customary). Conventional ways of public participation will need to be recast in order to embrace the concept of sustainability and elicit the participation of a wide range of people and

¹³⁸ Ibid. para. 6.6.

¹³⁹ Ibid. para. 6.6.

¹⁴⁰ Cocklin C. and Blunden G., "Sustainability, Water Resources and Regulation" (1998) 29 (1) *Geoforum* 51-68, 64.

¹⁴¹ Ibid. 64.

¹⁴² Tolentino A. S., "Good governance through popular participation in sustainable development" in Ginther K., Denters E. and de Waart P. (ed), *Sustainable Development and Good Governance* (1995), Martinus Nijhoff Publishers, The Netherlands, 141.

¹⁴³ Ibid. 141.

¹⁴⁴ Ibid. 143.

¹⁴⁵ Commonly in the land use planning context participation is limited to public comment on particular proposals or plans. This leaves little scope for the public to influence the parameters of debate.

groups. A key issue relates to the extent to which an overly formal approach stifles meaningful dialogue between community and agencies.¹⁴⁶

Cocklin and Blunden (1998) have considered the operation of the *Resource Management Act 1991* (NZ), which is explicitly concerned with the 'sustainable management' of natural resources. They find that the highly contestable nature of the concept means that it is subject to intense scrutiny in local decision-making processes.¹⁴⁷ The endless debate between priority to the environment and trade off with social and economic priorities may in fact be more intense in these fora.¹⁴⁸ It demonstrates further, that in these settings, the proximity of issues may in fact favour economic and social concerns over environmental and indigenous interests.¹⁴⁹ Clearly there are caveats on local decision-making. According to Wilkinson (1999),

'[P]opular support, especially local support, for policies that are environmentally destructive but which provide tangible short-term benefits is to be expected in a world of self-interested individuals'.¹⁵⁰

This suggests that local decision-making needs to be conditioned with clear direction on the nature of the environmental parameters and inter-generational and intra-generational concerns.

The law has considerable experience, in a number of areas, with the creation of rights and procedures for public participation. Key tools to facilitate participation include freedom of information, transparency of decision-making procedures, accountability of decision-makers, an enforceable regulatory framework¹⁵¹, rights of objection, judicial review of decisions and public enforcement processes.

¹⁴⁶ Paehlke R., "Democracy and Environmentalism: Opening the Door to the Administrative State" in Paehlke R. and Torgerson D. (ed), *Managing Leviathan. Environmental Politics and the Administrative State* (1990), Broadview Press Ltd, Ontario, Canada, 41.

¹⁴⁷ Cocklin C. and Blunden G., "Sustainability, Water Resources and Regulation" (1998) 29 (1) *Geoforum* 51-68, 52.

¹⁴⁸ Ibid. 52.

¹⁴⁹ Ibid. 54-57.

¹⁵⁰ Wilkinson D., "Using Environmental Ethics to Create Ecological Law" in Holder J. and McGillivray D. (ed), *Locality and Identity: Environmental Issues and Law and Society* (1999), Dartmouth Publishing Co Ltd, England, 41.

¹⁵¹ McLaren D., "The Constraints on Sustainability Planning in the UK" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England, 152.

According to Gardner (1994), three separate elements of effective public participation can be identified: full public disclosure of information concerning the environment and proposals for activities with an environmental impact; specific and effective rights of public participation in planning and management decision-making and a duty on decision-makers to take public submissions into account in making their decisions; and finally effective procedures for administration and judicial review, with rights to seek redress for breaches of public participation rights.¹⁵²

If information is available in an accessible form, reasons for decisions are clear, and where there are mechanisms for redress, the public will be empowered to participate in the process of development.¹⁵³

The arguments for participation are pervasive and compelling. Given the expectations of, and proposed reliance upon, participation in environmental planning, careful consideration of its form should be undertaken. There is an extensive literature on this subject, which is unfortunately beyond the scope of this research. However, some attention in the case studies has been given to the form of participation and the nature of representation. The most critical question relates to the broad representation of interests, which must include both urban and rural beneficiaries of resources, consumptive and non-consumptive users, Indigenous interests and as yet unborn generations. Key questions of concern include: should an interest-based approach be adopted, then whose interests will be represented? Are the representatives representative of those interests broadly? Should they be required to consult with their constituency? If an 'expertise-based' approach to participation is adopted – how expert should the experts be? What expertise should be represented? Is it really participation? More broadly, how does this approach conform to general democratic principles? What relationship should exist between groups established to plan, and existing democratic structures, such as local government?

¹⁵² Gardner A., "Developing Norms of Land Management in Australia" (1994) 1 (1) *Australasian Journal of Natural Resources Law* 132-149.

¹⁵³ McLaren D., "The Constraints on Sustainability Planning in the UK" in Buckinham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England, 152.

4.8 Conclusion

This chapter has attempted to define the elements of sustainability and describe the function and role of law in establishing processes to institutionalise the concept and the challenge this poses to public administration. The elements include a priority to the environment, equity between and within generations, precaution, integration, adaptive management and public participation. The law can play an important role in institutionalising processes through environmental planning which contribute to the reform of decision-making required for sustainability. Law can also play an important role in defining the priority of action and ensuring the persistence of initiatives.

It has been argued that a sustainable approach to natural resource management would be precautionary, adaptive and integrated. It would be concerned with longer time frames and be experimental but persistent. It would be based on good information, recognise gaps and uncertainty, explicitly acknowledge values and engage the community in decision-making. It would be proactive, visionary and evolutionary, build a consensus for change and measure progress against goals and targets. It would build on ideas of partnership between government and the community but recognise the importance of government in representing the broad public interest (intra- and inter-generational concerns) and steering change.

The importance of administrative arrangements to the development of sustainability has been emphasised. Virtually every discussion of sustainability concludes that existing institutional arrangements are part of the problem and that significant reform is required.¹⁵⁴ An OECD survey of five countries¹⁵⁵ found that existing institutions may not be well suited to address new challenges with a high level of complexity that require longer-term and sustained commitments.¹⁵⁶ It found three common sets of issues: the challenge of policy integration, the need to improve interactions between government and society, and the need to create a longer-term view in government for dealing with

¹⁵⁴ Dovers S., *Institutions for Sustainability* (2001) Australian Conservation Foundation, Melbourne, Australia, 7.

¹⁵⁵ Canada, Germany, Japan, Netherlands and the United Kingdom.

¹⁵⁶ OECD, *Governance for Sustainable Development. Five OECD Case Studies* (2002) OECD, Paris, France.

the inter-generational challenges of sustainable development.¹⁵⁷ Administrative reform would concentrate on building transparency and accountability, enhancing tools for implementation and building integrated decision-making and coordinated delivery. It would involve a shift from narrow portfolio, reductionist approaches to policy development and analysis to engage a broader range of information and values. It would be interactive and dynamic.

The shift towards sustainability is dependent on both individual and institutional change. It involves the purposive redesign of policies, institutions and structures.¹⁵⁸ Pre-sustainable development organisational practices i.e. hierarchisation and sectorisation are the central obstacles to the decentralised and integrative approach which sustainability encourages. There is a fundamental dichotomy between these approaches. On the one hand there is the supposition that higher levels of organisation have more knowledge. This, contrasts with, on the other hand, the people-centred bottom-up approach advocated for sustainable development. Coordination, cooperation, equity and democratic involvement are essential features of policies for sustainable development.¹⁵⁹

In summary then, the vision from planning that emerges from this review is:

- Statutory priority to the environment through the objects clause.
- Substantive provisions, which direct decision-makers to make a prior determination of environmental needs based on the idea that renewable resources should be used at their rate of renewal i.e. inter-generational interests; consider the benefits and costs of resource use both for direct uses and for non-consumptive uses such as ecosystem services and spiritual and cultural values.
- A hierarchy of plans. Three parameters should be prescribed time, scale, scope. At the highest level the plan would provide a vision for the future for the nation and describe in a holistic sense the environmental condition in 50 years. At the second level the plan would describe the environmental, social and economic

¹⁵⁷ Ibid. 11.

¹⁵⁸ Lowe P., Ward N. and Potter C., "Attitudinal and Institutional Indicators for Sustainable Agriculture" in Brouwer F. and Crabtree B. (ed), *Environmental Indicators and Agricultural Policy* (1999), CABI Publishing, United Kingdom, 267.

¹⁵⁹ Gibbs D., "Integrating Sustainable Development and Economic Restructuring: a Role for Regulation Theory" (1996) 27 (1) *Geoforum* 1-10, 7.

parameters for decision-making in the medium term (say 10 years) at the level of the State. It would contain specific goals and indicators of change. At the third level (catchment) the plan would detail the goals and objectives for short-term management. Plans would move from the holistic to the specific.

- Plan content would be specified and require the collection of a full range of baseline data. The data would be the best available, subject to peer review and indicate the level of certainty about the information.
- Plans would use environmental, social and economic information for decision-making and review. They would build relationships between sectoral plans and specify relationships. They would use both rules and tools i.e. provide both incentives for compliance and disincentives for non-compliance. They would ensure that there was consistency between environmental, social and economic programs.
- Plans would be adaptive with policy designed as experiment. They would include the policy objectives, management tools, indicators of performance, provide for monitoring and review and require policy adjustment in light of new information. Indicators would be both baseline environmental indicators and proxy indicators of change where appropriate.
- Public participation would be a key element at all stages of planning and implementation of plans. Participation would involve a broad range of interests – consumptive and non-consumptive users of a resource, local and State interests, Indigenous interests, environmental interests and unborn generations. Participation would be expansive and dynamic. Legislation would require full disclosure of information, transparent administration, an enforceable regulatory framework, third-party rights for enforcement and provide for judicial review.
- Decision-makers would be directed to implement plans and would be provided with appropriate resources to do so. There would be public accountability for the performance of a plan.

In Chapter Six the legal and administrative arrangements for catchment and water planning in NSW and SA are described and analysed using the framework established in this Chapter. In the next Chapter the literature on regulation has been reviewed in order to examine critical questions about the design and implementation of command

regulation. It will be shown that there are considerable synergies between the prescriptions of sustainability and the requirements for effectively designed regulatory regimes.

Part Three

Chapter Five - Regulation

5.1 Introduction.

The effective regulation of agriculture has been problematic for governments across the world. The scope of the environmental challenge and the complex social and economic context in which the management of agriculture must take place has been described in Chapter Two of this thesis. The complex and often diffuse nature of the environmental impacts of agriculture has meant that simple, one instrument approaches are often ineffective. The very nature of the agricultural sector, its distribution and diversity has meant that ‘one size fits all’ solutions have not been readily available. The historical role of government as facilitator, infrastructure provider and regulator has resulted in a complex and often confusing policy response. Lack of coordination, duplication and regulatory gaps, have been identified as key issues for government. These factors have been described in Chapter Two. In addition, the new imperative of sustainability calls for systems of governance to shift from the ‘grand narrative of progress’ to one of management of activities within the constraints of natural systems. The objective is changed from one based on economic development to a conceptualisation of society which measures performance in environmental, social and economic terms. These issues have been discussed in Chapters Three and Four.

The concern of this chapter is with regulation. Governments possess a number of basic capacities or resources and particular regulatory strategies build on these. Such resources are:

- to command — where legal authority and the command of law is used to pursue policy objectives;
- to deploy wealth — where contracts, grants, loans, economic subsidies, or other incentives are used to influence conduct;
- to harness markets — where governments channel competitive forces to particular ends;
- to inform — where information is deployed strategically;

- to act directly — where the State takes physical action itself; and
- to confer protected rights — where liability rules are structured to create desired incentives and constraints.¹

The range of interventions in the agricultural sector include, for example, traditional command regulation, the provision of tax incentives and tax relief, economic subsidies, the creation and control of markets, the provision of information, extension and advice and direct investment through the provision of infrastructure. These have been described in Chapter Two of this thesis.

The most common form of regulation in the agricultural sector is command regulation. The efficacy of this approach has been widely questioned. In spite of the shortcomings of command regulation, there has been a trend towards greater reliance on it over recent years, for example, in threatened species legislation and that relating to native vegetation. Passing legislation is cheap but in the absence of allocation of appropriate resources to fund implementation and other factors its effectiveness in achieving environmental goals can be limited. There continues to be very limited commitment to enforcement² and continued resistance from the regulated community.³

In the first part of this Chapter I will consider a range of alternative approaches. Economic instruments are increasingly seen as providing an alternative to command regulation. In addition to these a range of other regulatory strategies has been developed in the agricultural sector. They include variations on the theme of self-regulation, partnership approaches, environmental management systems and individual agreements.

I will argue that these forms of regulation, while showing promise, have only limited and specific application in the agricultural sector and are constrained by the nature of

¹ Baldwin R., "Regulation: After 'Command and Control'" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, New York, United States, 65.

² Woodford J., "When you can't see the forest", *Sydney Morning Herald* (Sydney, Australia), 29 August 2000, 11. Woodford reported in August 2000 that at the time of writing over 400 alleged breaches of the *Native Vegetation Conservation Act 1997* (NSW) had been reported to the Department of Land and Water Conservation, but not one prosecution had proceeded.

³ Halpin D. and Martin P., "Farmer Representation in Australia : Avenues for changing the Political Environment" (1999) 58 (2) *Australian Journal of Public Administration* 33-46.

the industry itself and the lack of appropriate regional targets for the strategic application of regulatory effort and resources. It will be shown that command regulation is an important underpinning to these other approaches. Despite the efficacy of the individual approaches to the regulation of agriculture, there are important public interest arguments for governments, to maintain control over the management of aspects natural resources.

Given the argument that command regulation is and will continue to be a mainstay, a closer examination of its strengths and weaknesses is warranted. This is undertaken in the second part of this chapter by way of a review of the literature on regulatory research. This review is along three themes i.e. the nature of rules, enforcement and compliance, and the normative aspects of law. It will be argued that command regulation can be more creatively designed to improve its effectiveness in practice, that problems attendant on enforcement arise for a number of reasons not the least of which is the moral ambiguity that pervades its application, and finally that there is evidence that command regulation can have an important normative influence. Much however depends on the context in which regulations are developed.

To this end, the final part of this chapter reviews the literature on regulatory theory with a focus on regulatory design. This is a fascinating area and one which provides both a context for examining current developments in natural resources planning and also for theorising about its potential. Insights are drawn from a selection of literature, including Fiorino (1997), Cohen (1997), Fiorino (1999), Paterson and Teubner (1998) and Gaines and Kimber (2001),⁴ all of which are concerned with describing legal processes and alternative approaches to regulatory (re)design. Despite the diversity within this literature, common themes emerge, including: recognition of the importance of third parties in design and implementation; the range of social factors which impinge on the operation of traditional legal processes; the importance of extra-legal processes to reform and implementation; the need for flexibility; the need to build consensus for

⁴ Fiorino D. J., "Strategies for Regulatory Reform: Forward Compared to Backward Mapping" (1997) 25 (2) *Policy Studies Journal* 249-265., Cohen S., "Employing Strategic Planning in Environmental Regulation" in Kamieniecki S., Gonzalez G. and Vos R. O. (ed), *Flashpoints in environmental policymaking: controversies in achieving sustainability* (1997), State University of New York Press, Albany, United States. Fiorino D. J., "Rethinking Environmental Regulation: Perspectives on Law and Governance" (1999) 23 *Harvard Environmental Law Review* 441-469. Paterson J. and Teubner G., "Changing Maps: Empirical Legal Autopoiesis" (1998) 7 (4) *Social and Legal Studies* 451-486. Gaines S. and Kimber C., "Redirecting Self-Regulation" (2001) 13 (2) *Journal of Environmental Law*

change; and the recognition of the inherent complexity of modern society. I will argue that the context, and the manner, in which rules are developed has significant potential to improve the quality of regulation and its enforceability.

5.2 The diversity of regulatory interventions in the agricultural sector

5.2.1 Introduction

There are a number of approaches to the management of the environmental impacts of agricultural activity other than command regulation. Some, such as market mechanisms, eschew command regulation and attempt to mobilise economic forces to manage the negative externalities of activity. Others have been designed with the explicit intention of modifying the perceived weakness of command regulation, for example, self-regulatory regimes where the rules are developed by the industry itself on the basis that governments lack appropriate knowledge. In effect they represent a suite of alternatives and will be considered briefly. It is not the intention to provide an exhaustive review of the strengths and weaknesses of the alternative approaches. Rather the critique demonstrates that each approach has particular strength in a particular set of circumstances, but these circumstances are not generic to all of agriculture. Each has a place or a niche and relies to a greater or lesser extent on being underpinned by a robust regulatory system.

5.2.2 Economic instruments.

Economic instruments include user charges and levies, taxes, subsidies (including tax expenditure) and market mechanisms such as emissions charges, subsidies for abatement, and tradeable permits. The creation of property rights and the use of market mechanisms are becoming an increasingly important approach to the management of natural resources in Australia, particularly in relation to fresh water.

The essence of the market approach to pollution control for example, is to force firms to bear a cost tied to their emissions while allowing managers to make independent

decisions regarding control.⁵ The common elements of market-type instruments are devolution of decision-making power to firms emitting pollutants and monetary payments based on their behaviour.⁶ These approaches are advocated on the basis of efficiency, reduced administrative effort and that they can be managed by private enterprise through the existing infrastructure of the market-place.⁷ This targets two identified weaknesses with command regulation, i.e. costs of implementation and lack of incentives for technical innovation. With market mechanisms, for example the burden for information processing lies with the regulated.⁸ In a situation where there are multiple emitters, the establishment of a regulatory regime that would take advantage of the market's ability to process information efficiently would become itself a highly information-intensive undertaking.⁹

A number of experiments with market mechanisms have taken place across the OECD.¹⁰ In reality, in the pollution control context they have often been introduced to supplement command regulation.¹¹ This is because 'markets can only react, they are poor coordinators, especially where public goods are concerned, they do not conserve, detect or plan for shortages and they assume that all resources are substitutable'.¹² Market-based approaches to environmental regulation are limited to the extent that short-term economic considerations outweigh longer-term environmental protection.¹³ Market mechanisms can be helpful up to the point where there is a coincidence between self-interest and environmental improvements.¹⁴ However, market-based approaches, both in terms of objectives and methods may often be inconsistent with the goal of

⁵ Lotspeich R., "Comparative Environmental Policy: Market-type Instruments in Industrialised Capitalist Countries" (1998) 26 (1) *Policy Studies Journal* 85-104, 87 and Eckersley R., "Markets, the State and the Environment: An Overview" in Eckersley R. (ed), *Markets, the State and the Environment: Towards Integration* (1995), Macmillan Education Australia, Melbourne, Australia, 21.

⁶ Lotspeich R., "Comparative Environmental Policy: Market-type Instruments in Industrialised Capitalist Countries" (1998) 26 (1) *Policy Studies Journal* 85-104, 86.

⁷ Gumley W., "The role of economic instruments in promoting sustainable land use." (2001) 7 (2) *The Australasian Journal of Natural Resources Law and Policy* 137-167, 141.

⁸ Lotspeich R., "Comparative Environmental Policy: Market-type Instruments in Industrialised Capitalist Countries" (1998) 26 (1) *Policy Studies Journal* 85-104, 88.

⁹ Ibid. 87.

¹⁰ See generally Ibid.

¹¹ Ibid. 99.

¹² Crowley K. and Walker K. J., "Introduction" in Walker K. J. and Crowley K. (ed), *Australian Environmental Policy 2. Studies in Decline and Devolution* (1999), University of New South Wales Press, Sydney, Australia, 14-15.

¹³ Gunningham N. and Sinclair D., "Designing Smart Regulation" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 322.

¹⁴ Ibid. 323.

ESD¹⁵. The key risk is leaving the determination of social and environmental objectives to the market.

Gumley (2002), following a review of the application of economic instruments to land use problems in Australia (particularly salinity), found that:

‘when the full dimensions of the salinity problem are taken into account, it must be recognised that economic instruments directed at individual landholders are unlikely to provide sufficient momentum to bring about the industry wide changes that are needed’.¹⁶

In addition they may actually be no better in dealing with a range of environmental problems than command regulation. A recent report by ABARE (2001) considered the viability of effluent taxes, product taxes, subsidies and tradeable emission permits to the management of diffuse-source nutrient runoff.¹⁷ The Report concluded that the application of these tools to diffuse pollution is limited by: the difficulty in identifying the source and quantity of discharge at the individual farm level; the cost of monitoring due to the spatial distribution of farms; the complex nature of the relationship between fertiliser use and harm; and finally the relative bluntness of the instruments in being incapable of distinguishing between enterprises with good/bad management approaches.¹⁸

One of the paradoxes of the debate on regulation is that so called ‘deregulation’ does not mean the end of regulation. Rather, according to Majone (1994), it is only a first step towards re-regulation, that is, regulation by other means, for example, economic incentives instead of administrative rules.¹⁹ Ironically, a shift from administrative control to market mechanisms may actually result in more law. It is generally the case

¹⁵ Kinrade P., "Towards Ecologically Sustainable Development: The Role and Shortcomings of Markets" in Eckersley R. (ed), *Markets, the State and the Environment: Towards Integration* (1995), Macmillan Education, Melbourne, Australia, 105.

¹⁶ Gumley W., "The role of economic instruments in promoting sustainable land use." (2001) 7 (2) *The Australasian Journal of Natural Resources Law and Policy* 137-167, 166.

¹⁷ ABARE, *Alternative policy approaches to natural resource management* (2001) Australian Bureau of Agricultural and Resource Economics, Canberra, Australia, 55-57.

¹⁸ Ibid. 55.

¹⁹ Majone G., "The Rise of the Regulatory State in Europe" in Baldwin R., Scott C. and Hood S. (ed), *A Reader on Regulation* (1998), Oxford University Press, Great Britain, 212.

that economic instruments have to be supported by regulatory monitoring and enforcement mechanisms.²⁰

5.2.3 Self-regulation

There has been considerable interest in the development of self-regulation particularly in the context of large industrial enterprises. Completely self-regulatory approaches, i.e. a legal regime in which the rules which govern behaviour in the market are developed, administered, and enforced by the people (or by their direct representatives) whose behaviour is to be governed,²¹ are in fact rare. The terminology used in the literature can be confusing, since a spectrum of initiatives (including voluntary and negotiated agreements, partnerships and environmental management systems) are often collected under the heading of self-regulation,²² but do not conform with the above definition. The Productivity Commission (2001) uses the term quasi-regulation, loosely defined as:

‘the range of rules, instruments and standards where government influences businesses to comply, but which does not form part of explicit government regulations. Quasi-regulation can take many forms such as codes of practice, advisory notes, guidelines, and rules of conduct, issued by either non-government or government bodies.’²³

Within the spectrum of self-regulatory approaches the role of government varies considerably. Holmes (1997) describes their scope in the following terms:

- private self-regulatory initiatives developed by industry associations, with the main benefit to industry being the reduction of the likelihood of government initiated regulation;
- government initiated voluntary schemes where the main benefits to industry are recognition when performance meets or exceeds set and quantified targets; and

²⁰ Reeve I., Doyle B., D Brunckhorst D. and Marshall G., *Independent Advice on the Link Between Sustainable Farming Practices, Farm Profitability and River Health* (2002) NSW Healthy Rivers Commission, Sydney, Australia, 36.

²¹ Gaines S. and Kimber C., "Redirecting Self-Regulation" (2001) 13 (2) *Journal of Environmental Law*

²² For example, Ogun 1998, at 377-378 uses the term ‘consensual self regulation’ in which governments continue to play a role in standard setting and goal specification, but organisations develop the specific rules of compliance.

²³ Interdepartmental Committee on Quasi-Regulation, *Grey-Letter Law* (2001) Productivity Commission, Canberra, Australia, 7.

- government initiated schemes where enforcement and other benefits are given to industry participants with a good environmental record.²⁴

Self-regulatory approaches are advocated on the following grounds:

- self-regulatory agencies can normally command a greater degree of expertise and technical knowledge of practices and innovative possibilities than external agencies and, as a result, monitoring and enforcement costs are reduced;
- rules are less formalised and savings can be made in compliance with general requirements;
- administrative costs are borne by the industry rather than the tax payer; and
- it produces a greater sense of ownership on the part of industry which will result in improved environmental outcomes.²⁵

There are a number of concerns about self-regulation.

- There is a lack of accountability to the broader democratic process;
- Unless the association or profession has a democratic basis, rules particularly those affecting third parties, may lack legitimacy;
- If the self-regulatory agency's functions include policy formulation, interpretation of the rules, adjudication and enforcement (including the impositions of sanctions) in addition to rule making, there is a fundamental breach of the separation of powers doctrine;
- There is a poor record of enforcing standards against recalcitrant members;
- It is unsuitable for the 'ill informed, ill-intentioned and ill-organised employer'.²⁶

Gaines and Kimber (2001) see the current application of self-regulation to pollution from large industrial enterprises as flawed on three accounts: the inability of these organisations to shift their focus from profit making and engage in objectively valid

²⁴ Holmes S., *Some Lessons from the use of Environmental Quasi-Regulation in North America* (1997) Office of Regulation Review, Industry Commission, Canberra, Australia, 2.

²⁵ Ogus A., "Rethinking Self-Regulation" in Baldwin R., Scott C. and Hood S. (ed), *A Reader on Regulation* (1998), Oxford University Press, Great Britain, 375, Gunningham N. and Sinclair D., "Environmental Regulation and Cleaner Production Partnerships with Small and Medium Enterprises: a Case Study" (2001) 18 (4) *Environmental and Planning Law Journal* 369-380, 376.

²⁶ Ogus A., "Rethinking Self-Regulation" in Baldwin R., Scott C. and Hood S. (ed), *A Reader on Regulation* (1998), Oxford University Press, Great Britain, 376.

self-examination and social learning; the exclusion of the public from setting environmental goals; and the lack of external accountability for performance (i.e. monitoring, assessment and enforcement).²⁷

Factors supportive of effective self-regulation have been identified as: strong common interest (i.e. 'disaster involving one enterprise would tarnish the reputation ... of the entire industry'); unity and cohesion amongst members; a high level of industry integration; a strong industry association; and active community and environmental critics who act as 'watchdogs'.²⁸ Gunningham and Sinclair (1998) see some potential for self-regulatory approaches in the agricultural context, for example control of chemicals when there is a 'community of shared fate'.²⁹ The export cattle industry, for example, has introduced a quality assurance program to manage chemical residues in beef.³⁰ The program was activated by industry concern that beef exports would be threatened if chemical residues were found in beef which provided sufficient motivation for it to respond at a collective level to control the threat to the industry. In this case there were clear economic incentives for producers. Even in sectors where these preconditions exist (such as mining) it would appear that larger firms with 'strong internal governance systems' have embraced voluntary self-regulation schemes more effectively than smaller firms.³¹ The agricultural sector is characterised by a large number of small producers and a small number of large producers. It has been shown in other contexts that the compliance rate of smaller firms with occupational health and safety and environmental regulation is poorer than larger firms.³² Thus it is difficult to conclude that much of the agricultural sector will have the management expertise to effectively self-regulate.

²⁷ Gaines S. and Kimber C., "Redirecting Self-Regulation" (2001) 13 (2) *Journal of Environmental Law*.

²⁸ Holmes S., *Some Lessons from the use of Environmental Quasi-Regulation in North America* (1997) Office of Regulation Review, Industry Commission, Canberra, Australia, 3-4.

²⁹ Grabosky P. and Gunningham N., "The Agriculture Industry" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation* (1998), Clarendon Press, Oxford, Great Britain, 308.

³⁰ Ibid. 308.

³¹ Brereton D., "Self-regulation of environmental and social performance in the Australian mining industry" (2003) 20 (4) *Environmental and Planning Law Journal* 261-274, 273-74.

³² Gibbs D., "Integrating Sustainable Development and Economic Restructuring: a Role for Regulation Theory" (1996) 27 (1) *Geoforum* 1-10, 4.

Partnerships.

Gunningham and Sinclair (2001) have considered the role of partnerships as a means of overcoming the limitations of conventional regulatory strategies.³³ They examine the case of a 'cleaner production' partnership between the Victorian Vegetable Growers Association (VVGA) and the Victorian Environment Planning Authority (EPA).³⁴ The key driver for industry participation in the initiative was community pressure. However, concern about the imposition of regulation was also important.³⁵ The outcome of the partnership was the creation of voluntary environmental guidelines for industry.

The authors argue that the approach has an important educative role, can be reinforced by positive publicity and could be used to mobilise supply chain pressure instead of traditional enforcement approaches.³⁶ Key questions relate to adoption of best practice environmental guidelines by those other than 'industry leaders'³⁷ and whether broader adoption to improve performance of the sector as a whole is achievable without other implementation initiatives/imperatives. There is a risk of such strategies becoming a public relations exercise.

Gunningham (2003) has considered the potential for agricultural industry-government agreements and concludes that 'there is considerable potential to develop such partnerships, but only if they are carefully designed and only in a limited range of circumstances'.³⁸ Following a review of the European evidence on voluntary agreements, four factors crucial to their success were identified:

- the degree of mutual respect and trust between authorities and the target group;
- whether alternative policies, such as command regulation, are available;

³³ Gunningham N. and Sinclair D., "Environmental Regulation and Cleaner Production Partnerships with Small and Medium Enterprises: a Case Study" (2001) 18 (4) *Environmental and Planning Law Journal* 369-380, 369.

³⁴ The partnership involved a monetary contribution from the EPA to the VVGA to develop and implement an environment improvement plan. The aim of the plan was to better understand the real impacts of market gardens on the environment, to provide a venue for growers to demonstrate good environmental performance, to reduce compliance cost, and to satisfy regulators and the community that the vegetable industry is environmentally aware and responsible. Ibid. 371.

³⁵ Ibid. 373.

³⁶ Ibid. 376-377.

³⁷ Ibid. 378.

³⁸ Gunningham N., "Voluntary and Negotiated Agreements in Agriculture: Towards a partnership Approach to Resource Management" (2003) 8 (1) *Australasian Journal of Natural Resources Law and Policy*, 25.

- the ‘accessibility’ of the target group, based on factors such as its homogeneity, its size, the existence of a strong and credible body able to negotiate on behalf of the group; and
- the existence of a competitive advantage in the target group (i.e. market advantages for ‘clean and green produce’).³⁹

In a report on Environmental Partnerships prepared for the Rural Industries Research & Development Corporation, Gunningham and Sinclair (2002) conclude that:

- they are often best used when an environmental problem is in its early stages and it is premature to regulate directly;
- they can play a useful role in lubricating the regulatory mix;
- they seem to generate positive ‘soft effects’ such as collective learning, generation and diffusion of information, increased participation and consensus building; and
- their weaknesses can often be compensated for, and their strengths enhanced, by combining them with most, but not all, forms of command and control regulation.⁴⁰

Environmental Management Systems (EMS).

There is considerable interest in the development and use of environmental management systems (‘EMS’) for agriculture in Australia. An EMS has been defined as ‘a methodical approach to continuous improvement in planning, implementation and review of an organisation’s efforts to manage its impact on the environment.’⁴¹ However they

‘do not specify the level of performance, quality or reliability of the organisation’s impact on the environment. These attributes are provided by Performance Standards which are accepted specifications or codes of practice which define materials, methods, processes and practices

³⁹ Ibid.

⁴⁰ Gunningham N. and Sinclair D., *Environmental Partnerships. Combining sustainability and commercial advantage in the agriculture sector*. (2003) Rural Industries Research & Development Corporation, Canberra, Australia. Executive Summary, 5.

⁴¹ The State of Victoria Department of Natural Resources and Environment, *Biodiversity and Environmental Management Systems for Victorian Agriculture* (2001) <http://www.nre.vic.gov.au/4A25676...A4E14AF70005B531?OpenDocument> (accessed 5 March).

that, when effectively implemented, ensure that consistent and acceptable levels of quality, performance, safety and reliability are achieved⁴².

The focus of EMS is on procedures not on demonstrated improvements in environmental performance.

The Ecovine Project (2002) (the Report), a review of a joint undertaking by Southcorp (Australia's largest wine-producer), the Australian Conservation Foundation and Land and Water Australia (a Commonwealth research and development organisation), examined the potential for the use of EMS.⁴³ The Report concluded that EMS is not a substitute for regulation which plays a key role in signalling to commercial operators what is expected in terms of societal responsibilities.⁴⁴ EMS, however, can play a useful accompanying role in reporting on how these are being met and in addressing a range of factors that are beyond compliance.⁴⁵ According to the Report, a critical issue with agriculture remains the specification of minimum standards for agriculture.⁴⁶ With respect to the role of EMS in landscape repair, the Report found that regional targets were still too underdeveloped to provide sufficient guidance on requirements at the individual farm level.⁴⁷ Similarly, the Productivity Commission (2002) considers that the effectiveness of EMS depends not just on good design, but also good implementation, monitoring and review.⁴⁸

The emphasis in the literature on agricultural EMS is on voluntarism and the EMS Working Group specifically states that it should not have any element of compulsion.⁴⁹ Further, the Report found that it is not desirable to use EMS as a legislative or regulatory requirement, a mandatory condition of land use or a condition of material use (such as farm chemicals), nor to audit farm EMS, provide personnel to audit EMS, or

⁴² Ibid.

⁴³ Griffin/Alexandra & Assoc, *The Ecovine Project. From Agricultural Environmental Management Systems to Regional Outcomes*. (2002) Land and Water Australia, Southcorp & Australian Conservation Foundation.

⁴⁴ Ibid. 11.

⁴⁵ Ibid. 11.

⁴⁶ Ibid. 12.

⁴⁷ Ibid. 17.

⁴⁸ Productivity Commission, *Productivity Commission Submission to the Environmental Management Systems Working Group* (2002) Productivity Commission, Canberra, Australia, 17.

⁴⁹ EMS Working Group, *Towards a National Framework for the Development of Environmental Management systems in Agriculture* (2001) Natural Resource Management Standing Committee, Canberra, Australia, 33.

accredit certification schemes.⁵⁰ The Productivity Commission (2002) was concerned about the provision of incentives for EMS on the basis that their effectiveness on environmental outcomes was yet to be established.⁵¹

It is arguable however that these voluntary schemes can have a role in raising awareness about environmental performance and play an important educative role. Gunningham (2003) argues that there are potential advantages to voluntary and negotiated approaches which include: 'soft effects' such as education and consensus building and that they may pave the way for more interventionist approaches in the future 'a lubricating function'.⁵² Following his review of the Australian experience with EMS Sullivan (2001) concluded that

'The evidence that is available is that such systems have an important role to play in enabling organisations to achieve and maintain regulatory compliance and in enabling organisations to identify cost-effective opportunities for environmental performance improvement. However, the evidence regarding the potential contribution of EMSs to sustainable development is inconclusive and it appears that environmental regulation will continue to be the primary driving force for companies to move towards the goal of sustainability.'⁵³

It can be concluded that partnerships and voluntary EMS with a focus on the quality of rules have the potential to shift the environmental performance of agriculture. However they are weak on implementation and do not include significant mechanisms to ensure the uptake of change across a sector.

Individual Agreements.

Gaines and Kimber (2002) are optimistic about the benefits of self-regulation to individuals, landowners and public service organisations. In the land use management context, they see the environmental management agreement as the best suited model of

⁵⁰ Ibid. 33.

⁵¹ Productivity Commission, *Productivity Commission Submission to the Environmental Management Systems Working Group* (2002) Productivity Commission, Canberra, Australia, 15-16.

⁵² Gunningham N., "Voluntary and Negotiated Agreements in Agriculture: Towards a partnership Approach to Resource Management" (2003) 8 (1) *Australasian Journal of Natural Resources Law and Policy* citing OECD *Voluntary Approaches for Environmental Policy: An Assessment*, OECD Publications, Paris 1999, 133-134.

⁵³ Sullivan R., "Environmental Management Systems: Theory, Practice and Implications for Law and Policy" (2001) 18 (6) *Environmental and Planning Law Journal* 594-603, 594.

self-regulation. For these groups there is almost no effective environmental regulation. The impact of each individually is not significant but rather their cumulative impact is at issue. Moreover the barriers to environmental reflection are different to those which affect large industrial polluters.⁵⁴ In the land management context the barriers to being good environmental citizens are primarily

‘the inertia of acquired habits, a lack of learning about what environmental effects they are creating, a lack of information about how to reduce those effects, and the need to endure some inconvenience and perhaps slightly higher costs.’⁵⁵

In this context it is argued that society can tolerate some deviance by individuals because the objective is to shift the environmental performance as a group. Furthermore, with respect to issues, such as nature conservation and recycling, there is necessarily public participation in goal setting.⁵⁶

Forms of conservation agreement have been used widely in Australia.⁵⁷ Conservation agreements are negotiated between individuals and government where for example land may be set aside for a particular purpose and funds provided to assist in its protection. These agreements fit within the rubric of reflexive law (discussed below), given that the aim is to establish processes which encourage farmers to manage their land in a way which also conserves nature.⁵⁸

The weakness of the current approach to conservation agreements is the lack of public participation in their negotiation, implementation or enforcement.⁵⁹ Danne (2003) considers that the creation of appropriate target and evaluation standards for conservation agreements is one of several impediments to their uptake.⁶⁰ Further they may lack effective enforcement mechanisms.⁶¹ They also depend on the voluntary

⁵⁴ Gaines S. and Kimber C., "Redirecting Self-Regulation" (2001) 13 (2) *Journal of Environmental Law* .

⁵⁵ Ibid.

⁵⁶ Ibid.

⁵⁷ For a comprehensive overview of the statutory and non-statutory frameworks for the implementation of voluntary environmental agreements in Australia see Danne A. P., "Voluntary environmental agreements in Australia" (2003) 20 (4) *Environmental and Planning Law Journal* 287-318.

⁵⁸ Gaines S. and Kimber C., "Redirecting Self-Regulation" (2001) 13 (2) *Journal of Environmental Law* .

⁵⁹ Ibid.

⁶⁰ Danne A. P., "Voluntary environmental agreements in Australia" (2003) 20 (4) *Environmental and Planning Law Journal* 287-318, 306.

⁶¹ Ibid. 310-315.

initiative of the individual and are therefore likely to be taken up by motivated and interested landowners. It is unlikely that they will strategically target resources to the area of highest conservation need. They can be an expensive form of regulation because of the need to negotiate each agreement individually. Conservation agreements will not supplant command regulation but rather should form part of a comprehensive and integrated approach to environmental management. One approach to rectifying these weaknesses would be to build a link between incentives and accredited environmental audits.⁶² This approach is discussed further below.

Summary

Simply put, the essential preconditions for effective self-regulatory approaches exist in only limited circumstances in the agricultural industry. These include sectors where there are strong industry associations, compelling external pressures (such as community concern about chemical pollution) and some form of 'community of shared fate' – as in the case of food chemical residues affecting export markets. They can play an important educative function and target weakness in rule making which afflicts command regulation. However, to the extent that much of Australian agriculture is broadacre, low input and low technology, arguments for self-regulation based on the need for highly technical rules are spurious. These approaches may address the question of knowledge gaps but do not provide for other enabling factors such as resources and/or (dis)incentives necessary to shift environmental performance of the sector. In short these approaches have an important role but do not address the weakness in relation to implementation and enforcement that has so plagued the command regulatory approach traditional to the sector. Furthermore, these approaches do not provide guidance on specific performance required to meet environmental standards, nor indeed the required environmental standard itself. The tension in all this is between these more flexible forms of regulation, based on performance rather than specific compliance, and the need to maintain transparency and public accountability. Despite the resistance of industry a combination of instruments, wherein forms of self-regulation are specifically linked with traditional command regulation, would combine the strengths of the former approach in relation to the tailoring of rules and ameliorate their weakness in relation to compliance and enforcement.

⁶² Gaines S. and Kimber C., "Redirecting Self-Regulation" (2001) 13 (2) *Journal of Environmental Law*

5.2.4 A mix

Despite apparent ideological preference for economic instruments and self regulatory approaches:

‘The very approach of couching the debate in terms of either regulation or deregulation kindles a spurious and sterile ideological divide, which inhibits attempts to find solutions containing the best of both approaches’.⁶³

The debate on regulation should not centre on a choice between pure self-regulation and exclusive command regulation. In both practice and theory, a mix of instruments is likely to be the most effective approach to the environmental management of agriculture. Ayres and Braithwaite (1992), argue the case for ‘responsive regulation’ capable of providing ‘creative options to bridge the abyss between deregulation and pro-regulatory rhetoric’.⁶⁴ Similarly, Gunningham, Grabosky and Sinclair (1998) have described an approach to environmental policy design encapsulated as ‘smart regulation’.⁶⁵ This is concerned with designing efficient and effective ‘optimal’ policy mixes. Eckersley (1995), for example, has argued that: ‘a more useful way of understanding legal and fiscal instruments is to regard them simply as different kinds of environmental regulation by the State’⁶⁶. Kinrade (1995) concludes that in many circumstances, taxes and other market-based approaches will be useful components of an integrated policy approach.⁶⁷

⁶³ Gunningham N., "Introduction" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Britain, 9.

⁶⁴ Ayres I. and Braithwaite J., *Responsive Regulation. Transcending the Deregulation Debate* (1992) Oxford University Press, New York, United States, 14

⁶⁵ Gunningham N., Sinclair D. and Grabosky P., "Instruments for Environmental Protection" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Great Britain.

⁶⁶ Eckersley R., "Markets, the State and the Environment: An Overview" in Eckersley R. (ed), *Markets, the State and the Environment: Towards Integration* (1995), Macmillan Education Australia, Melbourne, Australia, 23.

⁶⁷ Kinrade P., "Towards Ecologically Sustainable Development: The Role and Shortcomings of Markets" in Ibid.(ed), Macmillan Education, 105.

Ironically enough according to Gunningham (2003), a key driver or incentive for the development of effective self regulatory approaches is a credible threat of regulation.⁶⁸ Arguably another key factor lacking in the agricultural context is the accessibility (for example, organised industry associations) of the target group,⁶⁹ a factor which affects command regulation and self-regulatory approaches alike.

A regulatory strategy which links permit systems with EMS has been developed in some sectors in the Netherlands.⁷⁰ Aalders (1999) argues that this approach generates an entirely different form of social control than in the past.⁷¹ The role of the inspectorate is shifted to one of supervision, where insight is gained into the performance of an EMS and whether the company is internally checking its own performance.⁷² This is linked to a strategic enforcement approach in which companies who do not perform adequately with an EMS are subject to closer scrutiny. The 'big stick' is still available.⁷³ Variations in enforcement style are considered to be important, with the shift to stringent enforcement in the event of violation of rules an important deterrent element when appropriate.⁷⁴ This shift from seemingly adversarial relationships to more conciliatory approaches represents a fundamental shift in the relational structures of social relationships, which will affect 'the style, form and effectiveness of social control'.⁷⁵ This is an example of a multiple instrument approach, linked to mechanisms, which will generate internal self-reflection on environmental performance.

5.2.5 Thinking about regulation.

According to Majone (1994), the single normative justification for regulation is improving the efficiency of the economy by correcting specific forms of market failure,

⁶⁸ Gunningham N., "Voluntary and Negotiated Agreements in Agriculture: Towards a partnership Approach to Resource Management" (2003) 8 (1) *Australasian Journal of Natural Resources Law and Policy*.

⁶⁹ Halpin D. and Martin P., "Farmer Representation in Australia : Avenues for changing the Political Environment" (1999) 58 (2) *Australian Journal of Public Administration* 33-46.

⁷⁰ Aalders M., "Regulation and In-company Environmental Management in the Netherlands" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 264.

⁷¹ Ibid. 264.

⁷² Ibid. 264.

⁷³ Ibid. 264.

⁷⁴ Ibid. 267.

⁷⁵ Ibid. 262.

such as monopoly, imperfect information and negative externalities,⁷⁶ that is, when ‘the unregulated price of a good does not reflect the true cost to society of producing that good.’⁷⁷ Governments will normally seek to eliminate market failure in the interests of economic efficiency either through command regulation or economic instruments.

However, I would argue that there are other legitimate regulatory objectives as well. In contrast to the argument for regulation on the basis of economic efficiency, Black (2002) argues that ‘other motivations, such as the management and distribution of risk, and other goals, such as access to justice, or legitimacy, or the achievement of social justice in some form, are legitimate regulatory objectives as well’.⁷⁸

In reality, the debate on modes of regulation turns in part on the question of the preferred role of government in the management of natural resources. Some approaches, such as command regulation, are considered interventionist while others, such as market mechanisms, are considered indirect and facilitative.

The distinction between command regulation and the alternatives may be less stark than first appears, particularly when ‘desiderata other than effectiveness are taken on board and when romanticism concerning alternative strategies is dispensed with’.⁷⁹ Nash (2000) has commented that it is somewhat anomalous to exclude command regulation from the definition of market-based regimes as both enlist the market to some extent.⁸⁰ Both approaches are concerned with allocating rights to pollute. The key distinction lies with the role of government. Under command regulation the role of government is to establish and enforce appropriate conditions.⁸¹ Under a market approach it is to establish a procedure and legitimacy for rights acquisition.⁸²

⁷⁶ Majone G., "The Rise of the Regulatory State in Europe" in Baldwin R., Scott C. and Hood S. (ed), *A Reader on Regulation* (1998), Oxford University Press, Great Britain, 197-198.

⁷⁷ Breyer S., "Typical Justifications for Regulation" in Ibid. 68.

⁷⁸ Black J., "Critical Reflections on Regulation" (2002) 27 *Australian Journal of Legal Philosophy* 1-48, 10.

⁷⁹ Baldwin R., "Regulation: After 'Command and Control'" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, New York, United States, 82.

⁸⁰ Nash J. R., "Too Much Market? Conflict between Tradable Pollution Allowances and the "Polluter Pays" Principle" (2000) 24 (2) *The Harvard Environmental Law Review* 465-536, 481.

⁸¹ Lotspeich R., "Comparative Environmental Policy: Market-type Instruments in Industrialised Capitalist Countries" (1998) 26 (1) *Policy Studies Journal* 85-104, 87.

⁸² Ibid. 87.

In the Australian literature on regulatory reform the emphasis on 'efficiency' is evident.⁸³ Indeed the locus of regulatory reform initiatives within, for example, the Productivity Commission has given primacy to concerns about the anti-competitive effect of regulation (although public interest aspects are still considered).

Gunningham (1998) lists four common criteria for the analysis of regulatory strategies, i.e. effectiveness (contributing to improving the environment); efficiency (at minimum cost); equity (showing fairness in the burden-sharing among players); and political acceptability (which includes factors such as liberty, transparency, and accountability).⁸⁴ Somewhat surprisingly Gunningham *et al* (1998) make efficiency and effectiveness the pre-eminent criteria because they consider these to be 'the primary concerns of policy makers'.⁸⁵ Baldwin (1997) has argued that the appropriateness of a regulatory strategy in achieving regulatory objectives needs to be considered in wider terms than simply efficiency.⁸⁶ Issues such as accountability and fairness are also critical themes in an assessment of regulatory reform.⁸⁷

The elements of a sustainable approach to natural resource management have been described in Chapter Four. Broader democratic concerns, particularly in the context of the sustainability debate, including accountability, transparency and adaptability must be given priority. Issues of fairness or equity are key concerns of the environmental justice movement. The public interest is a legitimate consideration in management of publicly owned natural resources (such as water), common pool resources (such as clean air) and in the protection of biodiversity. Key principles such as the precautionary principle and inter-generational equity must also be taken into consideration in the choice of regulatory approach. Property rights approaches, for example, may limit the adaptive capacity of future generations by entrenching access to resources that can only be redeemed at high cost. Public policy in situations of potential irreversible damage (such as species loss) need to eschew efficiency criteria in preference for caution.

⁸³ See for example Banks G., "Challenges for Australia in Regulatory Reform" (Paper presented at the Regulation Reform Management and Scrutiny of Legislation, NSW State Parliament, 2001) 1-14.

⁸⁴ Gunningham N., "Introduction" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Britain, 26.

⁸⁵ Ibid. 26-27.

⁸⁶ Baldwin R., "Regulation: After 'Command and Control'" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, New York, United States, 80-81.

⁸⁷ Ibid. 80.

‘The crucial question is not whether economic actors are compelled to, merely induced or invited to behave in certain environmentally beneficial ways. Rather the question ought to be whether the government has maintained or relinquished control over the overall levels of environmental protection.’⁸⁸

The issue in this sense then becomes not so much one of contrasting command regulation, forms of self-regulation or economic instruments, but the extent to which each approach may mean governments relinquish the capacity to effectively control/influence environmental outcomes and manage adaptively, cautiously and equitably.

Much of the development of environmental law has been a process of providing tools for public involvement which has been a critical element in key environmental successes.⁸⁹ Third-party rights, public consultation, access to information, access to reasons for decisions and judicial review of decisions have been essential components of this. In the light of this argument, regulatory initiatives which reduce public access should be viewed with caution. With respect to self-regulatory regimes, for example, critical concerns about openness to representation, participation of third parties in standard setting, transparency in rule-making and accountability in rule enforcement have been raised.

Yost (1999), for example, suggests that an evaluation of regulatory change should be based on the following benchmarks, namely, whether (and perhaps to what extent) the proposed approach:

- preserves and enhances the environment;
- sets performance standards as distinct from prescribing solutions;
- creates incentives to go beyond compliance;
- fosters ways to turn environmental liabilities into assets;
- fosters collaboration;
- makes rational the state-federal relationship;

⁸⁸ Eckersley R., "Markets, the State and the Environment: An Overview" in Eckersley R. (ed), *Markets, the State and the Environment: Towards Integration* (1995), Macmillan Education Australia, Melbourne, Australia, 22.

⁸⁹ Yost N., "Environmental Regulation - Are There Better Ways" (1999) 24 (4) *Ecology Law Quarterly* 564-573, 568.

- is integrated;
- fosters the setting of priorities among environmental problems;
- controls pollution rather than shifts it to another medium;
- is preventive;
- reduces costs of control;
- distributes costs and benefits equitably;
- is anticipatory (i.e. fosters identification of overlooked environmental problems);
- fosters accountability and simplicity.⁹⁰

In light of this discussion a refinement of command regulation in practice may be an important contribution to the long-term sustainability of Australian agricultural landscapes. These issues are discussed further below.

5.3 Command regulation.

5.3.1 Introduction.

Regulatory theory in the environmental context has been built principally on a study of the regulation of large organised industrial enterprises. It has mostly been concerned with large corporations, identifiable point sources of pollution and industries with strong centres of common interest and effective industry associations. In this context there is an extensive literature exploring the inefficiencies and ineffectiveness of command regulation and the strategies available to enforcement agencies to modify it in practice. Given the continued reliance on traditional forms of regulation, the public support for command regulation and the on-going concern about the application of market-based and property rights approaches and self-regulatory regimes, it is critical to develop a strategy to reform command regulation and improve its effectiveness in practice. The review of the literature on command regulation is undertaken with this task in mind.

⁹⁰ Ibid. 571-573.

Command regulation is the exercise of influence by imposing standards backed by criminal sanctions,⁹¹ although in Australia civil penalties may also be available.⁹² It is generally conceived as being a negative form of regulation, that is, it prohibits certain activities or conduct. This perception is conveyed by definitions such as this from the OECD, which defines regulation as

‘the full range of legal instruments by which governing institutions, at all levels of government, impose obligations or constraints on private sector behaviour.’⁹³

A traditional ‘centred’ conceptualisation of regulation assumes the State to have the capacity to command and control, to be exclusive in this power, and to be effective in using it.⁹⁴ Command regulation is assumed to be unilateral (governments telling, others doing), to be based on simple cause and effect, and to see a straight progression from policy formulation to implementation.⁹⁵

This conceptualisation of command regulation is challenged by a number of practical and theoretical issues.

In practice, the operation of command regulation is much more dynamic. For example, standards are routinely developed in consultation with industry and NGOs. Regulation may be subject to public consultation and comment, and some regulation, particularly in the land-use planning context, is developed in consultation with the community by local councils. Despite the traditional characterisation, command regulation includes not only rules handed down by parliaments and backed by criminal sanctions, but also rules developed in a range of other contexts, stemming from interactions between government and non-government actors.

Several examples of this include forms of self-regulation, partnerships, environmental management systems and individual agreements, discussed above. In some cases

⁹¹ Baldwin R., "Regulation: After 'Command and Control'" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, New York, United States, 66.

⁹² See *Environmental Protection and Biodiversity Conservation Act, 1999* (C'th).

⁹³ OECD, *Recommendation of the Council of the OECD on Improving the Quality of Government Regulation* (1997) OECD, Paris, France. note 1.

⁹⁴ Black J., "Critical Reflections on Regulation" (2002) 27 *Australian Journal of Legal Philosophy* 1-48, 3.

⁹⁵ *Ibid.* 3.

supervision and enforcement activity is undertaken by third parties, external to government. The distinction lies in the retention by government of the right to make the initial grant of power and control over the criminal justice system as it operates in relation to environmental regulation.

The concern around the efficacy of command regulation has generated much research and debate. The dimensions of the debate are conveyed by the following two quotations, both relatively typical of authors on either side of the divide.

Latin (1985), for example, summarises the strengths of command regulation in the following terms:

‘decreased information collection and evaluation costs, greater consistency and predictability of results, greater accessibility of decisions to public scrutiny and participation, increased likelihood that regulations will withstand judicial review, reduced opportunities for manipulative behaviour by agencies in response to political or bureaucratic pressures, reduced opportunities for obstructive behaviour by regulated parties, and decreased likelihood of social dislocation and forum shopping resulting from competitive disadvantages between geographical regions or between firms in regulated industries.’⁹⁶

In contrast, Black (2002) identifies the failings of command regulation as including:

‘that the instruments used (laws backed by sanctions) are inappropriate and unsophisticated (instrument failure), that government has insufficient knowledge to be able to identify the causes of problems, to design solutions that are appropriate, and to identify the causes of problems, and to identify non-compliance (informational and knowledge failure), that implementation of the regulation is inadequate (implementation failure), and that those being regulated are insufficiently inclined to comply, and those doing the regulating are insufficiently motivated to regulate in the public interest (motivation failure and capture theory).’⁹⁷

In part, the debate around command regulation is coloured by ‘neo-liberal critics’ of the ‘regulatory state’, including some economic rationalists who argue the case for

⁹⁶ Latin H., "Ideal versus Real Regulatory Efficiency: Implementation of uniform standards and "fine tuning reforms"" (1985) 37 *Stanford Law Review* 1267-332.

⁹⁷ Black J., "Critical Reflections on Regulation" (2002) 27 *Australian Journal of Legal Philosophy* 1-48, 3.

environmental deregulation.⁹⁸ According to Stewart (1999), the deregulation debate centres on a dichotomy, that is, on the one hand a naive confidence that regulatory systems are designed to establish governance in the public interest; and, on the other, a belief that regulatory systems are expensive, interfere with rather than promote productivity, destroy initiative, and are basically unenforceable and undesirable.⁹⁹ The focus of this debate has been on the shortcomings of traditional regulation and its replacement by markets or property-rights approaches¹⁰⁰. Black (2002) comments that command regulation has become shorthand to denote all that can be bad about regulation, including ‘poorly targeted rules, rigidity, ossification, under- or over-enforcement, and unintended consequences’.¹⁰¹ Economists and political scientists, especially in the USA, have stressed the difficulties with regulation to the point that conservative policies now over-emphasise the role of markets and seek to minimise regulation.¹⁰²

I would argue that the tone of this debate inhibits a genuine discussion of the strengths and weaknesses of command regulation and the potential to modify its operation in practice. There is little intrinsic reason to believe that alternatives to command regulation will deliver optimal environmental outcomes. The limitations of these approaches can also be severe.¹⁰³ Following a review of alternative methods of regulation, Baldwin (1997) concluded ‘that enforcement issues or problems attending rule-making processes cannot be “assumed away” and further, that an historical association between certain regulatory methods (e.g. command regulation and the use of highly restrictive administrative rules) should not be taken as a demonstration of inevitable or exclusive linkage’.¹⁰⁴ The following critique of command regulation runs

⁹⁸ Gunningham N., "Introduction" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Britain, 7-9.

⁹⁹ Stewart R. G., *Public Policy Strategy and Accountability* (1999) Macmillan Publishers Australia PL, Australia, 385.

¹⁰⁰ Gunningham N., "Introduction" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Britain, 7-9.

¹⁰¹ Black J., "Critical Reflections on Regulation" (2002) 27 *Australian Journal of Legal Philosophy* 1-48, 2-3.

¹⁰² Crowley K. and Walker K. J., "Introduction" in Walker K. J. and Crowley K. (ed), *Australian Environmental Policy 2. Studies in Decline and Devolution* (1999), University of New South Wales Press, Sydney, Australia, 15.

¹⁰³ Gunningham N., "Introduction" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Britain, 9.

¹⁰⁴ Baldwin R., "Regulation: After 'Command and Control'" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, New York, United States, 81.

along three themes i.e. the design of rules, enforcement and compliance and the normative role of law.

5.3.2 Design of rules.

One of the key strengths of command regulation is that the force of law can be used to impose fixed standards with immediacy and to prohibit activity not conforming to such standards.¹⁰⁵ To this may be added the notion of dependability i.e. that required behaviour can be specified, making it relatively easy to identify breaches of a legal standard and to enforce the law.¹⁰⁶ Command regulation can also provide certainty, so that the regulated know exactly what to do to conform with the law. It can thus reduce the scope for official discretion, both ensuring fairness and removing the potential for official corruption.¹⁰⁷ It is also arguable that for smaller firms with less management expertise, the element of certainty is especially important. In some cases firms prefer the certainty and predictability of direct legal regulation.¹⁰⁸

These kinds of controls have been relatively successful in controlling point source pollution, outlawing extremely hazardous substances and the dumping of toxic wastes.¹⁰⁹

In contrast, it is also argued that command regulation tends to produce unnecessarily complex and inflexible rules and, indeed, a proliferation of rules that leads to over-regulation, legalism, delay and the strangling of enterprise.¹¹⁰ There is a general perception that command regulation is prescriptive and that this stifles business innovation.¹¹¹ Diver (1993) describes the dimensions of the debate about rules as being between administrative under-precision or excessive regulatory rigidity.¹¹² This debate

¹⁰⁵ Ibid. 66.

¹⁰⁶ Gunningham N., Sinclair D. and Grabosky P., "Instruments for Environmental Protection" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Great Britain, 41.

¹⁰⁷ The New South Wales Government, *Regulatory Innovation - Regulation for Results* (1996) NSW Government, Sydney, Australia, 5.

¹⁰⁸ Eckersley R., "Markets, the State and the Environment: An Overview" in Eckersley R. (ed), *Markets, the State and the Environment: Towards Integration* (1995), Macmillan Education Australia, Melbourne, Australia, 23.

¹⁰⁹ Gunningham N., Sinclair D. and Grabosky P., "Instruments for Environmental Protection" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Great Britain, 42.

¹¹⁰ Baldwin R., "Regulation: After 'Command and Control'" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, New York, United States, 66.

¹¹¹ The New South Wales Government, *Regulatory Innovation - Regulation for Results* (1996) NSW Government, Sydney, Australia, 1-2.

¹¹² Diver C. S., "The Optimal Precision of Administrative Rules" in Baldwin R., Scott C. and Hood S. (ed), *A Reader on Regulation* (1998), Oxford University Press, Great Britain, 220.

concerns, on the one hand, the lack of clarity in rules and the problems associated with granting wide discretion for rule interpretation ‘in the public interest’, and, on the other hand, the problem of excessive rule precision which may lead to legalism and a lack of comprehensiveness.

Diver (1983) distinguishes three elements of regulatory precision:

- transparency, i.e. comprehensibility of the rule to the regulated (language etc);
- accessibility, i.e. applicable to concrete situations without great difficulty; and
- congruence, i.e. that the rule produces the desired behaviour.¹¹³

In other words, rules must be comprehensible, accessible and capable of both implementation by the regulated and enforced by the regulator.

‘Regulatory precision’ can be enhanced by the manner in which rules are made. The integration of scientific information into rule-making enhances legitimacy when the agency uses qualified experts, supports research but still recognises the need to take action even when knowledge gaps exist.¹¹⁴

One of the difficulties for command regulation relates to the information requirements for governments in setting standards and defining appropriate rules. Setting appropriate standards can be technically difficult, especially in high technology industries, and can result in an undue reliance on the regulated by the regulator. In reality, these same concerns can apply to other regulatory strategies.

While command regulation is often prescriptive there is actually a choice of different strategies within the spectrum of approaches.¹¹⁵ With respect to the control of pollution from stationary sources, command regulation can take several forms, i.e. technical prescriptions, emission standards and quality standards.¹¹⁶ Each of these approaches confers different levels of flexibility, with quality standards providing the highest level

¹¹³ Ibid. 220.

¹¹⁴ Dimento J. F., "Can Social Science Explain Organisational Noncompliance with Environmental Law?" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 234.

¹¹⁵ Lubbe-Wolff G., "Efficient Environmental Legislation - On Different Philosophies of Pollution Control in Europe" (2001) 13 (1) *Journal of Environmental Law* 79-87, 80.

¹¹⁶ Ibid. 81.

of flexibility.¹¹⁷ However, Lubbe-Wolfe (2001) argues that maximum flexibility is not the only relevant criterion and in some instances prescriptive regulatory approaches are more appropriate.¹¹⁸ Indeed, she argues that the more flexible quality standard approach may not be the most effective means of securing environmental quality, as quality standards are location specific and simply result in the diffusion of pollution to other locations or media.¹¹⁹

Performance-based regulation, which specifies the end rather than the means, is becoming more common in the environmental context.¹²⁰ This approach acknowledges the superior information processing capacity of firms, allows for innovation in the resolution of environmental problems but maintains control over the eventual outcome. Lotspeich (1998) argues that performance-based regulation demonstrates the potential for flexibility in command regulation.¹²¹ This flexibility is manifested both in the design of performance-based command regulation and in the scope of administrative discretion in negotiating compliance with particular regulatory objectives.¹²²

Command regulation is often described as being reactive however the preventive, even anticipatory aspect is routinely overlooked. Command regulation can also be used to demand some positive actions or lay down conditions for entry into a sector.¹²³ In the area of safety regulation, the control of behaviour is by means of prevention, such as refusing or removing licences to operate equipment or businesses, as well as by the imposition of act-based monetary sanctions, i.e. fines for violation of rules.¹²⁴ The stage of intervention is *before* harm has come about. Fire and food safety regulations are two such examples.¹²⁵ This regulatory strategy is appropriate when there is the potential for catastrophic effects or when the origin of an event, such as pollution, is difficult to trace

¹¹⁷ Ibid. 81.

¹¹⁸ For example, regarding technical prescriptions concerning the tightness of joints of sewage pipes, it would not make sense to replace them by emission standards specifying the tolerable amount of leakage. Ibid. 82.

¹¹⁹ Ibid. 84-85.

¹²⁰ The New South Wales Government, *Regulatory Innovation - Regulation for Results* (1996) NSW Government, Sydney, Australia, 7.

¹²¹ Lotspeich R., "Comparative Environmental Policy: Market-type Instruments in Industrialised Capitalist Countries" (1998) 26 (1) *Policy Studies Journal* 85-104, 98.

¹²² Ibid. 98.

¹²³ Baldwin R., "Regulation: After 'Command and Control'" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, New York, United States, 66.

¹²⁴ Shavell S., "The Optimal Structure of Law Enforcement" in Baldwin R., Scott C. and Hood S. (ed), *A Reader on Regulation* (1998), Great Britain, 315.

¹²⁵ Ibid. 315.

and the harm may be dispersed.¹²⁶ It is argued that in these areas harm-based sanctions are an inadequate deterrent and there is a need for prevention or act-based sanctions.¹²⁷ In this sort of case, a requirement for a licence will include, for example, conditions associated with the activity.¹²⁸ The effectiveness of this approach depends in part on the quality of the rules and a positive asymmetry of information in favour of the regulator.¹²⁹

Similarly, administrative systems, which control access to natural resources and insert conditions on their use could be designed to anticipate and prevent adverse impacts, for example water access licences. The wide potential for degrees of property rights attenuation such as land clearing controls, confers a great deal of flexibility to command regulation that is frequently overlooked¹³⁰ and much under-utilised. The need for preventive action that is anticipatory is a critical factor when potentially irreversible environmental damage is the subject of regulation.

The effectiveness of command regulation is also influenced by the adequacy of the causal theory embodied in the law. Laws implicitly embody causal theories, which predict how target groups will react given certain incentives.¹³¹ Policy failure can arise when perceptions of the policy issue and the legal tool are mismatched.¹³² An example in the agricultural context is provided by Botterill (2001) who argues that sub-optimal outcomes from farm policy can be a result of the assumptions that are made by policy-makers about farmers' responses to various policy measures.¹³³ In this study of the Commonwealth re-establishment grant scheme, she found that the policy was designed assuming that farmers behave as rational economic agents when in fact they were

¹²⁶ Ibid. 315.

¹²⁷ Ibid. 315.

¹²⁸ Ibid. 315.

¹²⁹ Ibid. 317.

¹³⁰ Lotspeich R., "Comparative Environmental Policy: Market-type Instruments in Industrialised Capitalist Countries" (1998) 26 (1) *Policy Studies Journal* 85-104, 87.

¹³¹ Ingram H., "Implementation: A review and Suggested Framework" in Lynn N. and Wildavsky A. (ed), *Public Administration : The State of the Discipline* (1990), Chatham House Publishers, Inc, New Jersey, United States.

¹³² Botterill L. C., "Rural Policy Assumptions and Policy Failure: The case of the Re-establishment Grant" (2001) 60 (4) *Australian Journal of Public Administration* 9-16, 13.

¹³³ Ibid. 9.

motivated by non-economic factors which can be summed up as agrarianism or country-mindedness.¹³⁴

A number of factors affect implementation of the law:

- Effective implementation is partially determined by the strength of the statute, including clear delineation and ranking of unambiguous objectives, but such clarity is rare and often aspirational objects remain to be resolved through administration.
- Directness and simplicity are identified as keys to implementation. Where there is a multiplicity of decision points, the complexity of joint action can stifle policy intent.
- Success in implementation must be evaluated within the context of particular problems and critical factors affecting implementation will vary with what is being attempted.¹³⁵

Further to this may be added the notion of oversimplification. In Part Two of this thesis the myriad social, economic and policy influences on agricultural practices were described. Simple prohibition of particular behaviours may not address the key drivers of natural resource degradation on private land. The application of a more complex causal theory and a correspondingly sophisticated regulatory strategy is likely to be more effective. This is discussed further in the context of regulatory design below.

Finally, there is evidence that stringent environmental legislation can be an important driver of environmental improvement in a wide range of industries.¹³⁶ The Pearce Report (1989) found it difficult to find examples of cases in which environmental regulations had hurt the competitive position of a country.¹³⁷

¹³⁴ Ibid. 14.

¹³⁵ Ingram H., "Implementation: A review and Suggested Framework" in Lynn N. and Wildavsky A. (ed), *Public Administration : The State of the Discipline* (1990), Chatham House Publishers, Inc, New Jersey, United States.

¹³⁶ Hain M. and Cocklin C., "The Effectiveness of the Courts in Achieving the Goals of Environmental Protection Legislation" (2001) 18 (3) *Environmental and Planning Law Journal* 319-338, 320.

¹³⁷ Quoted by Beder S., *The Nature of Sustainable Development* (1996) Scribe Publications Pty Ltd, Newham, Victoria, Australia, 101.

In this section it has been shown that, despite stereotypical characterisations of command regulation the design of rules can import important aspects of flexibility and precision. Policies formulated through a cooperative process that incorporates concerns of the affected actors will engender greater political support and reduce enforcement cost.¹³⁸ To this extent, the effectiveness of command policies can be high, but it depends on a highly articulated and flexible use of the approach.¹³⁹ Communication is a key aspect of compliance and businesses must understand the legislation and rules.¹⁴⁰

5.3.3 Enforcement and Compliance.

A key concern in the literature on regulation has been with the failure of regulatory agencies to enforce environmental law. In this context enforcement is usually represented by prosecution statistics. There is considerable debate about the appropriate measure of enforcement, with a number of authors concluding that official statistics on prosecution do not necessarily reflect the full picture of the enforcement activities of agencies, nor true offence rates. Nonetheless as Leadbeter (1999) observes:

‘It is difficult to comment with any objectivity on the efficacy of the various enforcement measures contained in a range of laws, largely because they have either never been used or used very infrequently.’¹⁴¹

According to Grabosky and Braithwaite (1986), Australian business regulatory agencies are ‘of manners gentle’.¹⁴²

‘Not only is this reflected in the attitudes of the regulators, it also characterizes their policies and regulatory outcomes such as prosecutions, licence suspensions, plant-shut downs, injunctions, or the informal use of adverse publicity.’¹⁴³

¹³⁸ Lotspeich R., "Comparative Environmental Policy: Market-type Instruments in Industrialised Capitalist Countries" (1998) 26 (1) *Policy Studies Journal* 85-104, 99.

¹³⁹ Ibid. 99.

¹⁴⁰ Dimento J. F., "Can Social Science Explain Organisational Noncompliance with Environmental Law?" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 228.

¹⁴¹ Leadbeter P., "Recent Trends & Developments in South Australian Environmental Law" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No. 3 Law and Policy* (1999), Federation Press, Sydney, Australia, 164.

¹⁴² Grabosky P. and Braithwaite J., *Of Manners Gentle. Enforcement Strategies of Australian Business Regulatory Agencies* (1986) Oxford University Press, Melbourne, Australia.

¹⁴³ Ibid. 1.

In general there has been and continues to be a marked preference for voluntary approaches to implementation of environmental regulation, even more particularly in the agricultural sector.

While critical of the traditional preference for voluntarism in natural resource management, Reeve *et al* (2002) nevertheless conclude that:

‘there do not appear to be compelling grounds for moving away from the policy approaches based upon voluntarism, education and moral suasion that have been the mainstay of soil conservation and natural resource management policy in regional areas for half a century or more.’¹⁴⁴

Others such as Bradsen (1994) see a limit to voluntarism:

‘Laws which leave land conservation optional, relying on discretionary action, education, extension and incentives have been tried at great length. They do not have a good record of effectiveness.’¹⁴⁵

One explanation for the lack of enforcement of environmental regulation is that the penalties in the legislation are inappropriate. Bradsen (1994) considers, for example, that soil conservation orders, which have existed in various jurisdictions in Australia for fifty years, reflect a ‘last resort mentality’ and have never been effective as a means to achieve better land management.¹⁴⁶

Ayres and Braithwaite (1992) have been concerned with the appropriateness of penalties in regulation. They describe an enforcement pyramid, which provides for a range of strategies matched to the nature of the offence, with discretion to responsively regulate according to the situation.

¹⁴⁴ Reeve I., Doyle B., D Brunckhorst D. and Marshall G., *Independent Advice on the Link Between Sustainable Farming Practices, Farm Profitability and River Health* (2002) NSW Healthy Rivers Commission, Sydney, Australia, 40.

¹⁴⁵ Bradsen J., "Alternatives for Achieving Sustainable Land Use" in Cosgrove L., Evans D. and Yencken D. (ed), *Restoring the Land* (1994), Melbourne University Press, Melbourne, Australia, 181.

¹⁴⁶ Ibid. 190.

‘Regulatory agencies have maximum capacity to lever cooperation when they can escalate deterrence in a way that is responsive to the degree of uncooperativeness of the firm, and to the moral and political acceptability of the response.’¹⁴⁷

They argue that

‘[c]ompliance is most likely when regulators (1) have access to an armory of deterrent and incapacitative weapons, and (2) when they avoid both the mistake of selecting a sledge hammer to swat a fly and selecting a flyswatter to stop a charging bull. Compliance is predicted by both the existence of an awesome armory and by the avoidance of clumsy deployment of it.’¹⁴⁸

Much environmental regulation in Australia now has a more comprehensive suite of enforcement tools, ranging from warning letters to suspension of licences.

Some, such as Ayres and Braithwaite (1992), argue that prosecution is often an inefficient method of enforcement compared to seeking negotiated compliance, where negotiation, education, and warnings are used and prosecution reserved as a weapon of last resort.¹⁴⁹ They stress the benefits of cooperative relationships between regulators and regulated and point to the dangers of allowing a culture of resistance to regulation to develop.

Ayres and Braithwaite (1992) argue the case for ‘responsive regulation’ and propose a pyramid of regulatory strategies which places alternatives to command regulation in a hierarchy¹⁵⁰ in which ‘[e]scalation up this pyramid gives the state greater capacity to enforce compliance at the cost of increasingly inflexible and adversarial regulation’.¹⁵¹ The idea is to create incentives by linking compliance with the risk of an escalation of the interventionism of regulatory strategy.¹⁵² Responsive regulation includes a link between regulatory and enforcement strategies. The wonderfully named ‘Benign Big

¹⁴⁷ Ayres I. and Braithwaite J., *Responsive Regulation. Transcending the Deregulation Debate* (1992) Oxford University Press, New York, United States, 36.

¹⁴⁸ Ibid. 52.

¹⁴⁹ Ayres I. and Braithwaite J., *Responsive Regulation. Transcending the Deregulation Debate* (1992) Oxford University Press, New York, United States.

¹⁵⁰ Ibid.

¹⁵¹ Ibid. 38.

¹⁵² Ibid. 39.

Gun'¹⁵³ of Ayres and Braithwaite (1992) encompasses the concept of a range of regulatory strategies and enforcement strategies that in their totality give regulators significant scope to influence behaviour. In short, benign big gun agencies are able to 'speak more softly when they are perceived as carrying very big sticks'.¹⁵⁴

Grabosky and Gant (2000) argue that effective control of environmental crime requires much more than the detection, prosecution, and punishment of polluters.¹⁵⁵ The authors call for a wider conception of environmental crime control, which would harness a wide variety of institutions and influences to further improved environmental performance.¹⁵⁶

Compliance in the pollution control context has a 'symbolic significance'¹⁵⁷ according to Hawkins (1984):

'The continuing relationship between officer and polluter, the open-endedness of problems encountered, and the pragmatism of field staff encourage a focus upon the deviant's efforts at compliance, an opportunity denied the deviant in breach of a rule in the traditional criminal code where an act committed is over and done with and beyond repair.'¹⁵⁸

Compliance in practice is a continuing effort towards attainment of a goal as much as attaining the goal itself.¹⁵⁹ It is dependent on the existence of cooperative relations and negotiation as a means of securing compliance.¹⁶⁰

An enforcement strategy is more than simply the availability of tools. According to Dimento (1999),

'A full enforcement system encompasses the sanction, the resources of the enforcing agency, the severity and certainty of a punishment being imposed or an incentive being awarded, the manner

¹⁵³ Ibid. Chapter 2, 19-53.

¹⁵⁴ Ibid. 40.

¹⁵⁵ Grabosky P. and Gant F., *Improving Environmental Performance, Preventing Environmental Crime* (2000) Australian Institute of Criminology, Canberra, Australia.

¹⁵⁶ Ibid. xiii.

¹⁵⁷ Hawkins K., "Compliance Strategy" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 165.

¹⁵⁸ Ibid. 165.

¹⁵⁹ Ibid. 165.

¹⁶⁰ Ibid. 171.

in which the regulated business perceives the enforcement policy, and the enforcement agency's relationship with other branches of government.¹⁶¹

Conditions favourable to enforcement include high levels of public concern and political support, resources to both enforce the law and to create incentives or subsidies for compliance, and substantial third party rights.¹⁶²

The ongoing lack of prosecution activity in the agricultural sector¹⁶³ would indicate however that an escalation up the enforcement pyramid remains politically unacceptable in Australia. Even so it has been argued that in some contexts the threat of prosecution can have an important deterrent effect.

In considering the question of deterrence Hawkins (1999) concludes that even despite the lack of adequate sanctions the threat of prosecution can be powerful.¹⁶⁴ Hawkins (1999) comments:

‘The important feature in all of this is the threat of public stigma associated with prosecution for pollution. It is believed to be a more powerful incentive to compliance in more suburban and rural areas where greater value attaches to reputation, and where adverse publicity is more readily transmitted.’¹⁶⁵

Nagel (1978) argues that in small communities, publicising wrongdoers can have a significant effect on changing behaviour.¹⁶⁶

There are a number of theories about enforcement failure. One explanation of enforcement failure is that of ‘capture’ theory. According to Makkai and Braithwaite (1995), there are three empirically distinct forms of capture: identification with the

¹⁶¹ Dimento J. F., "Can Social Science Explain Organisational Noncompliance with Environmental Law?" in Ibid. 222.

¹⁶² Yeager P. C., "Structural Bias in Regulatory Law Enforcement: The Case of the U.S. Environmental Protection Agency" in Ibid. 99.

¹⁶³ Bartel R. L., "Compliance and complicity: an assessment of the success of land clearance legislation in New South Wales" (2003) 20 (2) *Environmental and Planning Law Journal* 116-141, 126-133. This article reports on the low level of prosecutions under SEPP 46 and the Native Vegetation Conservation Act, 1997 and the low level of fines in the few cases where prosecutions were successful.

¹⁶⁴ Hawkins K., "Compliance Strategy" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 173.

¹⁶⁵ Ibid. 173.

¹⁶⁶ Nagel S. S., "Incentives for Compliance with Environmental Law" in Dais E. E. (ed), *Law and the Ecological Challenge* (1978), William S Hein & Company, Buffalo, New York, United States, 159.

industry; sympathy with the particular problems that regulated firms confront in meeting standards; and absence of toughness.¹⁶⁷ From their study of the regulation of nursing homes the authors conclude that ‘capture’ is not an enduring character trait that is structurally determined by a history of interest group affiliations,¹⁶⁸ rather, ‘capture’ is a situational problem that requires situational solutions.¹⁶⁹ A number of the situational pressures contributing to capture can be countered by granting participation rights to third parties.¹⁷⁰ Of the three ‘capture’ dimensions studied, only identification with the industry had a significant effect on ‘toughness’ of regulatory practices.¹⁷¹

Life cycle theories of regulation highlight how information asymmetries force the regulatory agency to rely more and more on the regulated firms to the point where the agencies can become captured.¹⁷² Empirical theories of regulation go further showing how this capture process uses the State to ensure cartelisation of the industry so that rivals are denied entry, prices are fixed, subsidies granted and costs imposed on the community.¹⁷³ These theories assert that the ‘public interest’ comprises no more than an aggregation of particular private interests.¹⁷⁴

Hawkins’ (1984) study of regulatory enforcement strategies with prosecution as its focus suggests the following:

- Unlike the criminal law context, where compliance means refraining from an act, in the pollution control context it means some positive accomplishment;¹⁷⁵
- The goal of regulators is not to punish, but to secure change.
- Pollution is seen as a scientific or technical problem, possibly beyond immediate practical control or economic capacity, with harms not readily determined and victims diffuse.¹⁷⁶

¹⁶⁷ Makkai T. and Braithwaite J., "In and Out of the Revolving Door: Making Sense of Regulatory Capture" in Baldwin R., Scott C. and Hood S. (ed), *A Reader on Regulation* (1998), Oxford University Press, Great Britain, 173.

¹⁶⁸ Ibid. 172.

¹⁶⁹ Ibid. 172.

¹⁷⁰ Ibid. 187.

¹⁷¹ Ibid. 189.

¹⁷² Stewart R. G., *Public Policy Strategy and Accountability* (1999) Macmillan Publishers Australia PL, Australia.

¹⁷³ Ibid.

¹⁷⁴ Ibid.

¹⁷⁵ Hawkins K., "Law as Last Resort" in Baldwin R., Scott C. and Hood S. (ed), *A Reader on Regulation* (1998), Oxford University Press, Great Britain, 294.

¹⁷⁶ Ibid. 293.

Within this compliance-seeking context, prosecution is a last resort in situations where negligence or malice are readily apparent. In essence, Hawkins (1984) argues that:

‘regulatory enforcement is a symbolic matter, reflecting intimately the conjunction of privately-held (but shared) values with organisational interests in enforcing a secular code of conduct about which there is a high degree of social and political ambivalence’.¹⁷⁷

Accordingly, the definition of compliance has generated a considerable literature in the environmental law context. Dimento (1989) distinguishes between the idea of specific compliance and that of general compliance.¹⁷⁸ Specific compliance refers to the response of the entity targeted by a specified incentive or sanction, when the response is believed consistent with societal objectives or regulations.¹⁷⁹ General compliance refers to responsive behaviour of the aggregate of businesses whose performance governments aim to affect, i.e. the overall reaction of an industry.¹⁸⁰ Creative compliance arises when narrow legalism dominates and results in compliance with the letter of the law but not the spirit — circumventing rather than breaking rules.

Compliance is often treated as if it were an objectively defined, unproblematic state, rather than a fluid, negotiable matter.¹⁸¹ Compliance, however, is an elaborate concept, one better seen as a process, rather than a condition.¹⁸² According to Hawkins (1984), the discrepancy between full enforcement and actual practice is more a resource than an embarrassment.¹⁸³ A compliance strategy is a means of sustaining the consent of the regulated when there is ambivalence about an enforcement agency’s legal mandate.¹⁸⁴ Bargaining is seen as a more effective way to achieve regulatory objectives than the formal enforcement of rules.¹⁸⁵

¹⁷⁷ Ibid. 290.

¹⁷⁸ Dimento J. F., "Can Social Science Explain Organisational Noncompliance with Environmental Law?" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 219.

¹⁷⁹ Ibid. 219.

¹⁸⁰ Ibid. 219.

¹⁸¹ Hawkins K., "Compliance Strategy" in Ibid. 183.

¹⁸² Ibid. 183.

¹⁸³ Ibid. 184.

¹⁸⁴ Ibid. 184.

¹⁸⁵ Ibid. 184.

The use of discretion in the exercise of regulatory powers has also been of interest to researchers. Lange (1999) has considered the question of the role of discretion in conceptualisations of compliance.¹⁸⁶ She identifies a number of important non-legal factors, which influence the exercise of discretion in practice. These include: organisational cultures; the level of environmental consciousness displayed by the industry and the public; the size and location of the enforcement authority in urban or rural areas; and the size of the regulated company.¹⁸⁷ For Lange, the existence of discretion in reality paves the way for negotiation by field officers to achieve compliance with the spirit, if not the letter, of the law.¹⁸⁸ Social control is not achieved from above but rather constructed from the bottom-up.¹⁸⁹ She sees this construction of compliance as a 'link concept', which addresses the relationship between rules and social practices, and considers issues of norm-creation, situational adjustment and indeterminacy critical to its achievement.¹⁹⁰

The exercise of discretion, in relation to the use of prosecution powers, was studied by Hawkins, who found that 'moral judgement' about an offence had a significant influence.¹⁹¹ This study found that there was a marked ambivalence about the use of the formal machinery of criminal law to sanction pollution and that such behaviour on the part of regulatory agencies should be understood as a response to the lack of consensus about the values society wishes to advance.¹⁹² In this context then, it is argued, that enforcement is usually only initiated when a polluter is considered 'blameworthy'.¹⁹³

Enforcement discretion is sometimes used in a location-specific manner, such that enforcement based on national attitudinal support for compliance is often mitigated by local views of an offence (including perceived local economic benefits) and familiarity

¹⁸⁶ Lange B., "Compliance Construction in the Context of Environmental Regulation" (1999) 8 (4) *Social and Legal Studies* 549-567.

¹⁸⁷ Ibid. 551.

¹⁸⁸ Ibid. 555-556.

¹⁸⁹ Ibid. 559.

¹⁹⁰ Ibid. 564.

¹⁹¹ Hawkins K., "Law as Last Resort" in Baldwin R., Scott C. and Hood S. (ed), *A Reader on Regulation* (1998), Oxford University Press, Great Britain, 299.

¹⁹² Ibid. 300.

¹⁹³ Ibid. 299.

with the defendants.¹⁹⁴ Moving towards prosecution of some classes of offences is difficult, especially when the offenders are residents of tightly-knit communities and when the offence is not wilful.¹⁹⁵ Some groups, for example in the rural sector, are found to be particularly resistant to regulation and this affects the use of enforcement discretion.¹⁹⁶

Dimento (1989) considered the question of compliance from a theoretical perspective and identified several factors, which promote compliance with environmental law. These include: enforcement, communication of regulations and characteristics of actors in the compliance event, i.e. government regulators, business firms that are targets of environmental law, and groups that take a special interest in environmental quality.¹⁹⁷ According to Nagel (1978), compliance with legal rules in general can be increased by means other than manipulating positive incentives and negative sanctions.

‘For example, compliance has a positive correlation with the clarity of the standards, the prestige of the policy-makers and policy-appliers, the public support for the standards, and the lowness of the costs involved in complying with the standards.’¹⁹⁸

Some non-incentive factors, which increase compliance with specific environmental law standards include integrated administration of anti-pollution measures, advisory boards with broad representation, and programs to educate the public about the issue.¹⁹⁹

Dimento’s key point is that compliance is a dynamic process. He argues that public policy should consider the route to compliance and not simply the realisation of compliance.²⁰⁰ In reaching decisions about appropriate regulatory action, decision-makers need to recognise the number and identity of parties involved, the diversity of

¹⁹⁴ Dimento J. F., "Can Social Science Explain Organisational Noncompliance with Environmental Law?" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 237.

¹⁹⁵ Ibid. 237.

¹⁹⁶ Hawkins K., "Compliance Strategy" in Ibid. 170.

¹⁹⁷ Dimento J. F., "Can Social Science Explain Organisational Noncompliance with Environmental Law?" in Ibid. 221.

¹⁹⁸ Nagel S. S., "Incentives for Compliance with Environmental Law" in Dais E. E. (ed), *Law and the Ecological Challenge* (1978), William S Hein & Company, Buffalo, New York, United States, 154.

¹⁹⁹ Ibid. 154.

²⁰⁰ Dimento J. F., "Can Social Science Explain Organisational Noncompliance with Environmental Law?" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 239.

their motivations and the dynamics that result from interactions among the individual and organisational participants in successive steps towards regulatory compliance.²⁰¹

A much less well-developed area in the literature is the capacity for command regulation to be linked with incentives for compliance. Nagel (1978) considers for example the potential of tax rewards and subsidies.²⁰² Taxation measures and subsidies have been used quite extensively in the agricultural context (see Part Two). However their use has not in the main been explicitly connected with specific regulatory outcomes. The potential to more clearly articulate a relationship between the incentives and disincentives to behaviour change warrants further attention, particularly in a period of transition. Subsidies are available for example under the *Native Vegetation Conservation Act 1997* (NSW).²⁰³ However their application is limited by reliance on voluntarism. The strategic application of incentives linked with formal prohibition of certain behaviours in specific locations would assist in a shift to more sustainable management of natural resources.

The relative immaturity of environmental law has been commented on by Johnston (1990) who reports on a comparison of personal injury compensation and environmental legislation in British Columbia.²⁰⁴ This investigation showed that the compensation regime was more successful because it contained a range of sanctions and rewards. There were clear incentives to adjust to meet the objectives of the legislation and where employers did not respond to the incentives, the penalties were correspondingly severe. By contrast the provisions applying to environmental pollution were entirely punitive in nature, and there was little escalation in fines for repeated offences. Johnston (1990) concluded that the legislation was no better than a licence to pollute.²⁰⁵

It should be noted that there are considerable differences between countries in the approach to environmental regulation and the literature of critique should be read with these differences in mind. Vogel's (1986) study of national regulatory styles found that

²⁰¹ Ibid. 239.

²⁰² Nagel S. S., "Incentives for Compliance with Environmental Law" in Dais E. E. (ed), *Law and the Ecological Challenge* (1978), William S Hein & Company, Buffalo, New York, United States.

²⁰³ *Native Vegetation Conservation Act 1997* (NSW) ss 42(2)(c), 56(3).

²⁰⁴ Johnson D., "Sustainable Development: An Agenda for the 1990s" in Owen Saunders J. (ed), *The Legal Challenge of Sustainable Development*. (1990), Canadian Institute of Resources Law, Calgary, Canada, 77.

²⁰⁵ Ibid. 78.

‘the American approach to environmental regulation is the most rigid and rule-oriented to be found in any industrial society; the British, the most flexible and informal’.²⁰⁶ The most significant contributory difference between the two countries was found to be the relationship between business and government.²⁰⁷ Generally the British relationship was found to be more cooperative and this has been reflected in approaches to rule-making and enforcement. However Vogel concludes that while American environmental standards were higher there had been comparable progress in a number of critical areas.²⁰⁸ The voluntarism of Britain had been no more or less effective than the more ‘adversarial and legislative’ approach in the United States.²⁰⁹ Australia has followed the British approach to implementation of environmental regulation more closely, with an emphasis on discretion in enforcement and less adversarial strategies.²¹⁰ A review of the literature on styles and strategies of environmental law enforcement led Aalders (1999) to the general conclusion that accommodative, conciliatory styles of enforcement by environmental law inspectorates are more effective than stringent, penal styles of enforcement.²¹¹

Enforcement of command regulation in the environment sector generally and in the agricultural sector particularly has been problematic. A review of the literature on enforcement and compliance indicates that there are some practical issues associated with the use of penalties in legislation. The lack of appropriate penalties and the complexity of relationships between regulators and regulated have been identified as constraints to their use. Discretion is strategically used by regulators to overcome a resistance to regulation and compliance is seen as a much more fluid concept than in the criminal law context. This indicates that effective enforcement depends on the appropriate design of rules and enforcement tools. However the use of powers is dependent on both the allocation of appropriate resources and the political and social context within which the powers are exercised. It is evident from this review that an

²⁰⁶ Vogel D., *National Styles of Regulation. Environmental Policy Great Britain and the United States* (1986) Cornell University Press, New York, USA, 21.

²⁰⁷ Ibid. 21.

²⁰⁸ Industrial emissions, safeguarding public health, and balancing conservation values with industrial growth. Ibid. 22.

²⁰⁹ Ibid. 23.

²¹⁰ See Grabosky P. and Braithwaite J., *Of Manners Gentle. Enforcement Strategies of Australian Business Regulatory Agencies* (1986) Oxford University Press, Melbourne, Australia.

²¹¹ Aalders M., "Regulation and In-company Environmental Management in the Netherlands" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 252.

environment of moral ambiguity about the use of powers affects the legitimacy of regulators. Within this context, regulators use compliance-seeking strategies and the threat of prosecution as a deterrent. Clearly the context within which command regulation operates is important to its efficacy such that where there is broad community support and recognition of regulatory legitimacy from the regulators it is likely to be more effectively implemented.

5.3.4 Symbolic significance of command regulation – does law have a normative influence?

The problems of rule design for command regulation have been described above as have the issues surrounding enforcement and compliance. The final theme in this section concerns the role, if any, of command regulation in mobilising change at a normative or symbolic level.

The symbolic significance of the law has been alluded to, but its actual influence on behaviour has not been widely studied. In a study of the implementation of the Norwegian Housemaid Law of 1948, Aubert (1967) concluded that the standards included in the legislation were a reflection of changing social norms. While the legislation contained penal provisions, there was no intention to enforce the new standards, indeed it is arguable that due to the nature of the industry it was actually unenforceable.²¹² Therefore, Aubert (1967) concluded that the law was passively reformatory and of symbolic significance in reflecting changing social norms.²¹³

A similar argument can be advanced in relation to soil conservation legislation in NSW. Power to issue soil conservation notices in a limited range of circumstances to private landholders was included in legislation in 1938.²¹⁴ In actuality these notices have hardly ever been used. The inclusion of penal provisions in legislation followed the extensive concern about soil erosion in the 1930s. It is arguable that the legislators never actually intended the specific provisions to be used, rather the legislative mandate legitimised the mobilisation of a range of other strategies (such as incentive payments,

²¹² Aubert V., "Some Social Functions of Legislation" in Aubert V. (ed), *Sociology of Law* (1967), Penguin Books Ltd, Great Britain, 124.

²¹³ Ibid.

²¹⁴ *Soil Conservation Act 1938* (NSW) s 15A.

extension etc) to address the issues of concern. The effect of these provisions then, was to reflect at a symbolic level, the significance of the issue to the legislature and the broader community.

Haab and McConnell (2002) provide evidence of the sustainable management of common pool resources through endogenous institutional structures.²¹⁵ The central insight that drives this is the individual's recognition that individual restraint on behaviour can improve the welfare of the individual as well as for the group.²¹⁶ Haab and McConnell (2002) are concerned with mechanisms for the development of social norms, particularly within their conception of the difficulty of creating effective legal controls for diffuse pollution.²¹⁷ They argue that advertising, moral suasion, and modest fines with low probabilities of enforcement (typical devices to increase awareness of pollution) can be effective devices for initiating voluntary changes in behaviour if the offensive behaviour is observable and there is consensus on the consequences of the behaviour.²¹⁸ They point to the example of litter control as evidence of the emergence of a social norm of behaviour.²¹⁹ Indeed, the effectiveness of anti-littering campaigns, for example, has so changed social norms, with the internalisation of the values put forward, that the risk of 'shame and embarrassment' has led to behaviour change. Thus the adoption of voluntary mechanisms of constraint has affected behavioural outcomes.²²⁰ They conclude that the incorporation of social interaction into policy decision-making can result in lower cost and more effective policy solutions.²²¹

Banton (1967) has argued that the power of social norms can be attested to by observing the level of societal compliance in the absence of any particular enforcement strategy.²²² That control is maintained by the rewards and punishments which are built into every relationship, and which are evident in the conferring and withholding of esteem, the sanctions of gossip, and the institutional, economic, and moral pressures that underlie

²¹⁵ Habb T. and McConnell K., "Social norms and illicit behavior: an evolutionary model of compliance" (2002) 66 *Journal of Environmental Management* 67-76, 67.

²¹⁶ Ibid. 67.

²¹⁷ Ibid. 68-69.

²¹⁸ Ibid. 75.

²¹⁹ Ibid. 69.

²²⁰ Ibid. 70.

²²¹ Ibid. 76.

²²² Banton M., "Law Enforcement and Social Control" in Aubert V. (ed), *Sociology of Law* (1967), Penguin Books Ltd, Great Britain, 127.

behavioural patterns.²²³ Banton (1967) concludes that law and law enforcement appear puny compared with the extensiveness and intricacy of these other modes of regulating behaviour.²²⁴ The symbolic role of law can be an important tool in reflecting, changing and mobilising social norms, i.e. normative change.

The symbolic significance of law can be seen in either positive or negative terms. On one hand, law has symbolic significance in that it legally declares some forms of behaviour to be unacceptable.²²⁵ It sends important moral signals emphasising, for example, that tolerance of a polluting activity is a concession, whereas other mechanisms may lead to it being viewed as a right.²²⁶ On the other hand, Aalders (1999), contends that command regulation is a poor vehicle for changing behaviour.²²⁷ In the absence of appropriate resources and political will for implementation and enforcement, the symbolic use of law can lead to a general devaluing of law.

The question remains whether the context in which rules are designed can influence the quality of rules, their enforceability, the legitimacy of the regulators and the values of the regulated. The final part of this chapter will explore the insights from the literature on regulatory theory.

5.4 Regulatory Reform.

Regulatory reform concentrates on the quality of regulation, and is directed not so much at reducing regulation as at creating more efficient, flexible and effective command regulations and developing better non-regulatory policy instruments.²²⁸ Regulatory reform is forward looking and focuses on regulatory design. The purpose of this part of the chapter is to review the literature on regulatory theory in order to gain insight into the most effective strategies for regulatory redesign.

²²³ Ibid. 127-128.

²²⁴ Ibid. 128.

²²⁵ Baldwin R., "Regulation: After 'Command and Control'" in Hawkins K. (ed), *The Human Face of Law* (1997), Oxford University Press, New York, United States, 66.

²²⁶ Gunningham N., Sinclair D. and Grabosky P., "Instruments for Environmental Protection" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Great Britain, 42.

²²⁷ Aalders M., "Regulation and In-company Environmental Management in the Netherlands" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 250.

²²⁸ Stewart R. G., *Public Policy Strategy and Accountability* (1999) Macmillan Publishers Australia PL, Australia.

A number of strategies for regulatory (re)design have been proposed. Gunningham, Grabosky and Sinclair (1998) look to combinations of regulatory actors and regulatory strategies to achieve ‘optimal’ policy mixes specific to particular environmental problems.²²⁹ Fiorino (1997) critiques the traditional approach to regulatory design and instead advocates a ‘backward mapping’ approach to reform.²³⁰ Cohen (1997) proposes a ‘strategic approach’ to regulatory design that is ‘backward mapping’ in flavour.²³¹ Fiorino (1999) reviews the insights of social-political governance theory for regulatory redesign so as to facilitate policy learning.²³² The final contribution is from the reflexive law theorists who consider the role of environmental law in shifting values to achieve ‘internal self-reflection’ and reform.

5.4.1 Regulatory Design 1 – Smart regulation.

‘Smart Regulation’ is concerned with the design of efficient and effective ‘optimal’ policy mixes. The central thesis proposed by Gunningham, Grabosky and Sinclair (1998) is that

‘recruiting a range of regulatory actors to implement complementary combinations of policy instruments, tailored to specific environmental goals and circumstances, will produce more effective and efficient policy outcomes’.²³³

The focus should not be on a choice between the range of policy innovations, such as self-regulation, co-regulation, environmental audits, environmental management systems, eco-labelling schemes, liability rules for banks and insurers, environmental reporting, community ‘right-to-know’ legislation and good neighbour agreements.²³⁴

²²⁹ Grabosky P., Gunningham N. and Sinclair D., "Parties, Roles and Interactions" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Britain.

²³⁰ Fiorino D. J., "Strategies for Regulatory Reform: Forward Compared to Backward Mapping" (1997) 25 (2) *Policy Studies Journal* 249-265.

²³¹ Cohen S., "Employing Strategic Planning in Environmental Regulation" in Kamieniecki S., Gonzalez G. and Vos R. O. (ed), *Flashpoints in environmental policymaking: controversies in achieving sustainability* (1997), State University of New York Press, Albany, United States.

²³² Fiorino D. J., "Rethinking Environmental Regulation: Perspectives on Law and Governance" (1999) 23 *Harvard Environmental Law Review* 441-469.

²³³ Gunningham N., "Introduction" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Britain, 15.

²³⁴ *Ibid.* 13.

The focus should rather be on utilising a range of regulatory approaches to optimally address environmental issues. The real potential may lie in their combination.²³⁵ A better strategy is to seek to harness the strengths of individual mechanisms while compensating for their weaknesses by the use of additional and complementary instruments.²³⁶

Gunningham *et al* (1998) place particular emphasis on the potential role of second and third parties in regulatory approaches.²³⁷ The authors do not attempt to generalise about optimal combinations of instruments but rather suggest that the ‘appropriate mixes of instruments and actors will vary depending on the nature of the environmental problem and industry sector being addressed’.²³⁸ The design of a particular regulatory strategy is both context and problem specific.²³⁹ Gunningham and Sinclair (1999) would consider, for example, that the optimal regulatory solution for point source pollution would be quite different to one concerned with diffuse pollution,²⁴⁰ but in either case, strategies to address the multiple levers and drivers of the particular issue of concern are critical to its effective resolution. The priority is to match the mix of instruments with the imperatives of the environmental issue being addressed.²⁴¹

Gunningham and Sinclair (1999) consider the compatibility of instrument combinations and argue, for example, that voluntarism may work well with process-based command regulation (such as mandatory environmental management systems),²⁴² but combinations of performance-based command regulation with economic instruments are potentially counterproductive as the latter seek to maximise flexibility while the former limits choice.²⁴³

²³⁵ Ibid. 14.

²³⁶ Ibid. 15.

²³⁷ Ibid. 15.

²³⁸ Ibid. 16.

²³⁹ Gunningham N. and Sinclair D., "Designing Smart Regulation" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 306.

²⁴⁰ Ibid. 306.

²⁴¹ Gunningham N., "Introduction" in Gunningham N., Grabosky P. and Sinclair D. (ed), *Smart Regulation. Designing Environmental Policy* (1998), Clarendon Press, Oxford, Britain, 16.

²⁴² Gunningham N. and Sinclair D., "Designing Smart Regulation" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 328.

²⁴³ Ibid. 329.

They identify core principles which should underpin regulatory design. These propose that the regulatory design should:

- prefer policy mixes incorporating instrument and institutional combinations;
- prefer less interventionist measures;
- escalate up an instrument pyramid to the extent necessary to achieve policy goals;
- empower participants who are in the best position to act as surrogate regulators; and
- maximise opportunities for win/win outcomes.²⁴⁴

5.4.2 Regulatory Design 2 – Backward mapping.

The traditional approach to regulatory design has been top-down. Fiorino (1997) states that when government regulates it creates complex systems and many things can go wrong. Sources of such errors can include the following:

‘The original grant of authority from the legislature might be ambiguous or contradictory. The professional competence of the regulatory bureaucracy may be doubted, or it may be insufficient ... The internal organisation of the agency may impede effective decision making. The agency may not consult enough with outside interests, it may consult too much with a particular set of interests, or it may come to favour one set of interests over all others. Outside groups with a major stake in the regulatory proceedings may not be heard at all. The information used to make decisions may be flawed, outdated, or incomplete. The effects of decisions may be misjudged. The policy instrument ... may be inappropriate for achieving the policy makers’ goals.’²⁴⁵

Fiorino (1997) describes this traditional approach to public policy as ‘forward mapping’.

‘Implementation begins at the top, with as clear a statement of intent as possible, then proceeds downward through an organisation or system to define what must occur at each level, to

²⁴⁴ Ibid. 308-326.

²⁴⁵ Fiorino D. J., "Strategies for Regulatory Reform: Forward Compared to Backward Mapping" (1997) 25 (2) *Policy Studies Journal* 249-265, 250.

outline the necessary rules and actions, and to allocate responsibilities for implementing units.²⁴⁶

Forward mapping, he argues, offers a more promising strategy for reform when a consensus exists on the need for, and the form of, change at high policy level.²⁴⁷ What is apparent from the review of the literature on command regulation above is that a key missing element is consensus on the need for change, reflected in part by the lack of use of the available regulatory tools. The central feature and major weakness of forward mapping is its implicit assumption that policymakers control the organisational, political and technological processes that affect implementation.²⁴⁸

Instead Fiorino (1997) advocates an approach described as ‘backward mapping’ i.e bottom up design of regulation. Key arguments for a ‘backward mapping’ approach to environmental reform are the complexity of the current system, the diversity of vested interests, the multiple agencies and levels of government involved and the need to build consensus about change.²⁴⁹ He argues that a backward mapping approach to regulatory reform identifies the drivers and barriers that affect environmental performance first and later develops strategies for change based on that analysis.²⁵⁰ It develops reform strategies by moving from the particular to the general and is more deductive than traditional approaches.²⁵¹ A backward mapping approach takes a bottom-up view. The focus is on the behaviour at the lowest stage of the implementation process that generates the need for policy.²⁵² A backward mapping strategy is appropriate when there is a lack of political consensus on the need for and the form of change, or when mechanisms for implementing change are unreliable.²⁵³ In summary:

in forward mapping:

- implementation is ordered hierarchically;
- factors that policy makers can control are stressed, i.e. regulations, authority relationships, formal organisation structures, and administrative controls; and

²⁴⁶ Ibid. 253.

²⁴⁷ Ibid. 261.

²⁴⁸ Ibid. 253.

²⁴⁹ Ibid. 255.

²⁵⁰ Ibid. 258.

²⁵¹ Ibid. 258.

²⁵² Ibid. 253.

²⁵³ Ibid. 261.

- compliance, uniformity, standardisation and control are emphasised.

in backward mapping:

- implementation is dispersed and decentralised;
- factors policymakers control indirectly are stressed, i.e. incentive structures, bargaining relationships at various levels and knowledge or problem-solving skills at lower levels; and
- discretion, variability, and judgement at the ground level are emphasised.²⁵⁴

The particular advantages of a backward mapping strategy for reforming environmental regulations are that it:

- brings the affected stakeholders into the process of designing and implementing reforms;
- proceeds incrementally to build a consensus for change based on experience with small scale policy modifications; and
- leads to proposals allowing for more discretion and flexibility at the ground level, which is the direction that nearly all critics of the current system argue should be taken.²⁵⁵

Backward mapping is, however, a slow and potentially costly approach. It is time-consuming to form stakeholder groups, assemble basic information, agree on the issue/s or pilot projects, implement and evaluate the effects of programs, and transfer lessons to other sectors.²⁵⁶ Stakeholder participation is a particularly critical element and must be managed carefully.

5.4.3 Regulatory Design 3 – A strategic approach.

According to Cohen (1997) the goal of regulation is to influence the perceptions and behaviour of the regulated parties. He argues that each regulatory program must therefore be based on a strategy that seeks to understand the motivations of regulated

²⁵⁴ Ibid. 253.

²⁵⁵ Ibid. 262.

²⁵⁶ Ibid. 262.

parties and to influence their behaviour.²⁵⁷ He describes regulation as an attempt to 'influence' since 'control' is beyond the capacity of the regulatory state. Like the reflexive law theorists (discussed below), Cohen (1997) suggests that organisations do not really control their actions,

'instead, these actions are the result of a variety of internal exchange relationships and influences evidenced by explicit and implicit bargains and the deployment of potential and actual incentives'.²⁵⁸

Therefore a regulatory strategy is built of two components: the formal regulation itself, and an implementation plan, whereby the extra-legal elements (funding, technical assistance, exhortation and publicity) are manipulated to encourage compliance.²⁵⁹ Cohen (1997) sees no benefit in the command regulation vs market mechanisms debate. Rather 'each target of regulation must be assessed to determine what mix of incentives and disincentives will result in the desired change in behaviour'.²⁶⁰ In fact, developing the administrative capacity in government to make appropriate assessments is seen to be more important than making decisions on which regulatory mechanism is superior.²⁶¹

Cohen (1997) proposes a strategic approach to designing regulation, which involves a series of steps:

- problem recognition;
- identification of the parties;
- historical analysis, i.e. what is the current performance level?
- situational analysis, i.e. what are the desired outcomes?
- party analysis, i.e. what are the capabilities and attitudes of the regulated community?
- strategic regulation formulation — designing specific strategies to influence compliance behaviour of regulated parties;

²⁵⁷ Cohen S., "Employing Strategic Planning in Environmental Regulation" in Kamieniecki S., Gonzalez G. and Vos R. O. (ed), *Flashpoints in environmental policymaking: controversies in achieving sustainability* (1997), State University of New York Press, Albany, United States, 111.

²⁵⁸ Ibid. 110.

²⁵⁹ Ibid. 111.

²⁶⁰ Ibid. 114.

²⁶¹ Ibid. 123.

- *ex ante* review —projecting the fit and feasibility of the regulatory plan before implementation and modification of the plan;
- *ex post* review and revision — reviewing the success of the regulatory strategy in changing the behaviour of regulated parties and adopting subsequent mid-course corrections.²⁶²

A strategic approach to regulation would openly acknowledge the reality of the bargaining situation and develop compliance strategies with input from the regulated community.²⁶³ The approach to regulatory reform proposed by Cohen is strategic, dynamic and adaptable. It is holistic to the extent that it is concerned with problem definition, rule making, rule implementation and review.

5.4.4 Regulatory Design 4 – Insights of social-political governance theory.

According to Fiorino (1999) another strand in the literature that helps in rethinking regulation is writing on social-political governance.²⁶⁴ This literature has also been an important contributor in the context of the sustainability debate. It basically concerns a shift from thinking of government – community interaction as being one way and looks to new patterns of interaction between government and other groups in society. It consists of a more or less continuous process of interaction between social actors, groups and forces and public or semi public organisations, institutions or authorities.²⁶⁵ The new patterns of interactions have several dimensions.

- They are not temporary but structural and enduring and become institutionalised in some way.
- Distinctions between public (State, bureaucracy) and private (society, markets) are blurred, as the boundaries between them become fluid and permeable.
- Government acts not on, but with, non-governmental entities.²⁶⁶

²⁶² Ibid. 111-112.

²⁶³ Ibid. 113.

²⁶⁴ Fiorino D. J., "Rethinking Environmental Regulation: Perspectives on Law and Governance" (1999) 23 *Harvard Environmental Law Review* 441-469, 450.

²⁶⁵ Ibid. 450.

²⁶⁶ Ibid. 450.

This approach recognises the limits of traditional, hierarchical models of government given the dynamism, complexity, and diversity of society.²⁶⁷ It accords with sustainability theory to the extent that the traditional model of government is considered an impediment to change to the extent that traditional priorities, patterns and interests constrain change. Both the interdependence of actors in society and the complexity of problems being addressed mean that coordination is critical and a cooperative approach is required.²⁶⁸ In these circumstances governing should be seen as a learning process, the preconditions for which include trust, acceptance of shared responsibility among interests and political involvement and support.²⁶⁹ Two dimensions of the policy regime are considered important, i.e. the quality of dialogue between government, industry and other actors, and the necessity for independence of government from industry influence.²⁷⁰

The need for policy learning is apparent in all aspects of the policy process: in how problems are defined and organised; in the organization of tasks in government; in relationships among participants in the policy process; and in the choice of policy instruments and strategies.²⁷¹ Arguably this process should assist in moving the values of both governments and individuals about the need for change and help to build a consensus for change.

Glasbergen (1996) describes this process as social learning, which requires new patterns of communication and interaction, several features of which are:

- structural openness in which government and industry interact in multiple ways, not just about rule making but also by sharing information;
- change in the nature of participant roles, i.e. government shifts from regulator and controller to facilitator; and,
- a different approach to implementation in which government, industry and others share responsibility for achieving policy goals.²⁷²

²⁶⁷ Ibid. 450.

²⁶⁸ Ibid. 452.

²⁶⁹ Ibid. 454.

²⁷⁰ Ibid. 456.

²⁷¹ Ibid. 457.

²⁷² Ibid. 458 citing Glasbergen P., "Learning to Manage the Environment" in Lafferty W. and Meadowcroft J. (ed), *Democracy and the Environment: Problems and Prospects* (1996).

The context of learning is considered important and includes power relationships, institutional aspects of the policy process and the legal framework.²⁷³ The critical challenge is to build capacity for social learning into the policy process.

According to Fiorino (1999):

‘One way to approach regulatory reinvention would be to focus on how best to promote policy learning by, for example, building reliable feedback mechanisms into policy-making; strengthening learning networks; creating conditions that would lead to more trust and more productive dialogue; and building enough flexibility into the policy system so that it is possible to respond to lessons drawn from one’s own experience or that of others.’²⁷⁴

According to Janicke and Weidner (1997):

‘[M]ost nations began with a strategy of dispersion of pollution, moved to one of direct regulatory control of pollution sources, and then progressed to a more complex strategy that drew on a range of policy instruments and tried to build more cooperative relationships with a variety of societal interests.’²⁷⁵

In terms of the literature discussed here, this progression may be seen as one from substantive to reflexive law, from hierarchical–adversarial to social–political governance, and from technical to conceptual and social learning.²⁷⁶

5.4.5 Regulatory Design 5 – Insights of reflexive law theorists.

According to Fiorino (1999) the inherent reflexivity of the current post-modern phase brings into question traditional regulatory strategies which assume that scientific

²⁷³ Fiorino D. J., "Rethinking Environmental Regulation: Perspectives on Law and Governance" (1999) 23 *Harvard Environmental Law Review* 441-469, 468.

²⁷⁴ Ibid. 468.

²⁷⁵ Janicke M. and Weidner H., "Summary: Global Environmental Policy Learning" in Janicke M. and Weidner H. (ed), *National Environmental Policies: A Comparative Study of Capacity-Building* (1997), Springer, Germany, 467-72

²⁷⁶ Fiorino D. J., "Rethinking Environmental Regulation: Perspectives on Law and Governance" (1999) 23 *Harvard Environmental Law Review* 441-469, 467, Janicke M. and Weidner H., "Summary: Global Environmental Policy Learning" in Janicke M. and Weidner H. (ed), *National Environmental Policies: A Comparative Study of Capacity-Building* (1997), Springer, Germany.

premises are provable and that rigid technology-based instruments will be effective.²⁷⁷ Giddens (1990) considers the current phase of post-modernity to be characterised by the inherent reflexivity of knowledge;²⁷⁸ the rapid rate and scope of change, which is increasingly global; the inability of any one set of actors or institutions to determine events; and the sense that we are moving away from our current modernity towards a new and distinct type of social order.²⁷⁹ The perspectives of reflexive law and policy-learning share a common starting point: that the world is too complex and dynamic to be managed within traditional conceptions of law, bureaucracy and the State.²⁸⁰

In this context, another conceptualisation of self-regulation sees it as a mechanism to mobilise social processes for internal self-reflection on environmental performance. Reflexivity refers to the process by which people learn from and change behaviour based on information they receive.²⁸¹ Reflexive law theorists challenge traditional understandings of law and see it rather in the context of complex interactions of complex social systems.²⁸² Paterson and Teubner (1998) find simple causal explanations of the impact of law simplistic and instead regard, for example, the legislative process as a series of loosely coupled recursive processes.²⁸³ These processes are defined as including:

'the ongoing power game of the political actors, the quasi-scientific policy-talk of the experts, the profit-oriented calculations of the lobbyists and the doctrinal arguments and constructions of the lawyers'.²⁸⁴

According to Gaines and Kimber (2001) Teubner sees the role of law as institutionalising processes in social systems, which would encourage self-reflection and self-regulation.²⁸⁵ In his view, this means moving away from the idea of direct

²⁷⁷ Fiorino D. J., "Rethinking Environmental Regulation: Perspectives on Law and Governance" (1999) 23 *Harvard Environmental Law Review* 441-469, 444.

²⁷⁸ In modern society, the anchor of tradition is gone; science and empiricism define the basis of reflexivity. In science, nothing is certain ... nothing can be proved ... knowledge is contingent, subject to revision and reinterpretation. Ibid. 444.

²⁷⁹ Ibid. 445 citing A Giddens (1990) *The Consequences of Modernity* 46.

²⁸⁰ Ibid. 445.

²⁸¹ Ibid. 444.

²⁸² See generally Paterson J. and Teubner G., "Changing Maps: Empirical Legal Autopoiesis" (1998) 7 (4) *Social and Legal Studies* 451-486.

²⁸³ Ibid. 460.

²⁸⁴ Ibid. 460.

²⁸⁵ Gaines S. and Kimber C., "Redirecting Self-Regulation" (2001) 13 (2) *Journal of Environmental Law*

societal guidance through a politically instrumentalised law and restricting it to cope with social regulation and the design of self-regulation mechanisms.²⁸⁶ Reflexive law tends to rely on procedural norms that regulate processes, organisations, and the distribution of rights and competencies. It contains both normative evaluations and strategic considerations.²⁸⁷

Gaines and Kimber (2001) describe reflexive environmental law as an effort to construct a law of ecological self-organisation using strong external pressures for internal self-reflection.²⁸⁸ Reflexive law is not seen as a substitute for, but a supplement to, traditional forms of legal control.²⁸⁹ The aim of reflexive environmental law is to mobilise the self-referential capacities of social systems and institutions to shape their own responses to the complex social problems of environmental protection by encouraging a continuing and on-going internal self-critical reflection within institutions about their environmental performance.²⁹⁰ Under a regime of reflexive law, the legal control of social action is indirect and abstract, for the legal system only determines the organisational and procedural premises of future action.²⁹¹

Fiorino (1999) considers both information disclosure and environmental management systems as examples of reflexive law.²⁹² Information disclosure requires firms to release information on their environmental performance to communities and other interested stakeholders. In Australia, information disclosure is a key requirement for government agencies with mandatory state of the environment reporting. The value of this strategy is that it requires individuals and organisations to monitor their environmental performance; provides the interested public with information to review that performance; and enables an informed public input into or pressure for internal review. The EMS, which combines organisational, procedural, and reporting provisions, aims to create within firms the conditions for self-critical reflection about behaviour and how to improve it.²⁹³ Aalders (1999) poses the question:

²⁸⁶ Ibid.

²⁸⁷ Ibid.

²⁸⁸ Ibid.

²⁸⁹ Ibid.

²⁹⁰ Ibid.

²⁹¹ Fiorino D. J., "Rethinking Environmental Regulation: Perspectives on Law and Governance" (1999)

²⁹² *Harvard Environmental Law Review* 441-469, 447.

²⁹³ Ibid. 448-449.

²⁹³ Ibid. 449.

‘Are alternative regulatory strategies of stimulating companies to develop internal management systems the answer to regulatory problems with implementing and enforcing environmental regulation?’²⁹⁴

5.4.6 Discussion

This diverse literature on regulatory theory concerned with regulatory design has a number of themes. In the first instance there is an emphasis on understanding the context of regulation i.e. the problem of concern, the players in the game, the levers and drivers of behaviour. In short, it calls for recognition of the complexity of modern society and explicit accounting for the range of social factors and extra legal processes which impinge on the operation of the law. More than simple recognition however there is a call to mobilize these diverse forces to build a consensus for change. A critical issue for all these writers is the need to engage third parties in the design and implementation of the law. Within this context simple cause and effect analysis and single instrument approaches are deemed to be inadequate. Rather, complex problems require complex solutions that feature flexibility and variety. This is a far more complex regulatory challenge and points to bottom-up, situation specific, multi-actor, multi-instrument approaches. Ultimately the context and the manner in which regulation is designed is critical to its effectiveness. Rather than designing solutions we need to design the process for generating solutions. In a legal context this means designing procedure that improves problem identification, mobilises a diversity of actors and facilitates learning.

5.5 Conclusion

In the first part of this chapter a variety of self-regulatory approaches to the management of natural resources were described. These approaches have application in a limited range of circumstances because the essential preconditions for their use are not broadly evident across the agricultural sector. They can play an important educative function and may influence environmental outcomes but are not sufficient in themselves to turn the performance of the sector around. It is evident from this discussion that self-

²⁹⁴ Aalders M., "Regulation and In-company Environmental Management in the Netherlands" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 251.

regulatory approaches need to be preceded by and underpinned by a robust regulatory system. Further to this, important questions of public interest such as transparency, accountability and public participation need to be considered. The retention by government of control is critical in cases where the management of common pool resources, publicly owned resources and biodiversity is at issue. These resources must be managed in the broader public interest particularly in the context of sustainability.

In the second part of this chapter I have reviewed the literature on command regulation along three themes i.e. rules, enforcement and compliance, and the normative influence of law. This has shown that there is much more variety and flexibility in command regulation than is commonly perceived. It has also been demonstrated that problems attendant on enforcement and compliance are a result of poorly structured legislation (inappropriate penalties), lack of resources for implementation and moral ambivalence about the use of sanctions. With respect to the normative influence of law, I have argued that command regulation can be of symbolic significance, influence attitudes to and thus the acceptability of, particular activities to the broader public.

In the third part of this chapter I have reviewed the literature on regulatory theory concerned with regulatory redesign. This literature supports the idea that a comprehensive suite of regulatory strategies and concurrent enforcement tools is likely to be most effective. It has been argued further that the regulatory design process can have a very important influence on both the nature of the rules and their enforceability. This is because a process which engages the broader community, third parties and the regulated, and is structured to recognise diversity, flexibility and specificity of problems is likely to produce more effective regulation and build a consensus for change.

According to Bradsen (1994)

‘.. legislation is a very flexible instrument, with its design limited only by the imagination. Far more emphasis should be placed on the unique capacity of law as a community instrument for realistically assessing, facilitating or organizing, particularly where long-term issues are involved.’²⁹⁵

²⁹⁵ Bradsen J., "Alternatives for Achieving Sustainable Land Use" in Cosgrove L., Evans D. and Yencken D. (ed), *Restoring the Land* (1994), Melbourne University Press, Melbourne, Australia, 181.

The question then becomes whether, or perhaps to what extent, planning in the natural resources context can facilitate regulatory redesign? If the consultative frameworks established by planning are involved in determining regulations in a specific catchment, are they likely to be more enforceable, enforced and acceptable to the regulated?

In the following chapter the catchment and water planning legislation in SA and NSW is reviewed and critiqued. The review is structured to reflect the elements of sustainability discussed in Chapter Four. The critique draws out some of the issues about command regulation discussed in this chapter.

Part Four

Chapter Six – Legislating for sustainability: A critical review of the planning provisions of the *Water Resources Act 1997* (SA), the *Catchment Management Act 1989* (NSW) and the *Water Management Act 2000* (NSW).

6.1 Introduction.

This chapter consists of a desktop analysis of the legal arrangements for catchment and water planning in SA and NSW provided by the *Water Resources Act 1997* and the *Catchment Management Act 1989* and the *Water Management Act 2000*. This analysis is arranged around the elements of ‘sustainable’ natural resource management described in Chapter Four. It has been argued that appropriately structured legislation can facilitate a transition to the sustainable management of natural resources. The legal framework can establish the parameters and processes through which planning takes place. Legislation can establish the priority of management and is an important tool for ensuring the persistence of management initiatives. In Chapter Five regulatory theory literature was reviewed and it was concluded that the efficacy of command regulation can be increased by the manner in which, and the context in which, rules are made. This review of legislation will draw on aspects of both sustainability and regulatory theory.

The elements of sustainability with the potential to be incorporated into a legal framework for planning can be distilled to include:

Priority to the environment — as the only sustainable system is one that consumes resources within the limits of the resource base.

Equity - inter-generational and intra-generational. It has been argued that the most basic protection of inter-generational equity involves the most judicious use of non-renewable resources and the use of renewable resources at the rate of renewal. It also involves a shift in time perception, such that goals and management actions should at least be conditioned within a time frame of 50 years. Intra-generational equity can be

protected when local decision-making is conditioned by leadership and direction from the State, such that the parameters set for local management protect the interests of the broader community.

Precaution. Precaution can be operationalised through the use of scientific information about which the degree of certainty is declared; attempts to anticipate and identify future threats; decision-making which includes a broad range of interests, and incorporates the diversity of perspectives into decision-making, particularly in the context of scientific uncertainty; constraint on the exercise of discretion by decision-makers and decision-making which involves least long-term risk of damage.

Integration. This involves the integration of: environmental, social and economic information into decision-making and review; sectoral natural resource management regimes so that they are harmonised and mutually supportive, and rules and tools. Sectoral integration can be achieved either directly through planning which has a wide scope, or indirectly through provisions, which require consistency and clarify relationships between different plans.

Adaptivity. Management must be adaptive. This involves clearly setting management targets, monitoring progress, and the review and adjustment of plans. It also involves a clear articulation of management actions and what they are intended to achieve within specified timeframes.

Public participation. Effective public participation is conditional upon transparent administration and public disclosure of information. It requires: specific and effective rights of participation in planning and management; a duty on decision-makers to take input and submissions into account; scope for administrative and judicial review, including rights of objection and an enforceable regulatory framework. Participation can also be direct, that is where the community or its representatives are involved in planning through membership of committees.

Appropriately mandated administration. Administrative arrangements must be supported by a mandate that clarifies the roles and responsibilities of the administrator or administering agency. The administrative arrangements must be persistent,

accountable, adaptive and effectively resourced, in terms of both physical resources and appropriate powers. The discretion of the administrator must be circumscribed by the guidance provided by plans.

This desktop review will examine the legal framework for catchment and water planning in SA and NSW, with reference to a number of features including:

- the scope of the legislation;
- the objects of the relevant legislation and the extent to which they convey a priority to the environment;
- rights to take water;
- the administrative framework established by the legislation;
- scope, content and review of plans;
- the plan-making procedure, including public participation in plan-making;
- formal requirements for integration of plans;
- provisions relating to functions, clarity, accountability and transparency;
- adaptive capacity of plans i.e. identification of specific goals or objectives, requirements for monitoring and review; and
- appeals and third party rights.

The extent to which these provisions comply with the elements of sustainability described above will be analysed. It will be demonstrated that there are remarkable similarities in the legal arrangements for catchment and water planning in SA and NSW. There are also significant differences, particularly in relation to administration, and these are drawn out. It is not intended to propose a model of any kind, given that the provisions should be considered in their totality, whereby apparent weaknesses may be counterbalanced by particular strengths in another area. The implementation of the legislation is examined in detail in Chapters Seven and Eight.

6.2 The Water Resources Act 1997 (SA).

6.2.1 Background.

In 1995 the South Australian Government released a document entitled *South Australia-Our Water Our Future Sustainable Management*,¹ a comprehensive report, which described surface and groundwater condition and management approaches. A companion document, *Providing for the Future*,² outlined the new directions for water policy in the State. These included: to provide better opportunities for community participation in the decision-making process within the context of State-wide strategies; to recognise and provide for the water needs of the environment; to utilise economic incentives so as to ensure the efficient and effective use of water; and to achieve sustainability through the reuse of water.³ Key strategies included: strengthening inter-governmental partnerships to facilitate integrated catchment management across political, regional and local boundaries; strengthening regional, catchment and local water management and integrating planning; development and management of water with other natural resources and regional economies. At this time water was managed through two pieces of legislation the *Water Resources Act 1990* (SA) and the *Catchment Water Management Act 1995* (SA). Broadly speaking the former legislation provided the framework for access to water and the latter established the framework for catchment management across the State. After a comprehensive review of the legislation these two Acts were repealed and replaced with the *Water Resources Act 1997* (SA) (WRA). This contrasts with the situation in NSW where there is a two-tier system for catchment and water planning.

6.2.2 Overview

The WRA is sectoral water legislation which, maintains the traditional separation of the regulation of water quantity and quality issues,⁴ but integrates management of surface

¹ Government of South Australia, *South Australia Our Water Our Future - Sustainable Management* (1995) Adelaide, Australia.

² Government of South Australia, *Providing for the Future* (1995) Adelaide, Australia.

³ Ibid.

⁴ Water quality is regulated through the provisions of the *Environment Protection Act 1993* (SA). Point source discharges are regulated through a licensing system, non point source or diffuse pollution by

and groundwater. The distinction in this context between regulation and management needs to be emphasised. While regulatory responsibility for water quality falls to the *Environment Protection Act 1993* (SA), the WRA provides extensive powers for catchment water management boards to undertake management actions for the protection and improvement of water quality. It includes the formalisation of water management at a catchment scale and reforms the administrative structure and decision-making process. It allows for the establishment of 'expertise-based' catchment water management boards (CWMBs), which are independently funded and have regulatory and management responsibilities. The Act facilitates local management of water within the context of strong, strategic direction from the State Government, which includes an emphasis on monitoring and performance auditing. It establishes a clear hierarchy of planning instruments, clarifies the role of participants in the management of water, outlines mechanisms for the establishment of CWMBs and provides for community participation in plan-making and implementation. In recognition of regional environmental differences there is considerable flexibility at the local level to utilise a diversity of regulatory and non-regulatory mechanisms in plans. It balances flexibility, accountability and certainty.⁵ The Act includes provisions to support integration but the links with the land use planning system could be improved.

Bennett *et al* (2002) consider the SA model of catchment planning provided by the WRA to be a good example of "both reductionist and holistic approaches" to management.⁶ The State Water Plan is reductionist in that it includes specific management actions for riparian zones, wetlands, floodplains, estuaries, groundwaters, water allocation and water quality. The system is holistic to the extent that catchment water management plans act as the key to integrating plans.⁷

6.2.3 Objects.

The objects clause of the WRA establishes the purpose and scope of the legislation.

means of Environment Protection Policies which encourage 'Best Practice Management'. This is discussed further in Chapter Eight.

⁵ Dyson M., "The Water Resources Act, 1997 (SA) - Balancing Flexibility, Accountability and Certainty" (1997) *Environmental and Planning Law Journal* 305-314.

⁶ Bennett J., Sanders N., Moulton D., Phillips N. and Redfern F., *Guidelines for Protecting Australian Waterways* (2002) Land and Water Australia, Canberra, Australia, 115.

⁷ *Ibid.* 115.

‘(1) The object of this Act is to establish a system for the use and management of the water resources of the State -

- (a) that ensures that the use and management of those resources sustain the physical, economic and social well being of the people of the State and facilitate the economic development of the State while-
 - (i) ensuring that those resources are able to meet the reasonably foreseeable needs of future generations; and
 - (ii) protecting the ecosystems (including their biological diversity) that depend on those resources; and
- (b) that, by requiring the use of caution and other safeguards, reduces to a minimum the detrimental effects of that use and management.’⁸

The objects clause is supported by a requirement on all decision-makers and administrators to have regard to the need: to maintain or improve water quality and the benefit of so doing to other natural resources; to protect water and reverse degradation; to protect and enhance ecosystems; and to integrate administration as far as practicable with other legislation dealing with natural resources.⁹ The scope then is broader than simply sectoral water quantity management. Conservation of water and facilitation of its reuse are also within the scope of the legislation.¹⁰

6.2.4 Priority to the environment.

The objects of the WRA do not establish an unconditional priority to the environment. However the commitment to development is conditioned by the intra-generational and ecosystem protection caveats. The requirement for caution should also strengthen the protective elements advanced in the objects clause. The objects clause is strengthened by the specific requirements placed on persons and bodies established under the Act to have regard to a range of aspects of environmental protection (broadly defined). Other elements of a sustainable approach to natural resource management, including community participation and integration, are incorporated. As with many ESD-related objects clauses (see Chapter Four) it does not convey any sense of priority between the different elements listed. This can be considered a weakness since the resolution of

⁸ WRA s. 6(1)

⁹ WRA s. 6(2)(i)-(iii), (viii).

¹⁰ WRA s. 6(2)(v)(vii).

competing priorities is left to the discretion of administrators. However, the exercise of discretion in a specific sense is constrained by the relevant plan (see below) and strengthened by other provisions. For example, the Minister when making a decision must take into account the needs of the ecosystems that depend on that resource for water.¹¹

6.2.5 Administration.

The WRA creates a hierarchy of bodies under the Act. The responsibilities of these different bodies are specified and there is provision for scrutiny and supervision of the exercise of functions.

Water Resources Council.

The WRA establishes a Water Resources Council¹² (WRC) with a membership of five persons.¹³ The membership of the WRC is ‘interest-based’ except with respect to future generations where the criteria are ‘expertise-based’. The membership consists of a person who has knowledge of natural resource management for the purpose of protecting natural resources for the benefit of future generations¹⁴ and, nominees from local government,¹⁵ conservation interests,¹⁶ farming¹⁷ and CWMBs.¹⁸ The provision for representation of ‘future generations’ on the WRC is a significant attempt to operationalise the general commitment in the objects clause. However the lack of representation for Indigenous interests is a significant omission.

The functions of the WRC are broadly supervisory in nature, and can include examination and assessment of the implementation of the State Water Plan,¹⁹ implementation of catchment water management plans,²⁰ water allocation plans,²¹ and,

¹¹ WRA s. 45(2).

¹² WRA s. 49.

¹³ WRA s. 50(1).

¹⁴ WRA s. 50(2)(a).

¹⁵ WRA s. 50(2)(b).

¹⁶ WRA s. 50(2)(c).

¹⁷ WRA s. 50(2)(d).

¹⁸ WRA s. 50(2)(e).

¹⁹ WRA s. 51(1)(a)(i).

²⁰ WRA s. 51(1)(b)(i).

²¹ WRA s. 51(1)(c)(i).

on its own initiative, provision of advice to the Minister on any matter relating to the state and condition of water resources or their management.²²

The supervisory nature of the WRC has a potentially important role in ensuring the accountability of other bodies established by the Act and the exercise of their particular functions. It also provides for some scrutiny of the State agency responsible for aspects of implementation. The degree of independence of the WRC could be an important element in the exercise of this role.

Catchment water management boards.

Catchment water management boards (CWMBs) are established by the Governor, by proclamation made on the recommendation of the Minister.²³ The Minister must advertise the intention to establish a CWMB²⁴ and must not recommend that establishment without the consent of councils in the proposed CWMB area.²⁵ The boundaries of the catchment area must take into account the relevant watersheds and underground aquifers.²⁶ However, it is not exclusively defined by them. A CWMB is a body corporate,²⁷ an instrumentality of the Crown²⁸ and subject to direction and control by the Minister.²⁹

CWMBs have a membership of between five and nine members³⁰ who have a term of four years, which may be renewed.³¹ The presiding member is appointed by the State Governor and must have managerial skills and experience³² but may not be an employee of the Crown or constituent council.³³ Other members of a CWMB include: a local, active community representative;³⁴ and one or two persons who have ‘knowledge and experience’ in the management or development of water or other natural resources, the

²² WRA s. 51(1)(d).

²³ WRA s. 53.

²⁴ WRA s. 54.(1).

²⁵ WRA s. 54(2).

²⁶ WRA s. 54(3).

²⁷ WRA s. 55(1)(a).

²⁸ WRA s. 55(2)(a).

²⁹ WRA s. 55(2)(c).

³⁰ WRA s. 57.

³¹ WRA sch 2. cl. 2.

³² WRA s. 58(1).

³³ WRA s. 58(2).

³⁴ WRA s. 59(1)(a).

use of water, conservation of ecosystems, local government and local administration.³⁵ The other members (if any) must have 'knowledge or experience' in public or business administration, regional economic development, or other relevant knowledge or experience.³⁶ There is no specific representation of Indigenous knowledge. Persons appointed to the Board are to have local knowledge of the land and water issues in the catchment.

The criteria for board membership of 'knowledge or experience' means that boards are characterised as 'expertise' based (as distinct from interest based). This differs notably from the approach adopted for determining membership of the WRC (see above). The level of expertise is defined in only the most general of terms. It does not constitute direct participation by the community in catchment management although local knowledge of catchment issues would be beneficial.

CWMBs have a range of functions, responsibilities and powers. The functions of a CWMB are:

- (a) to prepare and implement a catchment water management plan in accordance with this Act; and
- (b) to provide advice to the Minister and the constituent councils for the board's area in relation to the management of the water resources in the board's area in accordance with this Act; and
- (c) to promote public awareness of the importance of the proper management of the water resources in the board's area and of the sustainable use of those resources; and
- (d) such other functions as are assigned to the board by or under this Act or any other Act.³⁷

A CWMB has responsibility for infrastructure.³⁸ It has the power to undertake a range of works,³⁹ acquire land,⁴⁰ and establish committees to advise it on any matter.⁴¹ It can also provide financial or other forms of assistance to constituent councils, businesses, community groups or other persons for activities which will improve the quality of water or its management,⁴² and assist persons detrimentally affected as a result of the

³⁵ WRA s. 59(1)(b)(i)-(iv).

³⁶ WRA s. 59(1)(c)(i)-(iii).

³⁷ WRA s. 61 (a)-(d).

³⁸ WRA s. 62.

³⁹ WRA s. 63(2)(a)-(k) including to stop or reduce the flow of water, hold water in a watercourse or lake, change a watercourse etc.

⁴⁰ WRA s. 63(2)(l).

⁴¹ WRA s. 63(2)(m).

⁴² WRA s. 64(1)(a).

implementation of a catchment water management plan (CWMP).⁴³ The activities of the CWMB are restricted to the extent that it must relate to its functions or plan.⁴⁴

The CWMB may delegate some functions⁴⁵ but may not delegate the preparation of a CWMP or power to issue a notice.⁴⁶ A CWMB and persons authorised by it have rights of entry and occupation of land under certain circumstances.⁴⁷ Officers are authorised by the Minister,⁴⁸ and have rights of entry and inspection.⁴⁹ A CWMB has power to make by-laws.⁵⁰ It may appoint employees or use the services of persons employed by the constituent council.⁵¹ Infrastructure and land may be vested in a CWMB.⁵²

From this it can be seen that a CWMB has planning, management, regulatory and enforcement functions. Both plan-making and plan implementation responsibilities reside within the same body. The specific functions of a CWMB are defined by the plan it prepares and there is broad authority to engage in a wide range of activities for catchment management.

CWMB meetings are to be open to the public, except in limited circumstances⁵³ and must be advertised.⁵⁴ Decisions at CWMB meetings are carried by a majority⁵⁵ of a quorum.⁵⁶ Accurate minutes must be kept,⁵⁷ and both agenda and minutes must be sent to the Minister, the local member and constituent councils⁵⁸ and made available to members of the public.⁵⁹

Funding of the CWMBs comes from two sources. Firstly, they are funded by a levy payable by persons who are authorised by a water licence under s.11 to take water from

⁴³ WRA s. 64(1)(b).

⁴⁴ WRA s. 65.

⁴⁵ WRA s. 66(1).

⁴⁶ WRA s. 66(2)(i)(ii).

⁴⁷ WRA s. 67.

⁴⁸ WRA s. 87.

⁴⁹ WRA s. 88.

⁵⁰ WRA s. 68.

⁵¹ WRA s. 70.

⁵² WRA s. 73.

⁵³ WRA sch. 2 cl. 6.

⁵⁴ WRA sch. 2. cl.6(2)-(4).

⁵⁵ WRA sch. 2. cl 5(3).

⁵⁶ WRA sch. 2 cl.5(1).

⁵⁷ WRA sch. 2. cl.5(5).

⁵⁸ WRA sch. 2. cl 7.

⁵⁹ WRA sch. 2. cl. 7(3).

a prescribed water source.⁶⁰ The levy is based on the quantity of water taken⁶¹ and other factors, including the purpose for which the water is used.⁶² A special purpose levy may also be declared by the Minister in relation to prescribed water sources for specific purposes.⁶³ Secondly, constituent councils contribute to funding the boards.⁶⁴ Councils raise their contribution by a levy on rateable land,⁶⁵ which may be calculated on the basis of the capital value of the land⁶⁶ or as a fixed amount on all rateable land.⁶⁷

CWMBs can be characterised as a form of regional government, independent of State government to the extent provided by their structure and funding arrangements. The independent funding arrangements may prove to be particularly significant. From this it may be deduced that they are potentially powerful agents able to determine priorities and deliver on-the-ground. They have a wide range of powers which include planning, regulation and implementation. While they have high levels of administrative accountability, their political accountability is relatively indirect when compared with, for example, local councils. There is a certain flexibility in the broad prescription of their functions to respond to local issues of concern and priority. The weakness of this approach may be that the CWMBs create another layer of government generating their own coordination and duplication issues. The distance from State government may enhance independence but limit influence, that is, there is less potential for these types of structures to influence priorities and programs of State government agencies which significantly influence the direction of natural resource management in their own right. The relationship between a CWMB and local councils are not addressed in the Act to any significant extent.

⁶⁰ WRA s. 122.

⁶¹ WRA s. 122(7).

⁶² WRA s. 122(8)(b).

⁶³ WRA s. 123.

⁶⁴ WRA s. 135.

⁶⁵ WRA s. 138.

⁶⁶ WRA s. 135(3)(a).

⁶⁷ WRA s. 135(3)(b).

Water resource planning committees.

Water resource planning committees (WRPCs) may be established for any prescribed watercourse, lake, well or surface water area.⁶⁸ WRPCs are established in areas outside CWMB boundaries. A WRPC is a body corporate,⁶⁹ an instrumentality of the Crown,⁷⁰ can hold property on behalf of the Crown⁷¹ and is subject to direction and control by the Minister.⁷² As with CWMBs, appointment to these committees is ‘knowledge or experience’ based in areas including: the management or development of water or any natural resource, use of water resources, conservation of ecosystems; and local government.⁷³ The functions and powers of WRPCs include the preparation of a draft water allocation plan in relation to its water resource⁷⁴ and matters delegated by the Minister in relation to licensing and allocation of water.⁷⁵

6.2.6 Plans.

The WRA creates a hierarchy of plans, which include the State Water Plan (SWP), catchment water management plans, water allocation plans, and local water management plans. Each plan has a specific function and the relationship between plans is clarified to the extent of a requirement for consistency.

State Water Plan.

The purpose of the SWP is to set out policies for achieving the objects of the Act throughout the State.⁷⁶ The SWP must:

- ‘(a) assess the state and condition of the water resources of the State; and
- (b) identify existing and future risks of damage to, or degradation of, the water resources of the State;
and
- (c) include proposals for the use and management of the water resources of the State to achieve the

⁶⁸ WRA s. 81.

⁶⁹ WRA s. 82(1)(a).

⁷⁰ WRA s. 82(2)(a).

⁷¹ WRA s. 82(2)(b).

⁷² WRA s. 82(2)(c).

⁷³ WRA s. 83(1).

⁷⁴ WRA s. 84(1)(a).

⁷⁵ WRA s. 84(1)(b) refers to functions under Part 5 of the Act.

⁷⁶ WRA s. 90(2).

- object of this Act; and
- (d) include an assessment of the monitoring of changes in the state and condition of the water resources of the State and include proposals for monitoring those changes in the future'.⁷⁷

The Minister must keep the SWP under review⁷⁸ but there is no specified time frame and it would appear to be an on-going process. There is provision for public consultation about plan amendment and the Minister must call for public submissions and take them into account.⁷⁹ The requirement for the SWP to assess and monitor the condition of the water resources of the State has the potential to provide a good management base. The requirement to anticipate future risks is precautionary in nature. However, the Act does not require the SWP to include a vision for the future, or translate it into goals and objectives of management.

Catchment water management plans.

Catchment water management plans (CWMPs) must be prepared by a CWMB in relation to the water resources of its catchment area.⁸⁰ The WRA is very specific about the range and scope of information that must be included in a CWMP. The CWMP must: include information about the quantity and quality of the water resource and assess the ecosystem water needs; outline relevant economic, environmental and social considerations; define CWMB goals; describe methods to assess implementation of the plan including monitoring; and set out a three-year program for implementation,⁸¹ including an estimate of resource requirements and expenditure, and the source of funds. It must also set out the matters to be considered when determining permits for water affecting activities.⁸² Beyond this the legislation provides little detail on the specific purpose of a plan (e.g. restoration of environmental flows) and there is a risk that this could lead to the development of very descriptive plans. A CWMP must also identify the changes (if any) that are necessary or desirable to a development plan, any activity of a constituent council, and the activities of any other person.⁸³ In broad terms a development plan prescribes, through planning or development objectives or

⁷⁷ WRA s. 90(3)(a)-(d).

⁷⁸ WRA s. 91(1).

⁷⁹ WRA s. 91(2),(3).

⁸⁰ WRA s. 92(1).

⁸¹ WRA s. 92 (4).

⁸² WRA s. 92 (3) (a)-(q).

⁸³ WRA s. 92 (3)(i).

principles, the forms of development and the required level of assessment in a specified area.⁸⁴

A CWMP must be consistent with the SWP⁸⁵ and as far as practicable be consistent with a range of other natural resource legislation.⁸⁶ This provision does not clarify to any extent the priority between plans made under other legislation.

A CWMP must be reviewed in totality at least once every five years,⁸⁷ however the three year program for implementation must be reviewed annually.⁸⁸ Requirements for public consultation vary depending on the scope of the proposed amendments to the program for implementation.⁸⁹

Significant features of CWMPs include the requirements to include certain information, assess ecosystem water needs and identify the goals of water management. The quality and certainty of the scientific information does not have to be declared under the WRA. CWMPs encompass both a program for implementation and its funding and are strong in this regard. There is explicit recognition of the links between water management generally and land use, however the process for amending development plans is both politically difficult and administratively complex. The assessment and monitoring requirements are key elements of an adaptive management approach.

The scope of a CWMP can be broad and include both regulation and management actions.

⁸⁴ *Development Act 1993* s 23.

⁸⁵ WRA s. 92(6).

⁸⁶ WRA s. 92(7)(a)(g) including *Coast Protection Act 1972*, relevant Development Plans under the *Development Act 1993*, policies under the *Environment Protection Act 1993*, plan of management under the *National Parks and Wildlife Act 1972* and district plan under the *Soil Conservation and Land Care Act 1989*, guidelines under the *Native Vegetation Act 1991*, other plans, policies or guidelines as prescribed.

⁸⁷ WRA s. 97(2).

⁸⁸ WRA s. 97(1).

⁸⁹ WRA s. 97(6).

Water allocation plans.

Water allocation plans (WAPs) must be prepared by a CWMB or WRPC for each of the prescribed water sources in its area.⁹⁰ If the WAP is prepared by a CWMB it may form part of a CWMP and be prepared concurrently.⁹¹ The content of a WAP is specified in the WRA and must include an assessment of the ecosystem needs as well as the likely impact of extraction on any other water resource, and provide for monitoring. It must also provide for the transfer of a water allocation and identify changes (if any) to a relevant development plan.⁹²

A WAP must be consistent with the SWP⁹³ and ‘have regard to the benefits of consistency’ with a number of other plans.⁹⁴

The WAPs establish the parameters for water allocation in prescribed areas (i.e. where a licence is required to take water). The concurrent assessment of ecosystem needs, of both water quantity and quality is an important initiative and represents a shift from the traditional separation of quantity and quality issues. WAPs do not however require priority to be given to ecosystem needs since determination of allocations must provide for an ‘equitable balance’ between social, economic and environmental needs, although the rate at which water is used must be ‘sustainable’. The requirement for regular monitoring is important, however there is no specific requirement for this information to be incorporated into the review.

Local water management plans.

Each council in the State may prepare a local water management plan (LWMP)⁹⁵ for the performance of functions and the exercise of powers by the council under the WRA and other acts as appropriate.⁹⁶

⁹⁰ WRA s. 101(1)(2).

⁹¹ WRA s. 101(3).

⁹² WRA s. 101 (4) (a)-(i).

⁹³ WRA s. 101(5).

⁹⁴ WRA s. 101(9)(a)-(g) including plans or policies prepared under the *Coast Protection Act 1972*, the *Development Act 1993*, the *Environment Protection Act 1993*, the *National Parks and Wildlife Act 1972*, *Soil Conservation and Land Care Act 1989*; and the *Native Vegetation Act 1991*.

⁹⁵ WRA s. 108(1).

⁹⁶ WRA s. 108(2).

6.2.7 Right to take water.

Subject to certain limitations there is a general right to take water from a watercourse, lake or well for any purpose,⁹⁷ unless it is prescribed,⁹⁸ in which case a water licence is required,⁹⁹ except for surface water for stock and domestic use.¹⁰⁰ There is no specific provision for Indigenous rights to water. Certain water affecting activities, for example, the construction of a dam in the Mount Lofty Ranges Watershed,¹⁰¹ require a permit or to be authorised by a water licence.¹⁰² Water licences are granted by the Minister,¹⁰³ and permits for water affecting activities by the Minister or the CWMB.¹⁰⁴ The Minister may refuse to grant a water licence if it is not possible to endorse a water allocation consistent with the relevant water plan.¹⁰⁵ The control over the taking of water is limited to the extent provided by the prescription of a water resource. This means that the requirement for a licence is limited to specific areas of the State.

6.2.8 Plan-Making procedure.

When reviewing or amending the SWP the Minister must advertise,¹⁰⁶ invite submissions from interest persons¹⁰⁷ and ‘have regard to all submissions’.¹⁰⁸

The plan-making procedure for CWMPs is specified in detail in the Act. It includes at least four public consultation phases and significant interagency consultation particularly in the situation where amendments to a development plan¹⁰⁹ are proposed.

⁹⁷ WRA s. 7 (1)-(4).

⁹⁸ WRA s. 8.

⁹⁹ WRA s. 7(8).

¹⁰⁰ WRA s. 7(5).

¹⁰¹ WRA s. 9(3)(d)(ii).

¹⁰² WRA s. 9.

¹⁰³ WRA s. 10.

¹⁰⁴ WRA s. 10(2).

¹⁰⁵ WRA s. 29(3).

¹⁰⁶ WRA s. 91(3).

¹⁰⁷ WRA s. 91(2).

¹⁰⁸ WRA s. 91(4).

¹⁰⁹ A development plan provides the planning or development principles relating to a geographical part of the State and is prepared in accordance with the provisions of the *Development Act, 1993*.

Before preparing a draft CWMP, a CWMB must prepare a proposal statement.¹¹⁰ CWMBs are required to advertise their intention to prepare a proposal statement and call for submissions as to its content,¹¹¹ reach agreement with the Minister on its content¹¹² and have regard to submissions.¹¹³ The proposal statement must be referred for comment to a number of organisations and the public,¹¹⁴ and the CWMB and the Minister are required to consider all comments.¹¹⁵ If the CWMB has identified necessary changes to a development plan it must submit the proposal to the relevant council,¹¹⁶ and the relevant Minister¹¹⁷ and, with their agreement, include the proposal in the proposal statement.¹¹⁸

A CWMB must prepare a draft plan based on the proposal statement and the results of its investigations and submit it to the Minister.¹¹⁹ In preparing the plan it must consult with constituent councils, owners of land that may be acquired, the SA Water Corporation and the public.¹²⁰ A report on any proposed amendments to plans under the *Development Act 1993* (SA) must be included in the draft plan.¹²¹ The CWMB is required to consult with the public by inviting the public to make written submissions to the board and to attend a public meeting to be held in relation to the preparation of the draft plan and another meeting in relation to the plan as drafted.¹²² The Minister, before adopting a CWMP, must consult widely¹²³ and have regard to submissions from the public¹²⁴. The Minister may adopt the plan or refer it back to the CWMB.¹²⁵ In the latter case the CWMB must prepare a new plan and repeat the public consultation procedures specified in the Act.¹²⁶ If the CWMP includes proposals for levies or

¹¹⁰ WRA s. 93(1)(2). It must set out in general terms the proposed content of the plan, specify matters to be investigated and proposals for consultation.

¹¹¹ WRA s. 93(3).

¹¹² WRA s. 93(3)(b).

¹¹³ WRA s. 93(3)(c).

¹¹⁴ WRA s. 93(4)(a)-(d) includes the Minister administering the Development Act, all Government departments and other agencies who have a direct interest, constituent councils, and the public.

¹¹⁵ WRA s. 93(5).

¹¹⁶ WRA s. 93(6)(a).

¹¹⁷ WRA s. 93(6)(b).

¹¹⁸ WRA s. 93(6)(c).

¹¹⁹ WRA s. 94(1).

¹²⁰ WRA s. 94(2).

¹²¹ WRA s. 94(3).

¹²² WRA s. 94(5).

¹²³ WRA s. 95(1)(a)-(g) including constituent councils, the Local Government Association, the Minister administering the Development Act and other persons.

¹²⁴ WRA s. 95 (3).

¹²⁵ WRA s. 95(4).

¹²⁶ WRA s. 95(6).

contributions these must be referred to the Economic and Finance Committee of the SA State parliament.¹²⁷

If the Minister amends a report that forms part of the CWMP in relation to proposed amendments to a development plan, s/he must consult with various persons¹²⁸ and can only adopt a draft plan with the agreement of the Minister administering the *Development Act*.¹²⁹ Under these circumstances the development plan must be amended accordingly.¹³⁰ These provisions are relatively complex and have the effect of giving primacy to the land use planning system.

The procedures for WAP-making are specified in detail in the Act. Similarly to the CWMP plan-making procedure, they include extensive public consultation and a rigorous process for development plan amendment.

Before preparing a draft plan the CWMB or WRPC must consult as to the content of the proposal statement.¹³¹ The proposal statement must set out in general terms the proposed content of the WAP, specify matters to be investigated and set out proposals for consultation that are in addition to those specified in the Act.¹³² The proposal statement must be referred for comment.¹³³ All comments must be considered and the proposal statement may be amended accordingly.¹³⁴ If a change to a development plan is considered desirable the proposal must be referred to the constituent councils and the Minister administering the *Development Act*.¹³⁵ Only then can the proposed amendments be included in the proposal statement.¹³⁶

¹²⁷ WRA s. 95(8)-(15).

¹²⁸ WRA s. 96(1)(a)-(c) consult with the Minister administering the Development Act, 1993, seek and consider the advice of a person with qualifications as prescribed, consult the municipal or district council or councils whose area or areas will be affected.

¹²⁹ WRA s. 96(2), (3).

¹³⁰ WRA s. 96(4).

¹³¹ WRA s. 102(3)(a)-(c) advertise and invite submissions from the public, reach agreement with the Minister as to its contents and have regard to submissions.

¹³² WRA s. 102(2)(a)-(c).

¹³³ WRA s. 102(4)(a)(e) to the Minister administering the Development Act, Government departments and agencies with a direct interest, constituent councils, and the public by a notice published in a local paper.

¹³⁴ WRA s. 102(5).

¹³⁵ WRA s. 102(6)(a),(b).

¹³⁶ WRA s. 102(6)(c).

A draft WAP must be based on the proposal statement and the results of any investigations.¹³⁷ The CWMB or WRPC must consult with constituent councils and the public when preparing a draft plan.¹³⁸ A report on proposed amendments to a development plan may be included in the draft WAP after appropriate consultation.¹³⁹ A draft WAP must be given to the Minister, constituent councils and members of the public.¹⁴⁰ The CWMP or WRPC must consult with the public by inviting submissions and holding public meetings.¹⁴¹ The Minister, before adopting a WAP must consult as specified,¹⁴² and have regard to submissions and reports from public meetings.¹⁴³ The Minister may adopt the WAP or refer it back for further consideration,¹⁴⁴ in which case the CWMB or WRPC must prepare a new WAP and follow the appropriate consultation requirements.¹⁴⁵ With respect to proposed amendments to a development plan the Minister must consult,¹⁴⁶ can only adopt a draft plan with the agreement of the Minister administering the *Development Act*, and, if so, the development plan must be amended accordingly.¹⁴⁷ A WAP may be amended at any time¹⁴⁸ and, except in the case of minor or technical amendments,¹⁴⁹ procedures for preparation and adoption of the original plan must be followed.¹⁵⁰

The procedures for the preparation of LWMPs are broadly similar to the requirements for preparation of other plans under the WRA.¹⁵¹

There are two aspects of public participation under the WRA. There is participation by ‘expert’ members of the local community on bodies; and consultation with the broader community about plans. Proposal statement consultation has the potential to allow the community to be involved in setting the parameters of the plan.

¹³⁷ WRA s. 103(1).

¹³⁸ WRA s. 103(2)(a)(d).

¹³⁹ WRA s. 103(3).

¹⁴⁰ WRA s. 103(4)(a)-(d).

¹⁴¹ WRA s. 103(5)-(12).

¹⁴² WRA s. 104(1)(a)-(f) including the CWMB, councils, the Minister administering the *Development Act*, the Local Government Association and other persons as prescribed by the regulations.

¹⁴³ WRA s. 104(3).

¹⁴⁴ WRA s. 104(4).

¹⁴⁵ WRA s. 104(6).

¹⁴⁶ WRA s. 105(10(a)-(c).

¹⁴⁷ WRA s. 105(2)-(4).

¹⁴⁸ WRA s. 106(1).

¹⁴⁹ See WRA s. 118.

¹⁵⁰ WRA s. 106(3).

¹⁵¹ WRA ss. 108-115.

6.2.9 Integration and coordination.

The WRA aims to improve the integration of water and other natural resource management by introducing a number of procedural requirements in relation to plan-making and decision-making. The scope of plans is potentially expansive and provides the opportunity for integration of aspects of natural resources, particularly in relation to water quantity and water quality management.

Agencies and instrumentalities of the Crown must endeavour, as far as practicable, to act consistently with the SWP and all other relevant water plans under the Act.¹⁵² There is a requirement that plans must be consistent with a range of other natural resource legislation.¹⁵³ There are requirements to consult with other agencies during plan preparation. In terms of decision-making, the objects clause of the WRA requires that all parties involved in the administration of the Act must have regard for the need 'to integrate, as far as practicable, the administration of this Act with other legislation dealing with natural resources'.¹⁵⁴ Councils and controlling authorities in performing functions or exercising powers under the Act, must do so consistently with the relevant LWMP or CWMP.¹⁵⁵ While there is a requirement for consistency between the hierarchy of plans, they are not made invalid because of any such inconsistency.¹⁵⁶

The integration of catchment water planning and land use planning is addressed in the WRA. CWMPs are required to identify land use changes as appropriate, and make recommendations as to these changes.¹⁵⁷ Inconsistencies between the recommendations in a CWMP and a development plan are to be resolved through amendment to the development plan¹⁵⁸ or notified to the Minister where agreement cannot be reached.¹⁵⁹ In a situation where the local council does not agree to the recommendation contained in a CWMP, the procedure for amendments to development plans under the Development

¹⁵² WRA s. 4(3).

¹⁵³ Water Management plans must take into account plans and policies prepared under other legislation ss. 92(3)(h), 101(9) and 108(4). Catchment water management plans must be consistent with these plans and policies s. 92(7).

¹⁵⁴ WRA s. 6(2)(b)(viii).

¹⁵⁵ WRA s. 86.

¹⁵⁶ WRA s. 117.

¹⁵⁷ WRA s. 92(i).

¹⁵⁸ WRA s. 96.

¹⁵⁹ WRA s. 92(8).

Act is complex.¹⁶⁰ It includes Minister-to-Minister consultation and consultation with the Council concerned. Ultimately, if agreement with the Minister responsible for Planning is not reached, the CWMP must reflect this. Priority then rests with the development plan.

6.2.10 Functions, Clarity, Accountability and Transparency.

The WRA describes in detail the functions and responsibilities of individuals and bodies established under the Act. The Minister is the primary decision-maker under the Act and her/his functions are detailed.¹⁶¹ The Minister may delegate certain functions,¹⁶² powers and duties, for example, to a CWMB, WRPC or municipal council.¹⁶³ The functions of CWMBs are described in more generic terms, such that there is scope for flexible management and local prioritisation at the catchment level.

Accountability is provided by requirements for reporting on implementation of responsibilities of the various functionaries under the Act. The Minister must report to Parliament annually on the extent to which the SWP has been implemented¹⁶⁴ and the extent to which implementation has succeeded in achieving the objects of the Act.¹⁶⁵ A CWMB must prepare an annual report on the performance of its functions, which is to be made available to the Minister, laid before Parliament, and made available to members of the public.¹⁶⁶ The Report must provide information on: the implementation of its CWMP and the extent to which the implementation succeeded in achieving the objects of the Act;¹⁶⁷ financial contributions provided;¹⁶⁸ audited accounts and financial statements;¹⁶⁹ and, report on a range of other matters.¹⁷⁰

¹⁶⁰ WRA s. 96.

¹⁶¹ WRA s. 45(1)(a)-(e) which include to review the state and condition of the water resources of the State, develop and coordinate policies, to allocate water, to compile, maintain and update information in relation to the water resources of the State and to promote public awareness and encourage conservation.

¹⁶² WRA s. 3(a) the function of making recommendations to the Governor in relation to the making of proclamations and s. 3(b) powers under Part 8, Financial provisions.

¹⁶³ WRA s. 48(1)(a)-(c).

¹⁶⁴ WRA s. 46(1)(a).

¹⁶⁵ WRA s. 46(1)(b).

¹⁶⁶ WRA s. 75(1),(3),(4).

¹⁶⁷ WRA s. 75(2).

¹⁶⁸ WRA s. 75(2)(c).

¹⁶⁹ WRA s. 75(2)(d).

¹⁷⁰ WRA s. 75(e)-(g).

The Minister's decision on the grant or variation of a water licence allocation must be made in the public interest¹⁷¹ and be consistent with the relevant water allocation plan.¹⁷² Conditions should not be 'seriously at variance' with the relevant water allocation plan.¹⁷³ A licence may be varied by the Minister, in order for example, to prevent it from being 'inconsistent' or 'seriously at variance' with the plan.¹⁷⁴ A water allocation can be reduced for a number of reasons, including to prevent a reduction in water quality or damage to an ecosystem, or because there is insufficient water to meet existing or future demand.¹⁷⁵ A licensee may appeal against the variation¹⁷⁶ and compensation may be payable.

The provisions in relation to decision-making about licences and water permits constrain the exercise of discretion to the extent provided by a WAP. A limit on administrative discretion was argued to be an important aspect of the implementation of the precautionary principle. It is also an important element of transparency, since decision-making is based on publicly available criteria.

A wide range of information is to be made available to the public, which, together with the accountability mechanisms described above, should improve the transparency of public administration. The Minister must keep a register of licences and permits¹⁷⁷ and it must be made available for public inspection.¹⁷⁸ Copies of licences must be made available to the public for inspection.¹⁷⁹ A CWMB must make the CWMP, WAP and copies of all submissions made in respect of a draft plan available for public inspection and purchase.¹⁸⁰ CWMBs must also make copies of submissions for financial assistance available to the public.¹⁸¹

¹⁷¹ WRA s. 35(1)(c).

¹⁷² WRA s. 36(1)(a).

¹⁷³ WRA s. 35(1)(b).

¹⁷⁴ WRA s. 30(1)(c).

¹⁷⁵ WRA s. 37(1)(a)-(c).

¹⁷⁶ WRA s. 30(2).

¹⁷⁷ WRA s. 47(1).

¹⁷⁸ WRA s. 47(4).

¹⁷⁹ WRA s. 32(1).

¹⁸⁰ WRA ss. 100(1)(a)-(b), 107(1)-(3).

¹⁸¹ WRA s. 64(3).

6.2.11 Appeals and third party rights.

The WRA contains a number of provisions that allow appeals against decisions and enforcement of its terms by litigation.¹⁸² A range of civil remedies are available under the WRA¹⁸³ and the courts may make an order restraining a person from engaging in conduct,¹⁸⁴ require a person to take specified action¹⁸⁵ or order an amount to be paid in exemplary damages.¹⁸⁶ Applications under this section may be made by the Minister, by a person whose interests are affected by the subject matter of the application or by any other person with the leave of the court.¹⁸⁷ Leave of the court will be granted to third parties if it is in the public interest to do so and not an abuse of the process of the court.¹⁸⁸ Applicants may appeal to the court against a refusal or conditions attendant thereto in relation to a water licence, water allocation or transfer.¹⁸⁹ According to Levinson (2000), there are a number of provisions in the WRA that involve complex issues that have not traditionally been litigated in South Australian courts. In particular the scope for judicial review is somewhat uncertain.¹⁹⁰

6.2.12 Adaptive management.

The potential for plans made under the WRA to facilitate adaptive management lies in requirements for assessment of ecosystem condition, goal setting, monitoring and reporting on implementation. The effectiveness of these provisions is conditioned by the extent to which monitoring is fed back into plan review and amendment and the degree this is reflected in decisions on allocation of resources.

¹⁸² Levinson J., "Fighting Over Water" (2000) (1) *Australian Environmental Law News* 47-55.

¹⁸³ WRA s. 141(1).

¹⁸⁴ WRA s. 141(2).

¹⁸⁵ WRA s. 141(3).

¹⁸⁶ WRA s. 141(4).

¹⁸⁷ WRA s. 121(6)(a)(c),

¹⁸⁸ WRA s. 121(7).

¹⁸⁹ WRA s. 142.

¹⁹⁰ Levinson J., "Fighting Over Water" (2000) (1) *Australian Environmental Law News* 47-55, 55.

6.3 Catchment Management Act 1989 (NSW) and the Water Management Act 2000 (NSW).

6.3.1 Background.

The arrangements for catchment and water planning in New South Wales are provided by two pieces of legislation: the *Catchment Management Act 1989* (NSW) (CMA) and the *Water Management Act 2000* (NSW) (WMA). These two Acts combined provide a roughly equivalent legislative scope to that of the *Water Resource Act 1997* (SA).

The CMA is considered to be the first Australian legislation, which embraced ESD. The WMA replaced the *Water Act 1912* (NSW) (WA) and the *Water Administration Act 1986* (NSW) (WAA). While the general provisions relating to water allocation and use were provided by the WA, the WAA provided a general mandate under which significant policy-led reform took place for some ten years. The WMA formalised many of these developments and provided a comprehensive framework for water planning in the State.

6.3.2 Overview.

The *Catchment Management Act 1989* and *Catchment Management Regulation 1999* provide for the planning and management of land, water, vegetation and other natural resources. The Act and Regulation establishes catchment boards, made up of community and agency representatives to prepare catchment plans to provide direction on the management of natural resources and investment guidance. The plans do not have a statutory status and the manner of their preparation is not specified. The Boards have neither mandate nor funds to implement actions specified in the plans.

The *Water Management Act 2000* is sectoral water legislation, which maintains the traditional separation of water quantity and quality issues¹⁹¹ but integrates management of surface and groundwater. It does however contemplate the implications of water

¹⁹¹ Water quality is regulated through the provisions of the *Protection of the Environment Operations Act, 1997*. Point source discharges are regulated through a licensing system, non point source or diffuse pollution, while an offence under the Act, is not directly regulated.

extraction and use for water quality. It includes the formalisation of decision-making within natural water boundaries and reforms the administrative structure and decision-making process. It allows for the establishment of ‘interest-based’ water management committees (WMC) with planning but not implementation powers. The Act facilitates local decision-making within a context of strategic direction from State Government, which includes an emphasis on monitoring and performance auditing. It establishes a clear hierarchy of planning instruments, clarifies the role of participants in the management of water, outlines mechanisms for the establishment of committees and provides for the participation of the community in plan-making. The Act includes provisions to support integration but the links with the land use planning system are weak.

Catchment Management Act 1989 (NSW) and Catchment Management Regulation 1999 (NSW).

6.3.3 Objects.

The CMA defines total catchment management as the ‘co-ordinated and sustainable use and management of land, water and vegetation and other natural resources on a water catchment basis so as to balance resource utilisation and conservation.’¹⁹² The objects of the Act are:

- ‘(a) to co-ordinate policies, programs and activities as they relate to total catchment management, and
- (b) to achieve active community participation in natural resource management, and
- (c) to identify and rectify natural resource degradation, and
- (d) to promote the sustainable use of natural resources, and
- (e) to provide stable and productive soil, high quality water and protective and productive vegetation cover within each of the State’s water catchments.’¹⁹³

It is apparent therefore that the CMA is concerned both with the management of existing uses and the restoration of damage from past land use, but not the regulation of new development. To this extent it has the potential to incorporate inter-generational

¹⁹² CMA s. 4.

¹⁹³ CMA s. 5(1).

concerns by improving the quality of the environment to be passed on to future generations. It is anthropocentric or utilitarian from the perspective that there is a concern with the 'productivity' of soil, water and vegetation.

6.3.4 Administration.

The CMA provides for the establishment of a State Catchment Management Coordinating Committee,¹⁹⁴ catchment management committees¹⁹⁵ and catchment management trusts.¹⁹⁶ The *Catchment Management Regulation 1999* (NSW) (CMR) flowed from a review of catchment management in NSW. It resulted in the replacement of 43 catchment management committees and five regional catchment management committees by 19 catchment management boards.¹⁹⁷

Catchment management boards created by the CMR are catchment management trusts within the meaning of the CMA, except in relation to the power to raise levies. The total catchment purpose of such a board is:

- '(1) ...to promote a healthy and productive catchment system in the area in respect of which the Board is established by:
 - (a) encouraging the protection, and where appropriate, the restoration of the catchment, and
 - (b) promoting and facilitating the ecologically sustainable, use, development and management of natural resources'.¹⁹⁸
- (2) The total catchment management purpose of a Board is to be carried out in a manner that is consistent with and promotes the principles of ecologically sustainable development within the meaning of the *Local Government Act 1993*'.¹⁹⁹

Membership of Boards is made up of land users or land holders (who are to constitute the majority), persons who have an interest in environmental matters in the Board's area, local government nominees and officers of government departments or authorities having responsibility for natural resource use or management in the area.²⁰⁰ As a matter

¹⁹⁴ CMA s. 8.

¹⁹⁵ CMA s. 13.

¹⁹⁶ CMA s. 21.

¹⁹⁷ Department of Land and Water Conservation, *Catchment Management Boards* (2000) <http://www.dlwc.nsw.gov.au/care/cmb.html> (accessed 19 June).

¹⁹⁸ CMR cl. 5(1) replacing CMA s.26.

¹⁹⁹ CMR cl. 5(2).

²⁰⁰ CMA s. 22.

of policy Indigenous representatives are included on Boards.²⁰¹ Accordingly, membership of Boards is made up of two local government members nominated by local government in the area, one land holder/user nominated by local government, two nature conservation representatives nominated by the Nature Conservation Council, two nature conservation representatives who are land holders/users identified through public advertisement, two primary producers nominated by industry groups, two primary producers identified through public advertisement, two Aboriginal members nominated by the appropriate process, one being local the other state and four representatives of government departments or authorities nominated by the Minister.²⁰² Members are appointed by the Minister.

It is noteworthy that membership of boards includes both community and government agency representatives. This provides the opportunity for education of both the community and government. It was argued earlier in this thesis that a change to sustainable development requires change from all sectors of society. Accordingly, this board membership should enable an exchange on the constraints to change for landholders and the broader management priorities under which government operates. Otherwise, the board membership incorporates a wide representation of values and it is particularly significant that Indigenous representation is included. However the dominance of land-holders on boards may mean that other non-instrumental values are less influential in deliberations. Clearly the make-up of the catchment boards reflects the traditionally agricultural focus of catchment management in NSW.

The Boards operate within existing agency budget.²⁰³ Although constituted as Trusts under the CMA they have no power to levy catchment contributions.²⁰⁴

The functions of the Boards are:

- ‘(a) to identify the critical opportunities, problems and threats associated with the use of natural resources so as to support rural production and to protect the environment, and
- (b) to identify the critical first order objectives and targets for the management of natural

²⁰¹ NSW Department of Land and Water Conservation, *Strengthening Catchment Management in New South Wales* (1999) Sydney, Australia, 3.

²⁰² Ibid. 3.

²⁰³ Ibid. 4.

²⁰⁴ CMA s. 40.

- resources, having regard to any legislation or relevant Government policy, and
- (c) to develop management options, strategies and actions to address the identified objectives and targets, and
 - (d) to assist in developing a greater understanding within the community of the issues identified and action required to support rural production and protect the environment, and
 - (e) to initiate proposals for projects to achieve those functions and assess projects submitted for funding under Commonwealth and State natural resource management grant programs having regard to targets identified by the Board'.²⁰⁵

It is apparent from this that the intent is for the Boards to take a broad view of natural resource management at the catchment scale and a strategic approach to management.

A Board must report to the Minister, at least annually, on the progress of the Board in the performance of its functions.²⁰⁶ Beyond this the CMA and CMR are silent on the manner in which the Boards will fulfil their functions. However, their functions have been defined further at a policy level. Boards across the State have prepared 'Catchment Blueprints' which are strategic in nature and provide direction on the management of natural resources and investment guidance.²⁰⁷ Investment is defined to include external grant funding and 'on-the-ground' works by government agencies, local councils and others.²⁰⁸ Blueprints do not include any element of command regulation. It is at this level that the influence of the Commonwealth on natural resource management is evident. The decision by the Commonwealth to deliver NHT2 and NAP funds through regional planning initiatives (see Chapter Two) in part drove administrative reform of this kind at the State level.

Catchment Blueprints do not have a statutory basis other than to the extent provided by the functions clause. There are no specific requirements in relation to their preparation, but they have generally been prepared in consultation with government agencies and the community.²⁰⁹ They may prove to have a significant role in directing government programs and funding at a catchment level. Other than that implementation of the

²⁰⁵ CMR cl. 7(1).

²⁰⁶ CMR cl. 7(2).

²⁰⁷ NSW Department of Land and Water Conservation, *Overview: catchment blueprints, water management plans, regional vegetation management plans* (2002) Sydney, Australia, 3.

²⁰⁸ Ibid. 3.

²⁰⁹ The plan making process is described in Chapter Nine the case study of implementation in the Southern Catchment Board Area.

Blueprints will need to rely on ‘goodwill’ since the Boards have no independent budget or powers to require agencies to undertake specified actions. Arguably, plans such as these could increase the transparency and accountability of government by making public commitments about natural resource management issues and requisite management responses against which performance can be assessed. The primary value may however, prove to be educational.

Water Management Act 2000 (NSW) (WMA).

The objects of the WMA are expansive and convey both the scope (water, ecosystems, ecological processes and biodiversity) of the legislation and its intent. They establish a priority to environmental protection and a partnership between government and the community.

6.3.5 Objects.

‘The objects of this Act are to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations and, in particular:

- (a) to apply the principles of ecologically sustainable development, and
- (b) to protect, enhance and restore water sources, their associated ecosystems, ecological processes and biological diversity and their water quality, and
- (c) to recognise and foster the significant social and economic benefits to the State that result from the sustainable and efficient use of water, including:
 - (i) benefits to the environment, and
 - (ii) benefits to urban communities, agriculture, fisheries, industry and recreation, and
 - (iii) benefits to culture and heritage, and
 - (iv) benefits to the Aboriginal people in relation to their spiritual, social, customary and economic use of land and water,
- (d) to recognise the role of the community, as a partner with government, in resolving issues relating to the management of water sources, to provide for the orderly, efficient and equitable sharing of water from water sources,
- (e) to integrate the management of water sources with the management of other aspects of the environment, including the land, its soil, its native vegetation and its native fauna,

...

- (g) to encourage the sharing of responsibility for the sustainable and efficient use of water between the Government and water users,
- (h) to encourage best practice in the management and use of water.²¹⁰

In addition to an objects clause the WMA details a number of water management principles.²¹¹ The management principles are concerned with protecting and restoring water and land generally and habitats, animals and plants specifically.²¹² There is a concern with water quality, the cumulative impact of development, and Indigenous, cultural, heritage and spiritual values.²¹³ The scope then of the legislation is much broader than just water quantity, which is reinforced by a concern with the impact of water use on a wide range of environmental attributes.²¹⁴ There may be some tension within the principles between these values and the maximisation of social and economic benefits.²¹⁵ The principles of adaptive management are to be applied.²¹⁶

6.3.6 Priority to the environment.

Both the objects of the WMA and the Water Management Principles clearly establish a priority to the environment. With respect to water sharing, priority is assigned firstly to the protection of the water source and dependent ecosystems and then to basic landholder rights.²¹⁷ In respect to water-sharing a priority seems to be established by the management principles to environmental needs, basic landholder rights and then water extraction.²¹⁸ This priority is reaffirmed by the requirement that the Minister is not to grant a water use approval unless adequate arrangements are in place to ensure minimal harm to the water source and dependent ecosystems by a water user.²¹⁹

²¹⁰ WMA s. 3.

²¹¹ WMA s. 5.

²¹² WMA s. 5(2)(a)-(b).

²¹³ WMA s. 5(2)(c)-(f).

²¹⁴ WMA s. 5(4)(a).

²¹⁵ WMA s. 5(2)(g).

²¹⁶ WMA s. 5(2)(h).

²¹⁷ WMA s. 5(3)(c). The 2004 amendments change the wording of this section to ‘sharing or extraction of water under any other right must not prejudice the principles set out in paragraphs (a) and (b).’

²¹⁸ WMA s. 5(3).

²¹⁹ WMA s. 97(1).

6.3.7 Administration.

The WMA establishes a hierarchy of bodies, which provides for some internal scrutiny of the implementation of the legislation.

Water Advisory Council.

The WMA provides for the establishment of a Water Advisory Council (WAC).²²⁰ The WAC is to have at least 13 but not more than 20 members appointed by the Minister.²²¹ Membership of the WAC is both ‘interest’ and ‘expertise’ based and must include at least two representatives respectively of environmental protection groups, water users, local councils, catchment management boards and Aboriginal persons, and at least one having technical qualifications in environment protection and ecology respectively.²²² The chairperson is to be independent.²²³ Thus, there is representation of users, environmental and indigenous interests as well as instrumentalities with an interest in the management of water. Arguably the environmental interest has to represent a wide range of non-consumptive values which includes not only traditional environmental concerns, but also recreational and amenity values.

The functions of the WAC include: to review draft management plans and implementation programs as referred by the Minister; to investigate matters affecting management of water sources; to report on matters affecting the management of water sources; and to advise the Minister on matters affecting the management of water sources.²²⁴ Broadly then the function of the WAC is to provide some oversight of the operation of the WMA and to identify emerging issues.

Management Committees

²²⁰ WMA s. 369.

²²¹ WMA s. 369(2).

²²² WMA s. 369(2)(a)-(g).

²²³ WMA s. 368(2)(h).

²²⁴ WMA s. 370(1)(a)-(d).

The Minister may establish a management committee to carry out a specific task²²⁵ and set terms of reference in accordance with which the task is to be carried out.²²⁶ The task may relate to water management including (without limitation) water sharing, water source protection, floodplain management and drainage management.²²⁷

A management committee consists of at least 12 but not more than 20 members appointed by the Minister including at least two persons respectively to represent the interests of environmental protection groups, water users, local councils, Aboriginal persons, and at least one person representing catchment management boards or trusts, the Department, the Minister for the Environment and other persons considered appropriate.²²⁸ The non-government representatives should as far as practicable, be persons who reside within the water management area.²²⁹ The Chairperson is to be independent.²³⁰ As with the Catchment Boards, management committees include both government and community interests, which may be beneficial in the longer term to shifting values and improving the quality of regulation. This issue is discussed further below.

The functions of a management committee are defined by the specific terms of reference²³¹ and may include: to prepare a draft management plan; to review a current management plan; to investigate matters affecting the management of water referred by the Minister; to report to the Minister on such matters as the Minister refers to it to report; and to advise the Minister on issues affecting the area as the Minister refers to it for advice.²³² Clearly the activities of the management committees are constrained by the direction of the Minister and may therefore be very specific and restricted with no authority to initiate matters on their own behalf.

The WAC and management committees are required to strive for consensus in reaching decisions.²³³ A management committee is required to be unanimous in its decision to

²²⁵ WMA s. 12(1)(a).

²²⁶ WMA s. 12(1)(b).

²²⁷ WMA s. 12(2).

²²⁸ WMA s. 13(1)(a)-g).

²²⁹ WMA s. 13(3).

²³⁰ WMA s. 13(1)(i).

²³¹ WMA s. 14(1).

²³² WMA s. 14(2)(a)-(e).

²³³ WMA sch.6 cl. 12(1).

submit a draft management plan to the Minister.²³⁴ For all other decisions a majority vote is acceptable.²³⁵ The issue of consensus decision-making is potentially very significant. Arguably with an interest-based approach to membership it is the only viable way to reach decisions without generating enormous pressure on the ‘fair’ representation of interests. The debate around consensus decision-making as distinct from majority voting is taken up in both the NSW case study and the conclusion to this thesis.

The administrative framework established by the WMA is primarily concerned with plan-making and does not relate to the ongoing management of natural resources nor the implementation of plans. The WAC is a permanent body but management committees established to perform certain functions can be terminated upon their completion. As such, the capacity of management committees for on-going influence is limited. This administrative structure does not essentially challenge the traditional administrative arrangements. The form of influence may, however, be more subtle in nature and may relate to enhanced understanding and broadened perspectives of agency representatives as a result of the committee process.

6.3.8 Plans

The WMA creates a comprehensive planning framework and a hierarchy of plans, which include a State Water Management Outcomes Plan, management plans and implementation programs.

State Water Management Outcomes Plan.

The State Water Management Outcomes Plan (SWMOP) is to be prepared in accordance with the objects of the Act.²³⁶ The objects of the SWMOP are to set the over-arching policy context, targets and strategic outcomes for the management of the State’s water sources, having regard to relevant environmental, social and economic

²³⁴ WMA sch.6 cl. 12(3).

²³⁵ WMA sch.6 cl. 12(2).

²³⁶ WMA s. 6(1).

considerations and the results of any monitoring programs,²³⁷ to promote the water management principles,²³⁸ and to give effect to government policy in relation to salinity strategies.²³⁹ The SWMOP has effect for a period of five years.²⁴⁰

Management, water sharing and water use plans

A management plan may be prepared by a water management committee on the direction of the Minister²⁴¹ for water sharing, water source protection, drainage management or floodplain management.²⁴² Management plans are to be consistent with a number of other instruments.²⁴³ All management plans may contain a number of provisions including: the preservation and enhancement of the quality of the water source; monitoring and reporting requirements that should be imposed as conditions of approvals;²⁴⁴ mandatory conditions for access licences²⁴⁵ and approvals; and provisions for amendment of the plan by the Minister.²⁴⁶

The contents of water sharing plans are prescribed by the WMA, which details core and additional provisions.²⁴⁷ The core water sharing provisions include the establishment of environmental water rules;²⁴⁸ identification of basic landholder rights;²⁴⁹ identification of requirements for licensed water extraction; the establishment of a bulk access regime²⁵⁰ and transfer rules.²⁵¹ Further, core provisions in relation to the bulk access regime include that it must be consistent with any limits to the availability of water that

²³⁷ WMA s. 6(2)(a)(i),(ii).

²³⁸ WMA s. 6(2)(b).

²³⁹ WMA s. 6(2)(c).

²⁴⁰ WMA s. 6(5).

²⁴¹ WMA s. 15(1).

²⁴² WMA s. 15(1)(a)(i)-(iii).

²⁴³ WMA s. 16 including the SWMOP, State Environmental Planning Policies ('SEPP') under the *Environmental Planning and Assessment Act 1979*, protection of the environment policy under the *Protection of the Environment Operations Act 1997*, any regulation under the *Sydney Water Catchment Management Act 1998* or the *Googong Dam Catchment Area Act 1975* and government policy including in relation to the environmental objectives for water quality and river flow.

²⁴⁴ Approval means a water use approval, a water management work approval or an activity approval.

²⁴⁵ Issued in accordance with WMA s. 56 which entitles a landholder to specified shares in the available water within a specified water management area and to take water at a specified time, rate and location.

²⁴⁶ WMA s. 17(a)-(d).

²⁴⁷ WMA ss. 20, 21.

²⁴⁸ WMA s. 8(2) Environmental water rules - a management plan must contain provisions for the identification, establishment and maintenance of planned environmental water.

²⁴⁹ Basic landholder rights means domestic and stock rights, harvestable rights or native title rights.

²⁵⁰ Bulk access regime means is established by a management plan, as referred to in s.20(1)(e), or by a Minister's plan.

²⁵¹ WMA s. 20(1)(a)-(e).

are set; must establish rules for the granting and management of access licences; must recognise the effect of climatic variability on the availability of water; and may establish rules for priority according to which access licences may be adjusted as a consequence of any reduction in available water.²⁵² A number of additional provisions may be included in a water sharing plan including in relation to permissible water supply works²⁵³ and measures for the protection and enhancement of water quality.²⁵⁴

The WMA is very prescriptive about the content of a management plan and details core provisions in relation to water use, which include the identification of existing and potential water use practices; the identification of those uses and activities which have adverse impacts (including cumulative impacts on the environment); and the identification of a range of types of land degradation.²⁵⁵ A water use plan may also deal with a number of additional matters which include: best practice for water conservation, prevention of off-site impacts, requirements for the restoration and rehabilitation of land or water sources or their dependent ecosystems; protection of habitats; and preservation and enhancement of the quality of the water sources.²⁵⁶ Similarly core and additional provisions are detailed in relation to drainage management, floodplain management and controlled activities and aquifer interference activities.²⁵⁷ The format of the management plans is prescribed and must include a vision statement, objectives, strategies for reaching objectives and performance indicators to measure success.²⁵⁸

Management plans then can prescribe the rules in relation to access to water and its use within the context of defining environmental water and basic landholder requirements. These very specific and detailed requirements can ensure that the management plan is developed to provide detailed guidance on the management of the water source. There are no specific requirements in relation to information that should form the baseline for the development of a plan. This contrasts with SA where there are extensive provisions in relation to data collection and little guidance on the content of a plan.

²⁵² WMA s. 20(2)(a)-(d).

²⁵³ A water supply work includes a water pump or bore, tank or dam, water pipe or irrigation channel, bank or levy, weir or other 'work' as declared.

²⁵⁴ WMA s. 21(a)-(f).

²⁵⁵ WMA s. 23(a)-(c).

²⁵⁶ WMA s. 24(a)-(h).

²⁵⁷ WMA ss. 26, 27, 29, 30, 32 and 33.

²⁵⁸ WMA s. 35(1)(a)-(d).

The relationship with the land use planning system is addressed through environment protection provisions. The WMA provides that a management plan may include environment protection provisions in respect of any aspect of water management.²⁵⁹ The environment protection provisions can identify zones in which development should be controlled in order to minimise harm to water sources; identify development that should be controlled in any zone; the manner in which such development should be controlled; provisions to which state and local authorities should be subject when taking action or making decisions concerning such development; and require development consent or concurrence of the Minister.²⁶⁰ These provisions have the potential to provide a significant link with the land use planning system.

On making a management plan containing environmental protection provisions the Minister must cause a copy of the plan to be given to the Minister for Urban Affairs and Planning.²⁶¹ The Planning Minister is required as soon as practicable to ensure that the provisions are included in a regional environmental plan.²⁶² Such provisions however must be with respect to ‘matters of significance for environmental planning for the region’ or part thereof.²⁶³

The duration of a management plan is 10 years²⁶⁴ with review after 5 years for the purpose of ascertaining whether its provisions remain adequate for ensuring the effective implementation of the water management principles.²⁶⁵ This review is to be conducted in consultation with the Minister for the Environment.²⁶⁶ In addition, the Minister for Land and Water Conservation is to ensure that a management plan is audited every five years to ascertain whether its provisions are being given effect to.²⁶⁷ The audit is to be conducted by an audit panel appointed by the Minister in consultation with the WMC.²⁶⁸ In setting terms of reference for the preparation of a new management plan the Minister must have regard to the results of the audit of an existing

²⁵⁹ WMA s. 34.

²⁶⁰ WMA s. 34(a)-(g).

²⁶¹ WMA s. 46(1).

²⁶² WMA s. 46(2). This refers to a regional environmental plan within the meaning of the *Environmental Planning and Assessment Act 1979*.

²⁶³ WMA s. 46(3).

²⁶⁴ WMA s. 43(1).

²⁶⁵ WMA s. 43(2).

²⁶⁶ WMA s. 43(3).

²⁶⁷ WMA s. 44(1).

²⁶⁸ WMA s. 44(2).

management plan.²⁶⁹ The Minister may amend a bulk access regime established by a water sharing plan at any time if it is in the public interest to do so,²⁷⁰ however compensation may have to be paid.²⁷¹

The plan review and audit process therefore is concerned with both the appropriateness of the plan and the effectiveness of the plan.

The third level of planning is the implementation program²⁷² which must set out the means by which the Minister intends that the objectives of the relevant plan are to be achieved.²⁷³ The implementation program is to be reviewed every year for its effectiveness²⁷⁴ and the results published in the departmental annual report.²⁷⁵ Copies of the program must be made available for inspection.²⁷⁶

6.3.9 Plan-Making Procedure.

The WMA does not detail the plan-making procedure in relation to the SWMOP. Public consultation provisions in relation to the SWMOP are not detailed in the Act, however there is provision for the making of regulations with respect to its establishment or amendment.²⁷⁷ The lack of mandated public participation at the highest level of plan-making would seem to be an important omission.

In preparing a management plan a management committee must notify the local council, catchment management committee, holders of access licences and other persons or bodies as the Minister determines.²⁷⁸ The notification must include information on the general aims and objectives of the plan and a description of the water management area and other matters as required.²⁷⁹ Persons notified may make a submission to the Minister within 28 days of notification regarding the preparation of the draft

²⁶⁹ WMA s. 44(3).

²⁷⁰ WMA s. 45.

²⁷¹ WMA s. 87.

²⁷² WMA s. 51(1).

²⁷³ WMA s. 51(3).

²⁷⁴ WMA s. 51(5).

²⁷⁵ WMA s. 51(6).

²⁷⁶ WMA s. 51(4)(b).

²⁷⁷ WMA s. 6(5).

²⁷⁸ WMA s. 36(2)(a)-(d).

²⁷⁹ WMA s. 36(2)(a)-(c).

management plan.²⁸⁰ This contrasts with SA where there are provisions for public involvement in the scoping of the plan through the ‘plan proposal statement.’ This could mean that the parameters are narrowly set particularly since effectively only consumptive users are required to be notified and have the opportunity for input at this stage.

When a draft management plan has been prepared, the management committee must submit the plan to the Minister.²⁸¹ The Minister may refer the plan back to the committee if it does not comply with requirements.²⁸² Should the draft plan contain environment protection provisions, the Minister must consult with the Minister for Urban Affairs and Planning before public exhibition.²⁸³ The Minister must then place the plan on public exhibition²⁸⁴ for at least 40 days, during which time submissions may be made to the Minister.²⁸⁵ Submissions forwarded to the Minister must be referred to the management committee for consideration.²⁸⁶ The management committee must consider the submissions and refer the plan back to the Minister.²⁸⁷ The Minister is required to consult with the committee before making any alterations to the plan.²⁸⁸ The Minister may then make a management plan as submitted by the committee, or with alterations as s/he sees fit, may cause the draft plan to be re-exhibited, or may decide not to proceed with the draft management plan.²⁸⁹ The Minister must obtain the concurrence of the Minister for the Environment before making a management plan.²⁹⁰ This is a relatively restricted and formal approach to public consultation.

The Minister must consult with the relevant WMC before establishing the implementation program.²⁹¹ There is no requirement for public consultation with

²⁸⁰ WMA s. 36(4).

²⁸¹ WMA s. 37(1).

²⁸² WMA s. 37(2).

²⁸³ WMA s. 38(3).

²⁸⁴ WMA s. 38(1)(a)(b).

²⁸⁵ WMA s. 38(2)(b).

²⁸⁶ WMA s. 39(2).

²⁸⁷ WMA s. 40(1).

²⁸⁸ WMA s. 40(2).

²⁸⁹ WMA s. 41(1)(a)-(d).

²⁹⁰ WMA s. 41(3).

²⁹¹ WMA s. 51(2).

respect to an implementation program; the Minister must simply advertise its existence.²⁹²

To date, all plans under the WMA have been for water sharing and made as ‘Minister’s Plans’.²⁹³

6.3.10 Right to take water.

The rights to the control, use and flow of water lie with the State,²⁹⁴ and are vested in the Crown.²⁹⁵ An owner or occupier of land has a ‘basic landholder right’, which entitles them to take water from any river, estuary or lake to which the land has frontage or from any aquifer underlying the land, without a licence for the purposes of domestic consumption or stock watering.²⁹⁶ An owner or occupier of land may also have a harvestable right, i.e. a right to intercept a proportion of runoff, and may build a dam without an access licence or water supply work approval or water use approval²⁹⁷ in gazetted harvestable rights areas.²⁹⁸ A native title holder is entitled to take and use water without licence or approval for domestic and traditional purposes.²⁹⁹ Otherwise an access licence is required, which specifies shares within a water management area at specific times or from specific locations.³⁰⁰ To use water, a water use approval is required.³⁰¹

6.3.11 Integration and coordination.

While the objects clause of the WMA is expansive and includes ‘to integrate the management of water sources with the management of other aspects of the environment, including the land, its soil, its native vegetation and its native fauna’³⁰² the provisions in the Act do not support it strongly.

²⁹² WMA s. 51(4)(a).

²⁹³ WMA. s. 50.

²⁹⁴ WMA s. 392(1)(a)-(c).

²⁹⁵ WMA s. 392(2).

²⁹⁶ WMA s. 52.

²⁹⁷ WMA s. 53.

²⁹⁸ WMA s. 54.

²⁹⁹ WMA s. 55.

³⁰⁰ WMA s. 56.

³⁰¹ WMA s. 89.

³⁰² WMA s. 3(f).

In terms of content, management plans can include a range of matters other than just in relation to water quantity. For example, water sharing plans may make provision with respect to protection or enhancement of water quality,³⁰³ and must consider the impact of water use on land, and other matters. Important in this regard is the provision for environment protection provisions. To this extent then the integrated management of the sectoral aspects of natural resources is contemplated.

Scope for coordinated management is implied (as distinct from directed) through the membership of water management committees, which must include representatives from catchment boards, local councils and the EPA. In addition, a broad range of organisations must be advised of plan preparation and given the opportunity to make a submission. Further, the Minister must have the concurrence of the Minister for the Environment before making a plan³⁰⁴ and consult with the Planning Minister before including environment protection provisions.³⁰⁵ Public authorities must consider and have due regard to the provisions of a management plan when exercising their functions.³⁰⁶

The potential to use regional environmental plans for enactment of environment protection provisions³⁰⁷ is a significant strategy for including water management requirements into the land use planning system. However its scope is significantly constrained by the requirement for such provisions to be of ‘regional significance’. The actual impact of water planning on local land use planning will be negligible if the entire focus of effort is on the legislative provisions of the WMA.

Water management plans have statutory status and as such must be recognised. However, the WMA does nothing to clarify the relationship between other statutory plans such as vegetation management plans, under the *Native Vegetation Conservation Act 1997*. The relationship between water plans and catchment plans remains to be resolved. The Catchment Blueprints prepared under the *Catchment Management Act*

³⁰³ WMA s. 21(d).

³⁰⁴ WMA s. 41(2).

³⁰⁵ WMA s. 38(3).

³⁰⁶ WMA s. 49.

³⁰⁷ WMA s. 46.

1979 (NSW) are intended to ‘pick up’ the contents of water management plans. However, the status of such plans remains advisory. The effective integration of water and other natural resources management requires much stronger measures than those contained in the WMA.

6.3.12 Functions, Clarity, Accountability and Transparency.

There are a number of provisions under the WMA, which provide for clarity, accountability and transparency.

The WMA makes clear that the Act is to be administered in accordance with water management principles and the State Water Management Outcomes Plan (SWMOP),³⁰⁸ and there is a duty on all persons exercising functions under the Act to do so.³⁰⁹ A further duty is created for water management committees and the WAC to exercise their functions consistently with the principles of ESD.³¹⁰ In preparing a management plan a water management committee must have ‘due regard’ to the socio-economic impacts of the proposals considered for inclusion in the draft plan.³¹¹

There is considerable effort in the WMA to improve the accountability of all persons and organisations with responsibilities under the Act. The Minister is required to review at five yearly intervals the effectiveness of the water management principles and SWMOP³¹² and to include the results of the review in the annual report.³¹³ Management plans must be reviewed after 5 years and implementation may be audited anytime but at least every 5 years.³¹⁴ Similarly, the Implementation Program must be reviewed annually³¹⁵ and the results published in the annual report.³¹⁶

³⁰⁸ WMA s. 9.

³⁰⁹ WMA s. 9(1)(a)(b).

³¹⁰ WMA ss. 14(3), 370(4).

³¹¹ WMA s. 18.

³¹² WMA s. 10(1).

³¹³ WMA s. 10(2).

³¹⁴ WMA ss. 43, 44.

³¹⁵ WMA s. 51(5).

³¹⁶ WMA s. 51(6).

Furthermore, the Minister is to review the Act to determine whether the policy objectives remain valid 5 years after the date of assent to the Act³¹⁷ and to table a report on the review to each House of Parliament within twelve months of its completion.³¹⁸

The Minister is required when exercising functions under the Act to take all reasonable steps to give effect to the provisions of any management plan.³¹⁹ Further, in a determination of an application for an access licence the Minister must act in accordance with the provisions of the relevant management plan.³²⁰ Similarly, in determining an application for an access licence transfer the Minister must apply the local transfer rules spelled out in the plan.³²¹ Water use, water management works and activity approvals are not to be granted in contravention of the provisions of any relevant management plan.³²²

There is considerable effort to improve the transparency of decision-making under the WMA. Not only are plans to be prepared by management committees, which include community representatives and publicly exhibited, but decision-making is to be undertaken in accordance with these publicly available documents.

In addition a number of records are to be held in a public register including a register of access licences,³²³ a register of available water determinations³²⁴ and a register of every application for a water use, water management works and activity approval, and every approval that is granted, renewed, transferred, surrendered, suspended or cancelled under the Act.³²⁵

This contrasts with the situation for the Catchment Boards and Catchment Blueprints where there is considerably less formal accountability. The only requirement for a Board is to report annually on progress in the performance of its functions. However, the existence of the plans, which detail commitments, provides a transparent means for

³¹⁷ WMA s. 404(1)-(2).

³¹⁸ WMA s. 404(3).

³¹⁹ WMA s. 48.

³²⁰ WMA s. 63(2)(a).

³²¹ WMA s. 72(3).

³²² WMA s. 95.

³²³ WMA s. 83.

³²⁴ WMA s. 84.

³²⁵ WMA s. 113.

members of the public, should they so wish, to review performance and provide some basis on which to account.

6.3.13 Adaptive Management.

The water management principles require the application of adaptive management which should be responsive to monitoring and improvements in the understanding of ecological water requirements.³²⁶

It is noteworthy for example that the objects of the SWMOP (see above) include a specific requirement to have regard to the results of any relevant monitoring program.³²⁷

The SWMOP must include long term outcomes and management targets which are to be monitored for compliance with inbuilt review. With respect to management plans, the requirement for the establishment of performance indicators,³²⁸ scope for the inclusion in plans of monitoring and reporting requirements as a licence condition,³²⁹ plan review after 5 years³³⁰ and provision for periodic auditing³³¹ demonstrates a recognition of uncertainty and the need to review and adapt plans in the light of information on performance. Implementation programs are to be reviewed annually. New plans are to be prepared every ten years.

There has been considerable concern about the effect of the formalisation of water access rights on the ability of the government to adaptively manage.³³² However there is provision for the compulsory acquisition of access licences in the public interest.³³³ Further, compensation may only be claimed for a reduced water allocation arising as a result of a variation in a bulk access regime if such a reduction occurs during the course of the plan unless it was anticipated by the plan.³³⁴

³²⁶ WMA s. 5(2)(h).

³²⁷ WMA s. 6(2)(a)(ii).

³²⁸ WMA s. 35(1)(d).

³²⁹ WMA s. 17(b).

³³⁰ WMA s. 43(2).

³³¹ WMA s. 44.

³³² Crase L., Dollery B. and Lockwood M., "Watering Down Property Rights for the Sake of the Environment: A Consideration of the Environmental Benefits of Attenuated Water Rights in NSW" (2003) 10 *Australasian Journal of Environmental Management* 25-34.

³³³ WMA s. 79(1).

³³⁴ WMA s. 87.

6.3.13 Appeals and third party rights.

Any person may bring proceedings in the Land and Environment Court for an order to remedy or restrain a breach of the Act or regulations.³³⁵ The validity of a management plan and the exercise of plan-making functions can be subject to judicial review before the Land and Environment Court for a period of three months after gazettal.³³⁶ A right of appeal against a number of decisions in relation to access licences and approvals lies with an applicant or objector.³³⁷ Rights of objection to the grant of an access licence are limited to areas not within a water management area or for which a water sharing plan is not in force.³³⁸

³³⁵ WMA s. 336(1).

³³⁶ WMA s. 47.

³³⁷ WMA s. 368(1)(a)-(o).

³³⁸ WMA s. 62.

6.4 Discussion.

This chapter has detailed a desktop analysis of the planning provisions of the *Water Resources Act 1997* (SA), the *Catchment Management Act 1989* (NSW) and the *Water Management Act 2000* (NSW). In broad terms the legislation in both SA and NSW operationalises the principles of ESD to some extent. Both pieces of legislation involve significant reform of decision-making about catchment and water management. In both cases a procedural approach to planning is incorporated into legislation. However, the SA legislation involves much more extensive reform of the administrative framework which provides a significant capacity to implement plans. Not only do the CWMBs in SA plan, they also have an independent budget to undertake a range of activities to implement them.

With respect to the elements of sustainability discussed in the introduction to this chapter the following points are made:

Priority to the Environment. In the first instance it would appear that the NSW legislation entrenches an environmental priority more strongly than the SA legislation. However in the case of SA the provision is strengthened by the requirement on persons and bodies administering the Act to have regard to a range of aspects of environmental protection. Significantly, in both SA and NSW the need for restoration and repair of the environment is anticipated and authorised.

The concern with the NSW approach is that in situating the determination of environmental needs in local planning committees, which are ‘interest-based’, the priority established by the Act may be more vulnerable to local social and economic priorities. The quality of the ultimate determination of environmental needs will depend in part on the strength of environmental representation in the committee. The one-step-removed arrangements of CWMBs may insulate the decision-making process from political pressure at a local level.

Equity – inter-generational and intra-generational. Concern for future generations and their need for water is incorporated in the objects clause of both the WRA and the WMA. Otherwise, effort to operationalise the principle of equity is limited. The

significant exception is that membership of the Water Resources Council in SA must include a person to 'represent future generations'.

Both the SA and NSW legislation are concerned with the 'sustainable' management of water. The highest level of plans in SA and NSW, the SWP and SWMOP respectively provide the context within which management at the catchment level should occur. If this were to incorporate inter-generational equity, a long-term visionary perspective for restoration and repair would be required. In neither case is this specifically required by the legislation. The provision in the CMA for identification and rectification of natural resource degradation indirectly acknowledges inter-generational concerns.

Neither the SA nor the NSW legislation explicitly recognises intra-generational equity as a priority. In both jurisdictions a hierarchy of plans is created and planning at the catchment level takes place within a context of strategic direction from State government. It is possible that this provides the means for broader community and inter-generational concerns to find their way into planning at the catchment level. This approach is generally weak.

Precaution. It was proposed that precaution could be operationalised in a planning context by the use of best available information about which the degree of certainty was declared and through attempts to anticipate future threats. The WRA includes very specific provisions in relation to information requirements but does not specify anything about the quality or certainty of that information. This implies that, in SA at least, the explicit incorporation of scientific and environmental information into decision-making is possible. In NSW, neither the CMA nor the WRA make any specific provisions in relation to information requirements. There has been some concern recently about the information used in the NSW water sharing plan preparation: according to Williams (2003), the 'best science was available and it wasn't used'.³³⁹ In neither case, are there specific requirements to anticipate future threats, or consider their implications in plan making.

³³⁹ "NSW Government under fire on rivers", *Acres Australia* (Eumandi, Australia), October 2003, 5.

In situations of scientific uncertainty and possible long-term risk it has been argued that decision-making should incorporate a broad range of interests. The 'interest-based' approach to committee formation in NSW, probably facilitates the incorporation of a diversity of 'values' into decision-making, more than the 'expertise' based approach in SA. In both SA and NSW the formal provisions for consultation about plans paves the way for a greater diversity of interests to input into decision-making. However, the efficacy of this depends on the form and quality of the consultation arrangements. In both SA and NSW the planning framework does not provide for a separation of technical and political determination of environmental requirements. This could be achieved by a process, which clarifies the quality of information (including the certainty of the science) and allows political decision-making at the point where science becomes uncertain and the responsibility for decisions about 'risk' rests with the community.

Plans in both SA and NSW provide detailed direction to administrators about decision-making. In both cases administrators are required to make decisions consistent with plans, which acts as a constraint on the exercise of discretion.

Integration. In both SA and NSW planning facilitates the incorporation of social and economic information into decision-making. The constraint on this is that without explicit concern for broader equity issues it may function simply to highlight the negative impact of change on current users of the resource rather than frame decision-making in broader terms.

With respect to sectoral integration both the WRA and the WMA are concerned principally with the regulation of water quantity. The CMA is much broader than this and is concerned with the management of natural resources at a catchment scale. The shift however is that the consideration of the impact of water quantity extraction on water quality issues and other natural resources is provided for. In SA the legislation is also concerned with management and it is in this respect that the water quantity and quality aspects of water are integrated.

Both SA and NSW have weak formal provisions for integration. In both cases, catchment and water plans are the junior partner to the land use plan. The CMA does

not, despite its purpose, deal with the question of integration in any formal way. The relationship between Catchment Blueprints and WAPs is not clarified.

On the other hand the broad inclusion of agency representatives on committees in NSW could facilitate improved integration of outcomes. At the very least it facilitates a broader understanding of the respective agency mandates, constraints and priorities. In SA, the planning process is removed from the State agencies and as such the capacity of plans to influence their actions will depend on the formal provisions of the Act.

The alignment of command regulation with management actions is important to the achievement of sustainable natural resource management. While the relationship between rules and tools is not made explicit the SA model of planning and funding at least provides the possibility for an informal alignment.

Adaptivity. In both SA and NSW the principles of adaptive management are embraced to the extent that there are requirements for monitoring, audit, review and plan amendment. Adaptive management however depends on the establishment of clear, time bound management targets from which to measure change. The WRA includes a requirement for performance indicators to be incorporated into plans. This issue is examined in more detail in the case studies that follow.

Public Participation. Considerable effort has been made in both jurisdictions to improve the transparency and accountability of public administration. If public participation is enhanced by transparent administration and public disclosure of information, the provisions in relation to plan-making and review, in theory at least, enhance the potential for public participation. In both jurisdictions there is explicit concern with making information available to the public.

There are specific and effective rights of participation in plan-making under the WRA and the WMA but not the CMA. Community consultation requirements are more comprehensive in SA than in NSW. In SA there are at least four separate consultation phases and an attempt to involve the community in agenda setting (through public consultation about proposal statements). In both cases there is a duty on decision-makers to take account of public input and submissions in their final determinations.

A key difference in the legal framework is in relation to the direct participation of the community in planning and decision-making. In NSW the community is directly represented on catchment boards and water management committees through 'interest' representation. It is unclear whether the 'interest' representatives have any obligation to consult with an 'interest group' or whether they represent that interest in an individual capacity. The clarification of this issue is important for an assessment of the broad legitimacy of this approach.

Questions about the scope of interests represented remain, with some concern about the lack of non-consumptive users and intra- and inter-generational interests. The lack of Indigenous representation in SA is an important and significant omission. Boards in SA make decisions by a majority vote and Boards and committees through a consensus process. The impact of this on the quality of decisions is discussed further in the case studies.

Public involvement in on-going management and implementation of plans is provided for by the SA legislation. This is significant to the extent that it involves actual decision-making about expenditure of funds. In NSW under the WMA public participation stops at the point of plan-making. The CMA provides for ongoing participation of community representatives through catchment boards.

Generally, the WMA and WRA contain similar provisions in relation to appeals and third party rights. In both jurisdictions there has been a trade off of individual rights against community involvement in setting the broader parameters of decision-making. This is legitimate to the extent that the exercise of individual rights could subvert the broader intent of planning.

Administration. The administrative framework established by the respective legislation is substantially different. The SA legislation sets up a form of regional government which, being separately funded and independently accountable, implies a significant potential for effective implementation. The specific mandate of CWMBs and their formal establishment provides for persistence of initiatives. In their operations CWMBs are relatively independent of broader political processes. However, the structure of the

legislation places them firmly within the direction and supervision of State Government. In terms of broader democratic concerns this is probably appropriate.

In the case of NSW, catchment boards and management committees are established to plan and have little or no role in implementation. There is then a disjunction between management priority setting, rule making and implementation. Conceivably, a great deal of knowledge is both generated and lost in this approach. The insights gained in the process of design are not brought to bear in the implementation phase. This means that administrators may be separated from the process of planning that led to the prioritisation and be less informed about the need for change.

With respect to other bodies (such as the Water Resources Council and Water Advisory Council) established by the WRA and the WMA, roles and responsibilities are generally well clarified by the legislation. There are extensive provisions in relation to transparency and accountability. The requirements in both NSW and SA to audit and report on performance are significant.

In both SA and NSW there are specific provisions aimed at institutionalising both plan-making and plan implementation. Planning in NSW under the WMA is regulatory in character and the focus is on the generation of rules. Planning in SA is concerned with both the generation of regulation and on-going management of resources. In neither case does the legislation provide for specific trade-offs between rules and tools as a strategy for behavioural change.

The WRA and the WMA operationalise the principles of ESD to some extent. It is likely however that the provisions in relation to administration in SA will result in more effective and integrated implementation. The separation of catchment and water planning in NSW is problematic.

Regulation. Blueprints in NSW are entirely concerned with setting management priorities and defining management actions in relation to the identified environmental needs. In contrast the CMWPs in SA cover both management priority setting, management actions and the generation of rules in relation to ‘water affecting activities’ i.e. defining what activities require a permit and the decision-making criteria that should

be applied in their determination. In NSW water management plans determine the regulatory framework to the extent that it relates to access to water. Similarly in SA the water allocation plans determine the rules for access to water, its trade and transfer.

The interesting aspect of this, is that we find a local community-based process to be engaged in the generation and determination of rules. From the perspective of regulatory theory (discussed in Chapter Six) this approach has the potential to provide a number of benefits. These benefits arguably include:

- better designed rules because the regulated (or their representatives) are involved in the process of rule making and bring to it an improved understanding of the constraints to changed management practices;
- improved knowledge of rules because the regulated are involved in the process of their development;
- awareness raising about rules, their rationale and content through the public consultation processes;
- an increase in the ‘acceptability’ of rules because through the process of their generation the regulated are drawn into a larger context which educates them about the cumulative impact of the individual uses on the system as a whole;
- an increased appreciation of the ‘community of interests’ between water users so that there is a greater willingness and desire to see regulations enforced equitably;
- the regulators gaining greater insight into the motivations and constraints of the regulated in complying with rules; and
- a decrease in the moral ambiguity around the enforcement of rules.

Generally speaking it could be argued that this is a form of negotiated rule making in a local context. It is strategic in the sense that it starts from the place of identifying the problems and working towards solutions. It is a mix of top-down and bottom-up processes in that there is scope for local decision-making within a context of strategic direction from the State. I would argue that this is entirely appropriate because the parameters for local decision-making need to be set with reference to both inter- and intra-generational interests. This process has the character of reflexivity to the extent

that it provides a knowledge-based framework for the regulated to reflect on their environmental performance and internalise change.

From the perspective of regulatory theory however, the grave weakness in both SA and NSW is that the rule-making is restricted to framing constraints on behaviour. It is negative in character and the legislative mandate does not provide the scope to strategically link incentives to comply with regulatory objectives. In many systems where water is over-allocated the priority is to reduce the total water allocation. This means for example that regulators come to the negotiating table with ‘one hand tied behind their backs’, such that they are not empowered to give – just to take away. The acceptability of change could well be increased if there was a clear link between for example, public investment in water-efficient technology and reduced water allocations in the period of adjustment and transition. In addition, this would be more equitable. The general tax payer who funds such programs would be able to see a clear public benefit from investment in the nature of increased environmental flows and associated benefits. In catchments that provide ecosystem services such as clean drinking water, the willingness of the recipients of such services to pay for specific works may be increased substantially if the link with public benefit was better drawn. This would provide a context to develop regulatory strategies which link rules with tools and address both disincentives and incentives for change.

6.4.1 Postscript

The legislative situation continues to be dynamic. In SA major legislative reform to natural resource management was first proposed in 2001. The Integrated Natural Resource Management Bill 2001 lapsed in Parliament in the lead up to the 2002 State election. The Bill proposed:

‘...[a] Ministerial Board and a network of regional Integrated Natural Resource Management Groups to coordinate approaches to managing the State’s natural resources. The proposed Act is not intended to immediately replace any existing

legislation, rather it seeks to provide a common set of policies and processes across all natural resource management legislation.³⁴⁰

In November 2002 the Government of SA released a Discussion Paper ‘New Directions for Natural Resource Management in South Australia.’³⁴¹ The Draft Natural Resource Management Bill 2003 was released for comment in July 2003. The legislative proposal:

- Brings NRM into the framework of ecological sustainability and adopts the inter-generational equity and precautionary principles;
- Provides for the establishment of a new structure which integrates a number of the current NRM institutional arrangements;
- Repeals the *Animal and Plant Control (Agricultural Protection and Other Purposes) Act 1986*, *Soil Conservation and Land Care Act 1989*, and *Water Resources Act 1997*; and
- Incorporates operational matters from the Acts to be repealed.³⁴²

In short the Bill proposed to expand the scope of natural resource issues dealt with at the regional level through a streamlined administrative framework. Catchment Water Management Boards would be replaced with Natural Resource Management Boards. Although coordinated decision-making at the regional level was proposed through the new Boards, regulatory and operational provisions are to be drawn from existing legislation and relate to the individual natural resource management areas.³⁴³ The Natural Resource Management Bill was passed by the SA Parliament on 20 July 2004 with more than 100 amendments.³⁴⁴ It is beyond the scope of this research to critique these significant reforms.

³⁴⁰ Government of South Australia, *Draft Integrated Natural Resource Management Bill: Request for Comments & Explanatory Paper* (2001) Adelaide, SA, 5.

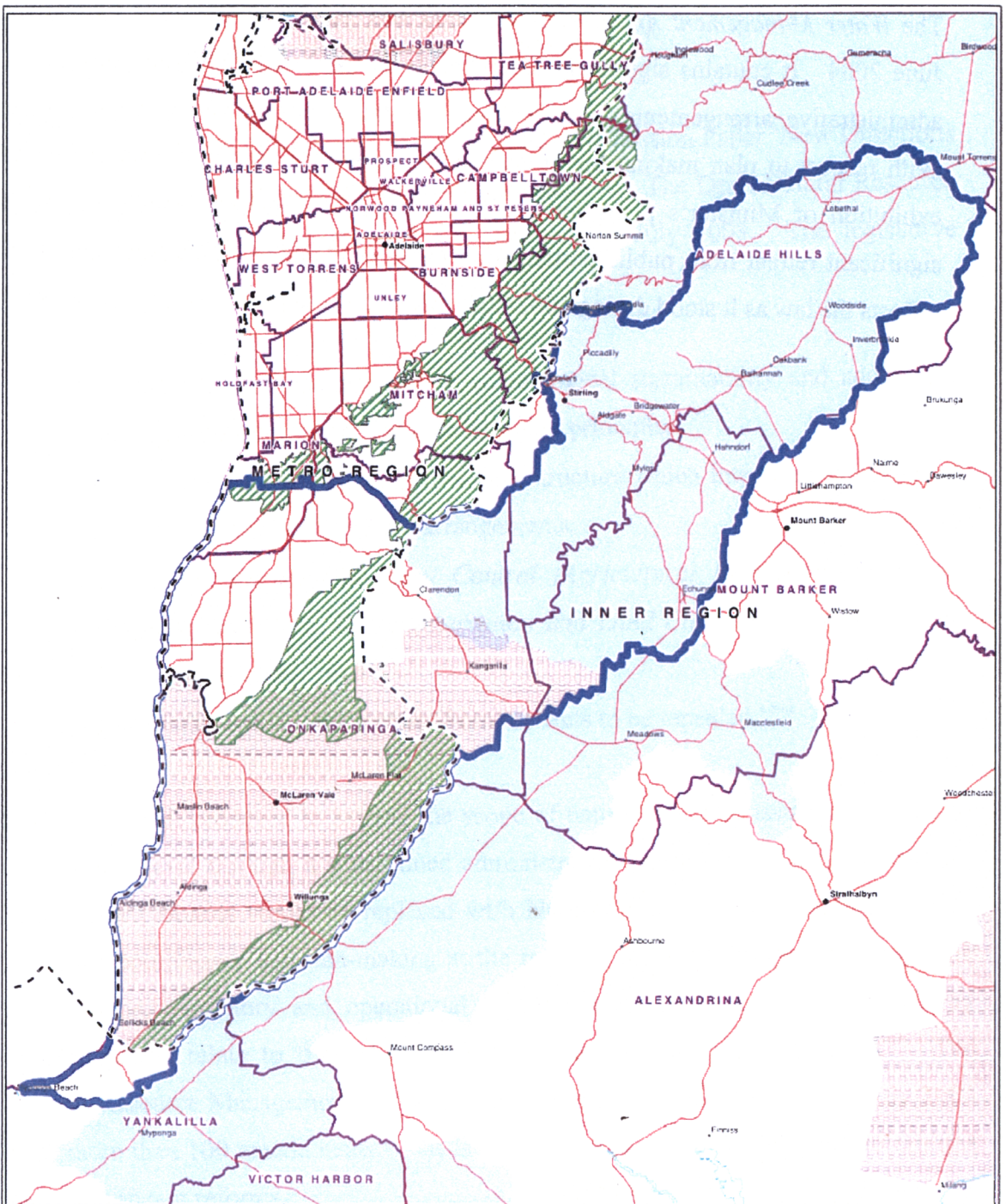
³⁴¹ Natural Resource Management Council, *New Directions for Natural Resource Management in South Australia* (2002) Government of South Australia, Adelaide, SA.

³⁴² Department of Water Land and Biodiversity Conservation, *Consultation Draft Natural Resources Management Bill, 2003* (2003) Government of South Australia, Adelaide, SA, 4.

³⁴³ Ibid. 4.

³⁴⁴ Department of Water Land and Biodiversity Conservation, *NRM Integration Project* (2004) http://www.dwlbc.sa.gov.au/nrm_reform/index.html (accessed 13 August).

The *Water Management Amendment Act 2004* was passed by the NSW Parliament in June 2004. It contains significant amendments to the WMA including in relation to administrative arrangements, plan making and the licensing and approvals system. With respect to plan making the amendments remove the mandatory requirement for exhibition of Minister's plans for public comment (s 50(2)(a)), which represents a significant retreat from public participation in water planning. This legislative review reflects the law as it stood during 2002/2003 when the case studies were conducted.



Onkaparinga Catchment Water Management Board Administrative Boundaries

Chapter Seven – A case study of the implementation of the legal and administrative arrangements for catchment and water planning in the Onkaparinga Catchment (SA)

7.1 Introduction

In Chapter Six the *Water Resources Act 1997* (SA) (WRA) was reviewed and analysed against the elements of a sustainable approach to natural resource management defined in Chapter Four. It was concluded that broadly speaking the key elements of sustainability were incorporated in the framework for planning established under the Act. The intention of this chapter is to move from a study of the ‘law on the books’ to its implementation in the Onkaparinga Catchment. Further to this, the objective is to place planning under the WRA into a broader natural resource management context. To this end, the legal and administrative arrangements for land use and water quality as they apply both generally and specifically in the Onkaparinga Catchment have been reviewed. Clearly the WRA does not operate in isolation and its effectiveness in achieving sustainable water management is conditioned to some extent by the broader system of water quality and land use management and regulation.

This chapter describes the administrative arrangements for catchment and water planning in the Onkaparinga Catchment. A brief description of the catchment and some key environmental problems will provide the context for this review. In the first part of this chapter the Onkaparinga Catchment Water Management Board and the Mount Lofty Ranges Catchment Program are discussed. The responsibilities, functions and plan-making process of the Onkaparinga Catchment Water Management Board are described. The Board has planning, regulatory and implementation responsibilities. The Mount Lofty Ranges Catchment Program has a long involvement in catchment management in parts of the Onkaparinga and its functions and programs will be outlined. It was recently designated as an interim regional group under the National Action Plan for Salinity and Water Quality and the Mount Lofty Ranges identified as a priority region. Therefore despite its non-statutory status it has a key influence on natural resource management in the catchment. Following this, the catchment and water plans i.e. the State Water Plan, the Onkaparinga Catchment Water Plan, the McLaren Vale Prescribed Wells Area Water Allocation Plan, and the plan for Integrated Natural

Resource Management for the Mount Lofty Ranges and Greater Adelaide Region are discussed. In order to draw out the relationship between catchment management and land use the third part of this chapter includes a broad description of the land use planning system in SA. This is followed by an overview of the applicable strategic plans, which include the Planning Strategies for Metropolitan Adelaide and Regional South Australia, planning policy for the Hills Face Zone, the Mount Lofty Ranges Regional Strategy Plan and relevant parts of 'local plans'. Finally, this chapter describes the approach to water quality regulation in SA and draws specific examples in relation to the Onkaparinga Catchment as appropriate.

This review, despite its demonstrated complexity, is not exhaustive. Rather it is purposive to the extent that the focus is on drawing out the relationships between catchment planning, land use planning and water quality regulation. While the Board is the key statutory player in the catchment, non-statutory organisations such as the Mount Lofty Ranges Catchment Program have a significant input into catchment management in practice and a critical role in investment. It will be demonstrated that while the Onkaparinga Catchment Plan embraces the notion of integrated water quantity, water quality and land use management, it sits within the context of a sectoral approach to the regulation of land use and water quality. The final discussion is drawn along four themes i.e. integration, administration, regulation and sustainability.

7.2 The Onkaparinga catchment

The Onkaparinga catchment has an area of approximately 920 square kilometres.¹ The population is 174,000 people, in the local government areas of the Adelaide Hills Council, the Cities of Marion and Onkaparinga, and the District Councils of Mount Barker and Yanalilla.² The area includes the catchments of the Onkaparinga River, a number of smaller streams³ and the McLaren Vale Prescribed Wells Area. The McLaren Vale Prescribed Wells Area (PWA) was gazetted under the provisions of

¹ Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA, 9.

² Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Board* (n.d.) Government of South Australia, Aberfoyle Park, SA.

³ Field River, Christie Creek, Pedler Creek, Maslin Creek, Port Willunga Creek, Selicks Creek and the Washpool Lagoon Ibid.

section 8 of the Water Resources Act, 1997 on 7 January 1999.⁴ It covers an area of approximately 320 square kilometres, with the Onkaparinga River forming part of the northern boundary and much of the south-eastern boundary following the ridge of the Sellicks Range.

The Onkaparinga Catchment covers six significant coastal catchments and two SA Water bulk water storages, Mt. Bold Reservoir and Happy Valley Reservoir⁵ (which provide approximately 30% of metropolitan water supply). It is significant that the catchment incorporates part of the Mount Lofty Ranges Watershed, which provides an average of 60% of Adelaide's water supply. This is a mixed-use catchment and water quality is a priority concern (see below).

The catchment supports a diversity of land uses including urban areas, rural living, horticulture and agriculture. Horticulture on private land is very significant in the catchment. In economic terms the value of primary production in the Mount Lofty Ranges in 1996 was \$241 million or \$720 million if handling and processing are included.⁶ The catchment is also important in terms of recreation, tourism and cultural amenity.

The catchment has high biodiversity and contains important remnant vegetation and refuge habitat for several threatened species.⁷ The environmental quality of the area has been compromised by historical land and water use. Current uses are at unsustainable levels and there is considerable demand for new development.

⁴ The Act provides that subject to public consultation and Ministerial approval, a regulation declaring a water resource to be prescribed may also require stock and domestic use to be licensed. Thus the Act provides for regulation of the right to access water for stock and domestic purposes under the WAP and allows allocations to be made for stock and domestic use. However, there has been strong community resistance to the licensing of stock and domestic use. Department of Water Land and Biodiversity Conservation, *Report of the Review of the Operation of the Water Resources Act 1997* (June 2002) Adelaide, SA, 15.

⁵ Onkaparinga Water Management Board, *Annual Review 2002/2003* (2003) OCWMB, Aberfoyle Park, SA, 2.

⁶ Mount Lofty Ranges Catchment Program, *The Mount Lofty Ranges Region* (nd) <http://www.mlrep.sa.gov.au/region.html> (accessed 17 March).

⁷ The Southern Brown Bandicoot (*Isoodon obesulus*) is considered to be vulnerable and found in only three isolated groups. Major threats include habitat destruction, bushfire and introduced species such as foxes and cats. City of Onkaparinga, *Stats & Facts* (1999) City of Onkaparinga, 11.

7.3 Issues and threats in the catchment

A number of water quality and quantity issues are of concern in the Onkaparinga Catchment. There has been significant alteration to natural surface and groundwater systems.⁸ Water quality has been affected by the degradation of wetlands and riparian vegetation as well as diffuse pollution from agricultural and domestic sources.⁹ In 2000 a number of water quality issues were identified which included toxic algae blooms; pesticides, heavy metals, parasites and animal and human faecal contamination; and sediment from erosion of degraded river banks, overgrazing and intensive horticultural practices.¹⁰ In the Mount Lofty Ranges watershed both the issues of pollution and stream ecosystem degradation are of concern.¹¹ In the horticultural production area key groundwater resources are either fully allocated or over allocated.¹² As with many peri-urban coastal catchments, there is considerable development pressure for both housing and rural living.

Trends in future land use are likely to include:

- continued increase in grapevine establishment;
- increase in the area given to olive establishment;
- ongoing replanting of orchards and associated production increases;
- continued pressure to increase the number of small (4-8ha) allotments for rural living and horse agistment;
- continued decrease in cereal cropping;
- further encroachment of urbanised areas onto rural land;
- continued increase in the area of rural land taken out of production and revegetated with native species, including land in the riparian zone.¹³

⁸ Reservoirs such as Mount Bold intercept up to 90% of water from streams in drier years, groundwater levels are dropping in some local aquifers and in others there has been an increase in groundwater recharge resulting in dryland salinity. Onkaparinga Catchment Water Management Board, *Land and Water Management in the Mount Lofty Ranges* (n.d.) Government of South Australia, Aberfoyle Park, SA.

⁹ Ibid..

¹⁰ Environment Protection Agency, *The State of Health of the Mount Lofty Ranges Catchments from a water quality perspective* (2000) Government of South Australia, Stirling, SA, 3.

¹¹ Department for Water Resources, *State Water Plan 2000* (2000) Government of South Australia, Adelaide, SA, vi.

¹² Ibid. 17.

¹³ Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA, 20.

7.4 Administrative arrangements for catchment and water planning in the Onkaparinga Catchment

Both the Onkaparinga Catchment Water Management Board and the Mount Lofty Ranges Catchment Program are key players in catchment management in the Onkaparinga Catchment.

7.4.1 Onkaparinga Catchment Water Management Board

The Onkaparinga Catchment Water Management Board (the Board) was established by the Minister under the provisions of the Water Resources Act, 1997 (SA) (WRA), in January 1998.¹⁴ The functions of the Board are prescribed by the Act and include generally:

- Preparing and implementing a catchment water management plan;
- Advising the Minister and constituent councils about the water resources in the Board's area;
- Raising community awareness about water resources and the sustainable use of all forms of those resources; and
- Any other functions assigned by the WRA or other legislation, and in particular, those that implement and seek to further the objects of the Act.¹⁵

Within these broad parameters the specific functions of the Board are determined by the content of the catchment water management plan. This provides considerable scope for the Board and community to define specific catchment priorities and tailor programs to address relevant issues.

The Board can be broadly described as 'expert-based'. The Board has nine members from a diversity of backgrounds, appointed by the Minister from a public call for persons with skills and experience in catchment issues in the catchment area. It meets monthly and meetings are open to the public. Both agenda and minutes of meetings are

¹⁴ Ibid. 6.

¹⁵ WRA s. 61.

readily accessible on the Board's web site. Decisions are made on the basis of a majority vote. The Board has a full time staff of five.

The Board sees its role as coordinator, facilitator and where appropriate funder of identified priority actions.¹⁶ In addition, it has important if restricted regulatory responsibilities. Relationships with State Government Agencies are important since they play a role in delivering the required outcomes.¹⁷ For example, the Board prepares the Water Allocation Plan but licences are issued in accordance with the provisions of the Plan by the Department of Water, Land and Biodiversity Conservation. The Department is also responsible for enforcement and prosecution of breaches of the Act.

The Board is committed to developing 'complementary and close working relationships' with constituent councils.¹⁸ Local councils in SA have a range of important environmental management functions and responsibilities under the *Development Act* 1993. As a result they are crucial to the effective implementation of aspects of the catchment water management plan.¹⁹

The Board has an independent budget derived from a land-based and water-based catchment levy and external sources. The income and expenditure of the Board in 2003/04 was:

Table 1 **Income Summary**²⁰

<u>Source of Income</u>	2003/04
Constituent Councils (Division 2 Levy) – land based	\$ 2,179,665
McLaren Vale Prescribed Wells Area (Division 1 Levy) – water based	\$ 70,000
External funding (including ex-gratia payment from SA Water of \$335,000), interest and carryover	\$ 1,110,000

¹⁶ Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA, 81.

¹⁷ See 81-82 for detail of the role of relevant agencies Ibid..

¹⁸ Ibid. 83.

¹⁹ Local Government Act, 1999 ss. 6, 7 & 8, WRA ss. 135-138.

²⁰ Onkaparinga Water Management Board, *Annual Review 2002/2003* (2003) OCWMB, Aberfoyle Park, SA, 5.

The key points to be drawn from this are:

- that the specific functions of the Board are defined by the plan they prepare;
- the Board membership is based on ‘expertise’;
- the Board sees its primary role as coordination, facilitation and funding, despite its significant regulatory responsibilities;
- the Board depends on both local government and state government agencies for important aspects of implementation; and
- the Board is independently funded.

Preparation of the Catchment Water Management Plan (CWMP)

The CWMP was prepared in accordance with the provisions of the WRA described in Chapter Six. It took almost two years to prepare. As required by the Act an extensive range of baseline environmental data was collected and analysed during the plan preparation phase. A summary of this data is included in the plan. Key information incorporated in the plan includes geological and hydrological data, major land uses, population characteristics, economic values, recreational uses, living patterns and water uses. Consultants were engaged to prepare both the CWMP and the Water Allocation Plan²¹ (see below).

The technical investigations were complemented with an extensive community consultation program.²² Broadly speaking, the consultation strategy had three phases i.e. identification of issues, exploration of strategies and actions, and the formal statutory consultations on the draft plan. The Board appeared to place a high priority on informing the community²³ as well as directly engaging it through consultation

²¹ PPK Environment and Infrastructure Pty Ltd and Woodward-Clyde Pty Ltd Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA, 2.

²² Ibid. see 31 and appendix D.

²³ The Board ran an information line, published fact sheets and provided information to the local media. Ibid, appendix D.

workshops. During the ‘issues identification’ phase, seven workshops were held²⁴ at which the scoping papers for the technical investigations were reviewed and additional issues identified. The second consultation phase ‘exploration of the strategies and actions’ was designed to integrate with the technical investigations and explore strategies and actions to address key issues identified in stage one.²⁵

7.4.2 Mount Lofty Ranges Catchment Program

The Mount Lofty Ranges Catchment Program (MLRCP) was set up in 1993 to facilitate on ground action to implement the Regional Strategy Plan (discussed below). The vision of the catchment program was to:

‘achieve major institutional changes to facilitate the development of land use planning based on the principle of land capability and adopted by all tiers of government (state, local government and land holders) which ensure the improved management of soil, water and vegetation in the Ranges for the benefit of existing land holders and the wider community.’²⁶

The MLRCP is managed by a community based Board of Management with an independent chair. While the MLRCP was initiated by the statutory Regional Strategy Plan, it does not itself have a statutory basis.

The Program has been funded continuously since 1993 by Local, State and Commonwealth Governments. Phase I of the program ran from 1993-1997, phase II ran initially from 1998-2000 and was subsequently extended until 2002.²⁷ The program was comprehensively reviewed in 1997.²⁸ The emphasis of the Program has shifted somewhat over time from a principal concern with land use planning to land management. In general the emphasis is on agricultural/horticultural land management.

²⁴ Local Government, Aboriginal, Industry and four Catchment Consultation Sub-Area workshops.

²⁵ Activities included a hypothetical debate, speak-out and strategic planning workshop.

²⁶ Mount Lofty Ranges Catchment Program Board, *Mount Lofty Ranges Catchment Program 1993-1997 Completion Report* (1997) Mount Barker, SA, i.

²⁷ Kerby J. and Chapman P., *Mount Lofty Ranges Catchment Program Phase II Mid-term Review* (2000) Mount Barker, SA, 9.

²⁸ Mount Lofty Ranges Catchment Program Board, *Mount Lofty Ranges Catchment Program 1993-1997 Completion Report* (1997) Mount Barker, SA.

In the financial year 1999/2000 the Program had a budget of almost \$5 million.²⁹ A significant contribution comes from the Commonwealth through NHT, National Landcare and other programs. The State and Local Government contribution comes mainly in the form of technical and administrative support and the community contributes through labour and other in-kind support and through matching funding for all on-ground works.

The MLRCP has been acknowledged as ‘providing an excellent example of how catchment management is being implemented in South Australia.’³⁰ The Riparian Zone Management Project has been recognised nationally as the best case study of the implementation of riparian zone management in Australia.³¹

The Program achieves on-ground change through an integrated approach involving the community and all levels of government by: assisting the community to develop and implement on-ground projects; providing funds for on-ground action for priority issues and locations; providing technical advice for on-ground action; and raising community awareness, understanding and responsibility for natural resource management.³²

Phase II of the Program had four objectives i.e. coordinating and facilitating the development of regional, local and property management plans to set priorities for on-ground works; providing funds and technical advice for on-ground action on the basis of these priorities; facilitating a whole-of-government/whole-of-community approach to integrated and coordinated action in resource management; and raising community awareness and understanding of natural resource management issues and remedial actions.³³ The objectives were implemented by four subprograms of devolved grants: the Land Management Program, the local government component and the Landcare Support Project, underpinned by the Management and Administration program.³⁴

²⁹ Mount Lofty Ranges Catchment Program, *Mount Lofty Catchment Program* (2001) <http://www.mlrcp.sa.gov.au/mountloftyrangesprogram.html> (accessed 17 September).

³⁰ House of Representatives Standing Committee on Environment and Heritage, *Co-ordinating Catchment Management* (2000) The Parliament of the Commonwealth of Australia, Canberra, Australia.

³¹ Mount Lofty Ranges Catchment Program Board, *Mount Lofty Ranges Catchment Program 1993-1997 Completion Report* (1997) Mount Barker, SA, iii.

³² Mount Lofty Ranges Catchment Program, *Mount Lofty Catchment Program* (2001) <http://www.mlrcp.sa.gov.au/mountloftyrangesprogram.html> (accessed 17 September).

³³ Kerby J. and Chapman P., *Mount Lofty Ranges Catchment Program Phase II Mid-term Review* (2000) Mount Barker, SA, 9.

³⁴ Ibid. 9.

Devolved grants operate at two levels i.e. major on-ground works (up to \$150,000) and community involvement grants (under \$10,000).³⁵ The Program has been a pioneer in developing a devolved grants program for funding on-ground works.³⁶ The MLRCP has supported the coordinated administration of a number of government services in the region. The Program established a 'one stop shop' for natural resources management activities within the Ranges with agency and community staff and volunteers working from the same office. This has resulted in a high degree of coordination between activities and strong community support for the ability to access integrated information on resource management.³⁷

The significance and on-going importance of the MLRCP has recently been reinforced. The Government of SA and the Commonwealth signed the Inter-governmental Agreement on a National Action Plan for Salinity and Water (NAP) in February 2001.³⁸ A Bilateral Agreement was signed in June 2001 detailing the implementation arrangements. The State Government committed \$93 million and the Commonwealth \$100 million to address salinity issues within the State over a seven-year period.³⁹ The Mount Lofty Ranges were identified as a priority region and the MLRCP was designated as an interim regional group.⁴⁰ The Integrated Natural Resource Management Plan is discussed further below.

The MLRCP is a non-statutory organisation run by a community based Board. Its key focus is on improved land management and it has pursued this by funding a series of devolved grants, providing technical advice, co-ordinated administration and education initiatives. Its ongoing importance is assured by its recent designation as an interim regional group for the National Action Plan for Salinity and Water Quality.

³⁵ Ibid. 9.

³⁶ Mount Lofty Ranges Catchment Program, *New leader for Mount Lofty Ranges Catchment Program* (2001) www.mlrcp.sa.gov.au (accessed 23 September).

³⁷ Rolls J., "Integrated Natural Resource Management in South Australia" (Paper presented at the 2nd National Workshop on ICM - Advancing Integrated Resource Management: Processes and Policies, Canberra, Australia, 1997)

³⁸ The Premier of South Australia, *Report to Parliament on the Planning Strategy for South Australia 2000-2001*. (2001) Planning SA, Adelaide, Australia, 53.

³⁹ Ibid. 53.

⁴⁰ Mount Lofty Ranges Catchment Program, *Mount Lofty Ranges Interim Integrated Natural Resource Group* (2003) http://www.mlrcp.sa.gov.au/INRM_Group.html (accessed 17 September).

7.5 Catchment and water plans

The WRA establishes a hierarchy of plans i.e. the State Water Plan, Catchment Water Management Plans and Water Allocation Plans (for prescribed areas). Plans are prepared in accordance with the provisions of the Act, which have been described in detail in Chapter Six. Lower order plans must conform with the general direction established by plans higher in the hierarchy. In the Onkaparinga Catchment the Integrated Natural Resource Management Plan is a strategic plan prepared to meet the funding criteria established by the National Action Plan for Salinity and Water Quality. Unlike the other plans in the catchment, it does not have a statutory basis, but has a significant influence on the nature of programs and the allocation of funds. The relationship between this plan and plans prepared under the WRA is far from clear.

7.5.1 The State Water Plan (SWP)

The State Water Plan 2000 is a ‘high level strategic plan, which contains a set of policies and actions to enable a coordinated and integrated approach to the management and use of water resources across the whole of SA.’⁴¹ With this plan the State Government firmly sets the parameters within which the Boards can operate. The SWP provides a contemporary assessment of the state and condition of South Australia’s water resources and sets out the Government’s strategic policy directions for their sustainable use and management.⁴² Assessment of the condition of, and threats to, specific key water resources are detailed in the Plan.⁴³ It broadly defines the priorities and goals of water management at a catchment level. The Catchment Water Management Plan prepared by the Board must be consistent with the State Water Plan.

The SWP describes core values, which include:

- the quantity and quality of water for human use and the environment is fundamental to maintaining the quality of life of South Australians,

⁴¹ Department for Water Resources, *Department for Water Resources, Government of South Australia* (2001) <http://www.dwr.sa.gov.au/> (accessed 14 July).

⁴² Department for Water Resources, *State Water Plan 2000* (2000) Government of South Australia, Adelaide, SA, v.

⁴³ Ibid. see 16-17 for a review of the condition of the Adelaide and Mount Lofty Ranges water resources.

- water is precious and must be managed in accordance with the principles of ESD,
- water should be managed in an integrated manner, and
- the community has the right to be informed, consulted and involved in its management.⁴⁴

The State Water Plan includes action statements and targets (i.e. a date to achieve the action) and identifies the responsible body.⁴⁵ Generally, the action statements are of a strategic and policy nature and are not linked to any specific or measurable environmental, social or economic outcome. For example, Action Statement 4.3.3 states: ‘The Government will continue to ensure that appropriate resources are allocated to complement NHT and community investments in education, regulation and enforcement for improved water quality outcomes in the Mount Lofty Ranges.’⁴⁶ Statements such as these leave considerable latitude for both interpretation and assessment of performance. What are ‘appropriate resources’ and to what specific outcome are they to be directed? The approach adopted in the SWP makes it difficult to see how actions can be translated into measurable targets for performance measurement to facilitate adaptive management or ‘policy as experiment’.

Implementation of the SWP

A *Report on the implementation of the State Water Plan* was completed by the Water Resources Council in 2002.⁴⁷ This review considered the implementation of both the 1995 State Water Plan, *South Australia – Our Water, Our Future*, and the 2000 State Water Plan, in the context of assessing progress and policy direction.⁴⁸ This review was conducted with the objective of meeting the five yearly review of the WRA.⁴⁹ The Review found that of the 47 actions contained in the State Water Plan 2000, 39 are

⁴⁴ Ibid. vii.

⁴⁵ Ibid. 75-79.

⁴⁶ Ibid. 75.

⁴⁷ Government of South Australia, *Report on the implementation of the State Water Plan* (2002) Water Resources Council, Adelaide, Australia.

⁴⁸ Ibid. i.

⁴⁹ Section 51(1) of the WRA states that the function of the Water Resources Council, amongst other things, is: ‘to examine and assess at the end of each five years following commencement of the Act (i) the extent to which the State Water Plan has been implemented; and (ii) the extent to which implementation of the Plan has achieved the objects of the Act.’

either on target for completion or have been completed. The remainder are in progress.⁵⁰ The meaningfulness of this Report is conditioned by the quality of the indicators of action detailed by the SWP in the first instance. The SWP actions are very general in nature and an actual measure of their implementation and effect is difficult to determine. In short, the SWP does not provide a sound basis for adaptive management because the actions are too general in nature, the targets non-specific and the link between program and outcome not clearly established. On the other hand, the SWP is intended to be a strategic plan enabling more specific actions at the catchment level.

7.5.2 Onkaparinga Catchment Water Plan

A catchment water plan sets out the management regime for the water resources of an area and provides the authorisation for the detailed actions of the Board, and the funding of those actions.⁵¹ The Onkaparinga Catchment Water Management Plan (CWMP) was gazetted by the Minister on 1 December 2000. The vision statement for the catchment area is:

‘Working through integrated catchment management with diverse communities to restore, sustain and celebrate our catchments’.⁵²

The goals of the Plan are to:

- Rehabilitate and manage watercourses, by implementing and promoting best practice environmental management.
- Maintain and enhance the quality of surface and groundwaters.
- Use water sustainably and balance consumptive and environmental water use for current purposes and future needs, and reuse non-traditional water resources.
- Develop an aware and committed community through an effective consultation and education program, promote environmental responsibility within the community and involve the community in environmental issues.

⁵⁰ Government of South Australia, *Report on the implementation of the State Water Plan* (2002) Water Resources Council, Adelaide, Australia, i.

⁵¹ Levinson J., "Statutory Plans for Water Resource Management" (Paper presented at the Water and the Law, Glenside (Adelaide), South Australia, 2000) 43-47, 44.

⁵² Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA, 7.

- Integrate resource management through coordinated policies and effective partnerships between stakeholders.⁵³

The programs of the Board are arranged around these key goals. The CWMP details the key issue, current condition and trend, identification of actions, responsibilities and partnerships (i.e. nominates the lead agency), and finally, a projected actual outcome for the year 2005. A total of 40 key issues are identified under the key goals. For example, the first goal of the plan is ‘rehabilitate and manage watercourses’. This is broken into a number of key issues which include: degradation of watercourses, inadequate environmental flows, low riparian biodiversity, altered flow regimes, low overall catchment biodiversity, spread of serious plant diseases and management of floodplains.⁵⁴ The actions in relation to the degradation of watercourses are continued implementation of watercourse management action plans and the integration of whole of property planning in the watercourse management program. The actual outcome is projected to be rehabilitation of the riparian zone, progressively decreased erosion, improved biodiversity and water quality, community participation, ownership and education, and pollution prevention.⁵⁵

It is fair to describe the actions in the CWMP as ‘enabling’ in the sense that they do not describe specific programs. The scope of the actions includes research, education, works, co-ordination, management programs, community grants and regulation.

The Board:

- funds major projects (on-ground works and research and monitoring) both independently and with other agencies;⁵⁶
- provides funding to individuals and groups to undertake works;
- provides technical assistance to landholders;
- actively engages the community in order to educate and raise awareness; and
- develops regulations for the management of specific activities.

⁵³ Ibid. 32.

⁵⁴ Ibid. see 49-52.

⁵⁵ Ibid. 49.

⁵⁶ For a full description of projects see Onkaparinga Catchment Water Management Board, *Projects* (n.d.) <http://www.onkaparinga.net/projects/index.shtml> (accessed 16 June).

The potential regulatory functions of the Board include initiating amendments to the local development plans (landuse plans), developing decision-rules for ‘water affecting activities’ and water allocation, trade and use. The water allocation decision-rules are contained in the water allocation plan, which sits below the catchment water management plan (discussed below).

The CWMP did not incorporate any proposals to amend the Development Plans of local councils and did not seek to make any such amendment as part of the catchment planning process.⁵⁷ However work has been on-going to improve the coordination of the CWMP and Development Plans, with particular concern about the coordination of regulation of ‘water affecting activities’.⁵⁸ One of the key changes in the role of local councils as a result of the introduction of the WRA was the transfer of certain responsibilities for managing stormwater and watercourses from the *Local Government Act 1934* (LGA) to the Boards.⁵⁹ These are generally referred to as ‘water affecting activities’. The general principle adopted by the Board is that all the powers under the former LGA should be returned to constituent councils but undertaken under the umbrella of the catchment plan and the policies incorporated in the plan.⁶⁰ In effect, this means that the Board has a supervisory role in respect of the exercise of these functions by local government.

All landholders have a right to take water for watering stock and domestic purposes under the WRA. The stock and domestic water right is subject to the qualification that stock must not be intensively farmed and only 0.4 ha may be irrigated. Beyond this, unless a water resource is prescribed, the amount of water, which may be taken cannot be controlled by specifying a volume. However, in accordance with the provisions of the WRA the CWMP specifies a list of ‘water affecting activities’ which can only be

⁵⁷ Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA, 20.

⁵⁸ Proposals for a catchment Plan Amendment Report were developed during 2003 see for example Onkaparinga Catchment Water Management Board, *Minutes 14 August 2003* (2003) OCWMB, Aberfoyle Park, SA.

⁵⁹ LGA 1934 Part 35, Division 1. Activities that were regulated by local councils under these provisions include generally, protection of watercourses; interference with watercourses – depositing anything in a watercourse, obstructing a watercourse, altering the course of a watercourse, removing rock, sand or soil from the bed or banks of a watercourse or otherwise interfere with the bed or banks of a watercourse; removing obstructions from a watercourse; making good damage to the watercourse; maintaining the watercourse in good condition.

⁶⁰ Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA, 83.

undertaken with a permit.⁶¹ The Plan specifies these activities and the criteria to be considered by the Relevant Authority in determining applications for a permit pursuant to the Act.⁶² There are a range of water affecting activities requiring a permit in the Onkaparinga catchment.⁶³ The CWMP details the range of objectives for the requirement for a permit and the principles to be applied in the determination of the applications.⁶⁴ For example, in the non-prescribed sections of the catchment⁶⁵ the CWMP requires a permit for the erection, construction, or enlargement of farm dams. The CWMP defines a catchment limit for harvest of water for consumptive purposes as 50% of the median annual yield of the catchment or sub-catchment.⁶⁶ When the catchment or sub-catchment limit is reached, no further dams or other methods of water diversion or harvest will be allowed. The maximum volume of any dam must not exceed 50% of the median annual run-off, based on a coefficient of run-off, from the allotment on which the dam is located.⁶⁷

⁶¹ WRA ss. 9(3)(e) and 9(4).

⁶² Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA. The 'water affecting activities' and matters the Board will consider in their determination are detailed in the Plan at 69-80.

⁶³ The erection, construction or enlargement of a dam, wall or other structure that will collect or divert water flowing in a water course that is not in the Mount Lofty Ranges Watershed and that is not prescribed or flowing over any other land that is not in a surface water prescribed are or in the Mount Lofty Ranges watershed;

The erection, construction or placement of any building or structure in a watercourse or lake or on the floodplain of a watercourse or lake;

Draining or discharging directly or indirectly into a watercourse or lake;

Depositing or placing an object or solid material in a watercourse or lake;

Obstructing a watercourse or lake in any manner;

Depositing or placing an object or solid material on the floodplain of a watercourse or near the bank or shore of a lake to control flooding from the watercourse or lake;

Destroying vegetation growing in a watercourse or lake or growing on the floodplain of a watercourse;

Excavating or removing rock, sand or soil from: (i) a watercourse or lake or the floodplain of a watercourse; or (ii) an area near to the banks of a lake so as to damage, or create the likelihood of damage to, the banks of the lake;

Using water in the course of carrying on a business in a catchment area at a rate that exceeds the rate prescribed by the plan if the water has been brought into the catchment area by means of a pipe or other channel;

Using effluent in the course of carrying on a business in a catchment area at a rate that exceeds the rate prescribed by the plan;

An activity prescribed by regulation.

⁶⁴ Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA, see 72-80.

⁶⁵ The lack of prescription of the majority of water sources in SA is considered a weakness in the current legislative arrangements in terms of protection of environmental flows. See Donald A., Fleming N. and Barling D., "Environmental Flows in South Australia: science, law and reality" (Paper presented at the Water and the Law, Glenside (Adelaide), South Australia, 2000) 29-33..

⁶⁶ Onkaparinga Catchment Water Management Board, *Onkaparinga Catchment Water Management Plan* (2000) OCWMB, Aberfoyle Park, SA, 71.

⁶⁷ Ibid. 71.

On-going activities of the Board

The range of programs enabled by the broadly defined 'key actions' in the CWMP are expansive and include for example, research, joint projects and planning, major on-ground works, funding and technical support to individual landholders and community activities. For example, the Board has been involved in on-going research and investigation through the Environmental Water Requirements Project for the Onkaparinga River.⁶⁸ This project collected information on catchment hydrology, hydraulics, water quality, geomorphology and ecology and has been used to develop water provision strategies and a management regime. This award winning three-year project has been described as the 'largest and most extensive of its type ever carried out in the State'.⁶⁹ A multi-disciplinary method was adopted for the study based around the philosophy of describing the key flow components for the river rather than simply a minimum flow.⁷⁰

The Board has participated in joint projects with agencies. For example, it contributed funds for investigations into groundwater in the Upper Onkaparinga Catchment.⁷¹ The purpose of this project was to make an assessment of groundwater resources available for future development, improve understanding of the relationship between surface and groundwater and examine the impact of changes in land use on surface and groundwater.⁷² In addition to its own planning the Board has participated in collaborative planning in other areas. For example, it has administered wider planning initiatives such as Biodiversity Plans, which have attempted to develop a comprehensive approach to river rehabilitation.⁷³

⁶⁸ see Onkaparinga Catchment Water Management Board, *Minutes : 7 December 2000* (2000) OCWMB, Aberfoyle Park, SA.

⁶⁹ "Onkaparinga Study Recommends More Water for the Environment" (2002) (Dec 2002/Jan 2003) *Waste Disposal and Water Management in Australia* 18,20, 23.

⁷⁰ Ibid. 20.

⁷¹ Onkaparinga Catchment Water Management Board, *Minutes : 12 June 2002* (2002) OCWMB, Aberfoyle Park, SA. Item 6.4 the Board voted \$12,560 to the Department of Water, Land and Biodiversity Conservation to undertake on-ground investigations into groundwater use within the Mount Lofty Ranges.

⁷² Onkaparinga Catchment Water Management Board, *Projects* (n.d.) <http://www.onkaparinga.net/projects/index.shtml> (accessed 16 June).

⁷³ Onkaparinga Catchment Water Management Board, *Minutes : 2 March 2000* (2000) OCWMB, Aberfoyle Park, SA.

With respect to investment the Board provides funds for ‘major on-ground’ projects’ which undertake catchment-scale rehabilitation.⁷⁴ For example, the major grants program provides funds to environmental groups to undertake projects to improve the health of local catchments. In 2003 the Board provided \$120,000 in grants to three local groups.⁷⁵

The Board works with landholders and provides technical assistance, funding and incentives to improve land management practices in the catchment. Landholder programs include, for example, technical programs such as the Watercourse Management Assistance Program, which provides advice and assistance to landholders.⁷⁶ The Landholder Assistance Program provides financial assistance and technical advice to private landholders for weed control, exotic tree removal, erosion control, fencing and revegetation.⁷⁷ In addition to directly providing funds, the Board has looked to providing incentives to landholders. In 2002 the Board decided to refund catchment levies to landholders who entered into a Heritage Agreement under the *Native Vegetation Act 1991* for the protection of riparian vegetation.⁷⁸ The security of investment in works and actions on private land has been of concern to the Board. It had been proposed for example, that some security for investment in private land management would be achieved through requirements for landholders to undertake property management planning to demonstrate a commitment to ‘best practice’.⁷⁹ This proposal was not supported by a majority of the Board but continues to be an issue of concern.⁸⁰

The Board also supports a number of community-based programs. Awareness-raising programs include for example, ‘Our Patch’ which encourages individuals, families,

⁷⁴ Onkaparinga Catchment Water Management Board, *Minutes : 12 June 2003* (2003) OCWMB, Aberfoyle Park, SA. Grants of \$30,000 are available to community groups to undertake major works.

⁷⁵ see Onkaparinga Catchment Water Management Board, *News and Events: Media Releases* (2003) http://www.onkaparinga.net/news/media/media_22_09_03.shtml (accessed 15 June). for details.

⁷⁶ Onkaparinga Catchment Water Management Board, *Riparian Zones* (n.d.) Government of South Australia, Aberfoyle Park, SA.

⁷⁷ Onkaparinga Catchment Water Management Board, *Minutes : 2 March 2000* (2000) OCWMB, Aberfoyle Park, SA.

⁷⁸ Onkaparinga Catchment Water Management Board, *Media Release : 19.06.02* (2002) OCWMB, Aberfoyle Park, SA.

⁷⁹ Onkaparinga Catchment Water Management Board, *Minutes : 2 December 1999* (1999) OCWMB, Aberfoyle Park, SA. Item 6.1.

⁸⁰ Onkaparinga Catchment Water Management Board, *Minutes : 13 March 2003* (2003) OCWMB, Aberfoyle Park, SA. The Board allocated \$8,000 to investigate legal mechanisms to protect watercourse rehabilitation works on private and public land undertaken with public funds.

communities and sport and service groups to adopt and care for a patch of their local watercourse. The 'Our Patch' program provides technical, financial, in-kind and general support.⁸¹ The educational initiatives of the Board include a highly accessible web site, the 'Mayflyer', a regular newsletter sent to householders, and specific programs such as the development of school resources.⁸² The Board supports and provides funding assistance to community initiatives such as Waterwatch, a water monitoring and education program.⁸³

In summary, it can be seen that the CWMP sets the broad direction for the Board and has enabled it to provide funding, education, technical assistance and engage in research. The content of the CWMP is broad and diverse which, while providing scope for a wide coverage of issues, may mean that efforts are not very well targeted, and limited resources are spread thinly. The CWMP did not seek to amend local development plans, however work in this area is on-going. The key regulatory aspect of the CWMP is a requirement for a permit for certain 'water affecting activities' and the decision-rules which should apply for their determination.

7.5.3 McLaren Vale Prescribed Wells Area Water Allocation Plan (WAP)

The Water Allocation Plan sits below the CWMP and forms the basis for determining water allocation in prescribed areas. Prescription of an area is the highest level of regulation of water resource use provided by the WRA and can be applied to any or all of the surface water, groundwater and watercourses in a particular area where it is considered necessary or desirable for proper water resource management.⁸⁴ In the

⁸¹ Onkaparinga Catchment Water Management Board, *Caring for the Catchment* (n.d.) <http://www.onkaparinga.net/caring/index.shtml> (accessed 15 June).

⁸² Onkaparinga Catchment Water Management Board, *Projects* (n.d.) <http://www.onkaparinga.net/projects/index.shtml> (accessed 16 June).

⁸³ Onkaparinga Catchment Water Management Board, *Minutes : 8 May 2003* (2003) OCWMB, Aberfoyle Park, SA. The Network includes 65 schools, 16 community groups, 60 monitoring groups and 140 monitoring sites.

⁸⁴ The increased resources required to manage prescribed water resources, and a view that regulation should be avoided unless absolutely necessary have led to prescription often not being applied until demonstrably unsustainable levels of use are reached. However, in response to prescription being applied, it has been observed that demand for water from adjacent non-prescribed water resources increases, potentially leading to their subsequent over-development and a further need to prescribe. The 2000 review of the legislation commented that most of the economically significant water resources had been prescribed and that while it was acknowledged that the current piecemeal system of prescribing water resources, according to where resources are most at risk, is not ideal, it is accepted that this

Onkaparinga catchment, the McLaren Vale Wells area has been prescribed. Accordingly, the right to take water is managed via the granting of licensed allocations by the Minister. The McLaren Vale Prescribed Wells Area WAP was signed off by the Minister on 6 November 2000. The essential elements of the plan are: an assessment of the capacity of underground water resources to meet demands; the effects of the WAP on other water resources and the needs of dependent ecosystems; water allocation criteria; transfer criteria; permits and monitoring.⁸⁵

The WAP specifies conditions which may be applied to licences and which must be met for allocations to be traded and/or transferred.⁸⁶ Where a water resource is prescribed, the Minister has powers⁸⁷ to vary allocation and/or licence conditions where that is necessary to achieve consistency with the provisions of a WAP. Prescription increases the security of water rights in that all licensed allocations are provided on the basis of an assessment of the volume of water, which can be made available for use in relation to the capacity of the resource. Allocation can be made on the basis of shares as well as specific volumes. The WAP allocates water to licence holders on the basis of area, use and/or volume.⁸⁸

As at 1998/99 there were 340 licensed irrigators in the prescribed wells area with a total area of 4450ha being irrigated.⁸⁹ Metered irrigation usage between 1992/93 and 1998/99 has ranged from 3713ML in 1992/93 to 8924 ML in 1994/95.⁹⁰ The latter was a low rainfall year. Based on a review of water level trends and known rates of extraction, it is estimated that the safe yield or extraction by metered underground water users is approximately 6560 ML/yr +/- 5%.⁹¹ The level of usage at 2000, estimated at

approach will continue. Department of Water Land and Biodiversity Conservation, *Report of the Review of the Operation of the Water Resources Act 1997* (June 2002) Adelaide, SA.

⁸⁵ Onkaparinga Catchment Water Management Board, *Information Sheet for the Water Allocation Plan for the McLaren Vale Prescribed Wells Area*. (n.d.) OCWMB, Aberfoyle Park, SA.

⁸⁶ see Levinson J., "Statutory Plans for Water Resource Management" (Paper presented at the Water and the Law, Glenside (Adelaide), South Australia, 2000) 43-47. The author considers the criteria for allocation and transfer as possibly the most significant effect of any portion of any of the four plans prepared under the WRA.

⁸⁷ WRA s. 30.

⁸⁸ Onkaparinga Catchment Water Management Board, *Water Allocation Plan McLaren Vale Prescribed Wells Area* (2000) OCWMB, Aberfoyle Park, SA. pp 16-21, cl 5.1-5.2.

⁸⁹ Ibid. 3.

⁹⁰ Ibid. 3.

⁹¹ Ibid. 13.

7010 ML/yr, exceeds the likely safe yield.⁹² Accordingly, the WAP defines two levels of maximum annual quantity of water available i.e. before and after 1 July 2003 with a staged reduction in water allocations to achieve the reduction in available water.⁹³

Implementation of the CWP and WAP

A review of Catchment Water Management Plans across SA (the Review), was prepared by the Water Resources Council (WRC), in accordance with the provisions of the Act⁹⁴, in 2002.⁹⁵ This was a review of the implementation of CWMPs and the extent to which implementation has led to achievement of the objects of the Act. According to the WRC, the five key outcomes that can be derived from the Act are:

- Providing water for the environment,
- Implementing sustainable water use and management,
- Maintaining and/or enhancing water quality,
- Achieving partnerships and integration between stakeholders, and
- An aware and well-informed and involved community.⁹⁶

The WRC considered that while the Review was carried out at an early stage of implementation of the Act, an overall assessment of progress could be made. The WRC concluded that:

- The Act has worked effectively and the Boards have been diligent in the preparation and implementation of plans. The Plans have set realistic targets which have resulted in clear achievements.
- Plans have been implemented efficiently.
- Despite the short-time frame there have been a large number of on-ground works and a measurable improvement in water resource condition.
- There is a measurable and positive return on investment.
- Synergies between Boards are emerging.
- There is much that still needs to be done especially in terms of providing water for the environment.⁹⁷

⁹² Ibid. 13.

⁹³ Ibid. 16.

⁹⁴ WRA s. 51(1)(b).

⁹⁵ Water Resources Council (SA), *Review of Catchment Water Management Plans* (2002) Government of South Australia, Adelaide, SA.

⁹⁶ Ibid. 4.

In conclusion, the WRC found that the Boards were functioning well with significant expertise being built up; and that there was a good demonstration of the effectiveness of the management system under the WRA.⁹⁸

The key management challenges for the Onkaparinga identified in the Review were:

- The need to maintain water quality and quantity and riparian areas to meet multiple objectives.
- Managing the diverse needs of water users in a highly mixed-use catchment.
- Managing the impact of regulated and un-regulated water resources.
- Encouraging behaviour change in the community.⁹⁹

Generally the Review found that the planned result and outcomes had been achieved in the Onkaparinga.¹⁰⁰ However, there was still a strong need for a coordinated management response and collective action between Boards and agencies in the Mount Lofty Ranges.¹⁰¹

The Review provided detailed assessment of Board performance based on goals and indicators of progress in the CWMP.¹⁰² The detailed assessment of performance was limited to the extent that the appropriate management and monitoring tools were not in place at the time of the Review. This however is reasonable, given that a number of the goals of the Onkaparinga CWMP were to develop capacity in this regard. For example the index of stream condition (a multi-parameter indicator derived from the long-term water quality monitoring program) was not available, but was under construction. In other instances, clear indicators were available; for example the Board has provided financial assistance to landholders to undertake rehabilitation works on 72 kms of degraded watercourses and technical assistance for a further 20 kms. This was slightly higher than the planned result. With respect to community education it was reported that over 3,500 people had participated in educational activities provided by the Board.

⁹⁷ Ibid. 68.

⁹⁸ Ibid. 69-70.

⁹⁹ Ibid. 47.

¹⁰⁰ Ibid. 47.

¹⁰¹ Ibid. 70.

¹⁰² Ibid. Appendix G.

Implementation of the WAP was reported on in the Monitoring Status Report 2002.¹⁰³ It generally concluded that the increase in groundwater levels in the confined aquifer system was probably due to:

- a drop in extraction resulting from a decrease in licensed groundwater volumes because of water allocation changes implemented with WAP;
- the mild summer (2001-02);
- the late irrigation season (200-02); and
- a change in crop type from almonds (which require more intensive irrigation) to viticulture.¹⁰⁴

The status report further identified two stressed areas to which transfers should be limited and similar constraints because of salinity on a further two areas.¹⁰⁵ The need to expand the monitoring network to adequately include groundwater dependent ecosystems was identified.¹⁰⁶ Twenty three percent of irrigators exceeded their licensed allocation in the prescribed wells area in the irrigation year 2000/2001.¹⁰⁷

The Review of implementation of plans by the WRC found that ‘[T]he preparation of a Water Allocation Plan for the McLaren Vale Prescribed Wells Area required leadership and strong working relationships with irrigators in order to reach consensus on a reduction in allocations to ensure sustainable water resource management in the context of high returns from, and strong market demand for, water resources.’¹⁰⁸

The impact of restricted extraction from the Wells area has been of concern to the Onkaparinga Catchment Water Management Board. It has been playing an active role

¹⁰³ A monitoring network provides information to assess the: hydro-geological impacts of groundwater extraction changes; water allocation transfer requests; surface water injection requests for aquifer storage and recovery schemes; and potential impact on groundwater dependent ecosystems within the immediate area and also downgradient of a transfer Department of Water Land and Biodiversity Conservation, *McLaren Vale Prescribed Wells Area groundwater monitoring status report 2002* (2002) Government of South Australia, Adelaide, SA, 1.

¹⁰⁴ Ibid. 38.

¹⁰⁵ Ibid. 38.

¹⁰⁶ Ibid.

¹⁰⁷ Water Resources Council (SA), *Review of Catchment Water Management Plans* (2002) Government of South Australia, Adelaide, SA, 132.

¹⁰⁸ Water Resources Council, *Review of the implementation of Catchment Water Management Plans* (2002) Government of South Australia, Adelaide, SA, 68.

in identifying and helping to develop alternative water sources to ensure the sustainability of the resource through for example, aquifer storage and recovery.¹⁰⁹

7.5.4 Integrated Natural Resource Management Plan for the Mount Lofty Ranges and Greater Adelaide Region

The MLRCP as designated interim regional group for the NAP was responsible for the preparation of the Integrated Natural Resource Management Plan (INRMP) for the Mount Lofty Ranges and Greater Adelaide Region. The INRMP was accredited by the Commonwealth in January 2003. The Plan establishes regional priorities for natural resource management and sets broad targets and actions for the future.¹¹⁰ It provides the foundation for the development of an Investment Strategy through which the regional community can access funding support for NRM actions through such programs as the National Action Plan for Salinity and Water quality, the NHT and the Envirofund.¹¹¹ The INRMP and Investment Strategy are intended to be the core reference document for NRM planning in the region and for the development of NRM funding programs.

The scope of the INRMP includes water, soils and biodiversity in inland, marine and coastal environments. The INRMP reviewed the state of the natural resource assets of the region; examined the processes that threaten them; identified the opportunities for more effective management of those resources; and established a framework of broad actions and targets to guide the regional community.¹¹²

The actions and targets for sustainable resources are grouped under five major categories.¹¹³ The scale of integration contemplated by this Plan is more expansive than in other contexts, with an attempt to explicitly recognise the interrelationships between,

¹⁰⁹ Onkaparinga Catchment Water Management Board, *Alternative Sources of Water for the McLaren Vale Prescribed Wells Area - Aquifer Storage and Recovery* (2002) Government of South Australia, Aberfoyle Park, SA.

¹¹⁰ Mount Lofty Ranges Interim Integrated Natural Resource Management Group, *Integrated Natural Resource Management Plan for the Mount Lofty Ranges and Greater Adelaide Region* (2003) Mount Barker, South Australia.

¹¹¹ Mount Lofty Ranges Catchment Program, *Mount Lofty Ranges Interim Integrated Natural Resource Group* (2003) http://www.mlrcp.sa.gov.au/INRM_Group.html (accessed 17 September).

¹¹² Ibid. vii.

¹¹³ Benchmarking and monitoring, on-ground actions, investigations, capacity building and legislation and its implementation see Ibid. ix-xi.

for example, biodiversity, water quality and land use management.¹¹⁴ The need to improve links between NRM and the land use planning system is emphasised in this Plan. ‘There is a need for the [Development] Act, Development Plans, and strategies ... to specifically address NRM outcomes in a uniform and integrated manner in order to minimise any loss or degradation of natural resources through poor or inadequate planning and development mechanisms.’¹¹⁵

While the INRMP is concerned with management and investment, a range of regulatory responses are contemplated including both education and support and ‘a strong compliance component’.¹¹⁶ Indeed in several contexts increased regulation is suggested¹¹⁷ although the latter is not taken up in the Investment Strategy. The limits of voluntarism are alluded to, to the extent that the INRMP notes that ‘existing programs tend to involve land managers already interested in, or committed to, improved land management and thus not to involve those managers whose practices may be impacting more on natural resources.’¹¹⁸ These are interesting comments, given that the INRMP does not have the mandate to develop regulation or a framework for compulsion of any kind.

In contrast to the CWMP, the INRMP specifically proposes a monitoring and evaluation approach with a focus on both outcomes (e.g. improved water quality) as well as outputs (e.g. ‘x’ kilometres of fencing established).¹¹⁹ This approach is supported by actions with specific targets that are time-bound and measurable.¹²⁰

The relationship between the CWMP and the INRMP is not clarified in either plan. It would appear that the focus of the INRMP is more on agricultural land management than the CWMP. However a clarification of the relationship between these plans and measures to ensure their consistency and prevent duplication would have been highly beneficial.

¹¹⁴ Ibid. xi and 175.

¹¹⁵ Ibid. xi.

¹¹⁶ Ibid. ix.

¹¹⁷ Ibid. 74.

¹¹⁸ Ibid. 172.

¹¹⁹ Ibid. xii.

¹²⁰ Ibid. see for example 79 ‘Actions for sustainable water supplies – The use of water resources below sustainable limits : by Dec 2008’.

7.6 Land Use Plans

Land use and development planning in SA is regulated by the provisions of the *Development Act*, 1993 (SA) (DA). The object of the Act is to ‘provide for proper, orderly and efficient planning and development in the State and for that purpose:

- (a) to establish objectives and principles of planning and development; and
- (b) to establish a system of strategic planning governing development; and
- (c) to provide for the creation of Development Plans
 - (i) to enhance the proper conservation, use, development and management of land and buildings; and
 - (ii) to facilitate sustainable development and protection of the environment; and
 - (iii) to encourage the management of the natural and constructed environment in an ecologically sustainable manner; and
 - (iv) to advance the social and economic interests and goals of the community.’¹²¹

The DA establishes a framework for making policy and provides for its implementation. The *Development Regulations 1993* set out the administrative details, such as consultation and referral procedures. The Act and Regulations allocate responsibility for regulating development between State and Local Government. Generally, development assessment is undertaken in accordance with the provisions of the relevant Development Plan. However, developments referred to as ‘major developments’ or projects with major economic, social or environmental importance are subject to more detailed assessment in accordance with the provisions of the Act.¹²²

The DA sets out the statutory procedures by which development is to be assessed. Under the Act the Premier must prepare and publish a Planning Strategy, which details government development policy.¹²³ The Planning Strategy is the core of the ‘integrated planning system’ and covers the full range of social, economic and environmental

¹²¹ DA s. 3 note there are a number of other objects not cited above.

¹²² DA ss. 46 – 48.

¹²³ DA s. 22.

issues.¹²⁴ It should therefore link up with the catchment plans. When reviewing individual Development Plans as required by the DA Councils are required to maintain consistency with the visions contained in the Planning Strategy.¹²⁵ However, it has no legal status when considering individual applications (except for applications declared as 'Major Development'). In accordance with the provisions of the Act,¹²⁶ the Premier is required to report annually to Parliament on the implementation of the Planning Strategy. The 2000-2001 Report simply listed implementation activities within the Onkaparinga Catchment Water Management Board area without further elaboration or assessment. A more informative approach would be to provide some assessment of the scale or significance of such activities.

7.6.1 Planning Strategies for Metropolitan Adelaide and Regional South Australia

In January 2003 the Premier of South Australia released new Planning Strategies for Metropolitan Adelaide¹²⁷ and Regional South Australia.¹²⁸ Parts of the Onkaparinga Catchment Water Management Board area fall within the areas defined by both the Metropolitan (Southern Sector) and Regional Strategies (Inner Region Planning and Development Area). From the perspective of the Onkaparinga CWMB and relevant local councils this would appear to add further complexity.

The Metropolitan Planning Strategy 'seeks to guide and coordinate State Government activity in construction and the provision of services and infrastructure, which influence the development of SA.'¹²⁹ The first part of the Metropolitan Planning Strategy is divided into five sections,¹³⁰ prefaced by a statement of values. The second part is divided into four sections¹³¹ and outlines the impact of the proposals in the main sectors

¹²⁴ Planning SA and the Local Government Association of South Australia, *Council Members' Guide to Planning. An overview of South Australia's Planning and Development Assessment System* (2000) Planning SA, Adelaide, Australia.

¹²⁵ Ibid.

¹²⁶ DA s. 22(7).

¹²⁷ The Premier of South Australia, *Planning Strategy for Metropolitan Adelaide* (2003) Planning SA, Adelaide, Australia.

¹²⁸ The Premier of South Australia, *Planning Strategy for Regional South Australia* (2003) Planning SA, Adelaide, Australia.

¹²⁹ The Premier of South Australia, *Planning Strategy for Metropolitan Adelaide* (2003) Planning SA, Adelaide, Australia, ix.

¹³⁰ Economic activity; Living; Natural Resources; Access; Arts, Heritage and Design.

¹³¹ Urban form and the main sectors of Adelaide – Central, Northern and Southern.

of Adelaide.¹³² With respect to natural resources the Planning Strategy identified goals and priorities. The first goal is ‘sustainable, integrated management of natural resources including air, water, land, soil and biological resources.’¹³³ In this context key priorities include: restoring water quality in the catchment, protecting the Hills Face Zone and defining environment protection standards and policies as performance measures in Development Plans.¹³⁴ The Strategy supports a whole-of-government approach to environmental protection and the management of natural resources.¹³⁵ The initiatives to support this are listed and include setting aside and managing areas for conservation, agriculture, revegetation and open space and ensuring the conservation and careful management of water resources.¹³⁶ There is no further elaboration and the means by which the strategy intends to provide for the conservation and management of water resources is not detailed. The broad strategy for catchment management is ‘integrate the management, protection and use of water resources into the broader land use planning and management process.’¹³⁷ More detail is provided with respect to the particular sectors in the Strategy. The Southern Sector includes the Willunga Basin and the McLaren Vale Prescribed Wells area (discussed above).¹³⁸ The Strategy proposes to limit urban growth in the Basin to protect the McLaren Vale vineyards from incursion by residential development.¹³⁹ The McLaren Vales Prescribed Wells Area WAP determined that extraction already exceeded safe yield. However this limitation to further viticultural development was not identified in the Strategy.

The purpose of the Regional Planning Strategy is similar to the Metropolitan Planning Strategy. It aims to ‘provide a sound and clear basis for physical development’ in order to provide a framework for decision-making to overcome land use conflicts; create certainty for investors; provide guidance on land use; and integrate resources and

¹³² The Premier of South Australia, *Planning Strategy for Metropolitan Adelaide* (2003) Planning SA, Adelaide, Australia, 57.

¹³³ There are a total of 13 goals listed in the Strategy. Ibid. 31.

¹³⁴ Fourteen priorities are listed in the Strategy. Ibid. 31.

¹³⁵ The whole-of-government approach is based on a number of principles which include: decision making which integrates long-term and short-term economic, environmental, social and equity considerations; a precautionary approach; the principle of intergenerational equity and the conservation of biological diversity and ecological integrity as a fundamental consideration in decision making. Ibid. 33.

¹³⁶ Ibid. 33.

¹³⁷ Within this the development of integrated natural resources management plans, property plans and an investigation of the opportunities to offer incentives for the rehabilitation of land and water are proposed. Ibid. 37.

¹³⁸ See map Ibid. 76.

¹³⁹ Ibid. 78.

catchment management with land use planning.¹⁴⁰ The Regional Strategy has two parts. It provides information, issues and broad strategies, followed by a description of the effects of those strategies on the main areas.¹⁴¹ The goals for environment and resources include conservation of biodiversity, sustainable use of natural assets and natural resource management integrated with land use planning.¹⁴² The latter goal, however, is not reflected in the priorities of the Strategy but is included as a strategy.¹⁴³ A number of strategies to achieve the goals are listed. They include with respect to sustainable management of natural resources, the promotion of research to establish a comprehensive NRM information base and ‘ensure’ land use policies reflect NRM priorities.¹⁴⁴ A further strategy in respect to water is to ‘base land use planning and location decisions relating to development on coasts, rivers, streams and lakes on performance-based policies.’¹⁴⁵

The relationship with catchment plans is not clarified in the Strategy. This is particularly relevant given the need identified in the Regional Planning Strategy for comprehensive NRM information and the fact that a significant baseline of data has already been collected for the CWMP. Nor for that matter does the CWMP discuss the Strategy (or its predecessor). The Onkaparinga Catchment Water Management Board Area including the relevant parts of the Mount Lofty Ranges Water Protection Area and the Hills Face Zone are in the Inner Region Planning and Development Area, sub-area ‘Central Hills’.¹⁴⁶ This part of the Regional Strategy is read in conjunction with the Mount Lofty Ranges Regional Strategic Plan, 1993 (including 2001 amendments) (discussed below).¹⁴⁷ The Strategy recognises the importance of and need to protect the Mount Lofty Ranges Watershed.¹⁴⁸ An expansion of horticultural activity in the area is predicted and the need to protect agricultural land for this purpose is recognised.¹⁴⁹ Water quality is identified as an issue in the Strategy and is to influence land use

¹⁴⁰ The Premier of South Australia, *Planning Strategy for Regional South Australia* (2003) Planning SA, Adelaide, Australia, 1.

¹⁴¹ Ibid. 3.

¹⁴² Ibid. 13.

¹⁴³ Ibid. 13 and 17.

¹⁴⁴ Ibid. 17.

¹⁴⁵ Ibid. 18.

¹⁴⁶ See map Ibid. 140.

¹⁴⁷ Ibid. 141.

¹⁴⁸ Ibid. 141.

¹⁴⁹ Ibid. 142.

planning criteria in relation to development within and outside the Watershed.¹⁵⁰ Specific strategies in relation to environment and resources include the continuation of on-ground works to protect and improve water quality in the Watershed (including fencing and restoration of riparian zones); improved water quality monitoring; coordination of responsibility for water quality matters; and the strengthening and enforcement of water quality controls (including restriction of pesticide use and farm dam controls).¹⁵¹ However, at no point does the Regional Strategy mention the planning and works initiatives of the Catchment Boards or attempt to elaborate a process for their integration with the land use planning system. On the face of it, there would appear to be a conflict between strategies in relation to facilitating horticultural development, the limits to water availability and the need for water quality protection.

A recent review by Planning SA of Development Plans considered the issue of the increasing need for inclusion of NRM policies in Plans.¹⁵² The Review concluded that ‘[W]hile it is important to incorporate these policies, it is also important that only land use and development issues are addressed by Development Plan policies and that links are established to other legislation to deal with the many ongoing management issues that arise.’¹⁵³ This is clearly problematic because it fails to recognise the constraints that existing land uses and their management impose on new development and its on-going management. Further, it limits the scope of land use planning to the prohibition or control of new development rather than contemplating its on-going management. The WRA clearly envisaged the incorporation of issues arising from the catchment planning process into development plans (see Chapter Six).

The merit of the Planning Strategy in providing overall vision for coordination of development is only as valid as the priority it is given by government authorities making land use decisions and the processes established to secure its implementation by integration at the development control level.¹⁵⁴

¹⁵⁰ Ibid. 145.

¹⁵¹ Ibid. 149.

¹⁵² The Development Plan Improvement Project has examined the issues of the framework/structure of Development Plans; processes for changing Development Plans; and linkages to the Planning Strategy. See Planning SA, *A New Generation of Development Plans for SA* (2002) Government of South Australia, Adelaide, SA..

¹⁵³ Ibid. 8.

¹⁵⁴ There has been some inconsistency in the implementation of the Planning Strategy. For example the construction of the Southern Expressway to give greater access to the southern suburbs is at odd with the

7.6.2 The Hills Face Zone

The Onkaparinga catchment includes parts of the Hills Face Zone, which was introduced into planning policy in 1962.¹⁵⁵ The Zone was defined in the 1960's as land beyond the point where infrastructure could be economically provided.¹⁵⁶ The Zone encompasses a diverse range of land uses including national and conservation parks, reserves and open space, residential, farming and horticultural land uses.¹⁵⁷ Special planning controls, in addition to the general requirements, apply to development proposals in the area.¹⁵⁸ The key objective is to preserve the 'natural character' of the area.¹⁵⁹ However, concern about the degradation of the area has been evident for many years.¹⁶⁰

The Zone is under considerable development pressure.¹⁶¹ Developments such as vineyards have been contested on environmental grounds.¹⁶² A review of the Zone was commenced in October 2002 by the State Government to consider the manner in which

Strategy's intention of easing development pressure on the Willunga Basin. Daniell R., "To what extent do land use planning controls and policy in South Australia facilitate sustainable development?" (1998) (1 & 2) *Australian Environmental Law News* 50-80, 57.

¹⁵⁵ The Hills Face Zone extends for some 90 kms from Sellicks Beach in the south to Gawler in the north and forms an important and distinctive natural scenic backdrop to the Adelaide Metropolitan Area. It defines the eastern edge of the urban area and is highly valued for biodiversity, recreation and tourism. Planning SA, *ReVIVE Hills Face Zone RE-VISIONING* (2003) <http://www.planning.sa.gov.au/hfzreviewmain%5frame.html> (accessed 27 March).

¹⁵⁶ Perkins A., "Land suitability assessment and Adelaide's evolving green belt" (1994) 4 (2 & 3) *Urban Futures* 80-87, 81.

¹⁵⁷ Planning SA, *ReVIVE Hills Face Zone RE-VISIONING* (2003) <http://www.planning.sa.gov.au/hfzreviewmain%5frame.html> (accessed 27 March).

¹⁵⁸ The Metropolitan Development Plan provides a policy and assessment framework for the management of land use change in the designated area and is reflected in the Development Plans of nine councils see Hills Face Zone Steering Committee in conjunction with the HFZ Reference Group, *Issues and Directions Hills Face Zone Review* (2003) Planning SA, Adelaide, SA, 7. The State Development Assessment Commission is responsible for the assessment of a number of classes of development in the Zone. See Development Regulations 1993, Sch 10, cl3 'Metropolitan Hills Face Zone'.

¹⁵⁹ Conservation Council of SA, *Hills Face Zone Regulations* (nd) <http://www.ccsa.asn.au/campaigns/development/HillsFaceNetwork/Regulations.html> (accessed 1 September).

¹⁶⁰ Perkins A., "Land suitability assessment and Adelaide's evolving green belt" (1994) 4 (2 & 3) *Urban Futures* 80-87, 81. Perkins notes the extent of weed infestation and decline of integrity of native vegetation.

¹⁶¹ In the past five years just under 2000 applications for development have been lodged for in the majority new homes, renovations and extensions but includes some in relation to agricultural activities Planning SA, *Hills Face Zone review up and running* (2003) <http://www.planning.sa.gov.au/planningnews/mar%5F03/hfz.html> (accessed 27 March)..

¹⁶² The Andrew Garrett vineyard proposal at Brown Hill was opposed and finally approved with a number of conditions by the Environment Resources and Development Court CCSA, *Garrett Vineyard given conditional approval CCSA renews call for stronger laws to protect Hills Face Zone* (2002) http://www.ccsa.asn.au/news/Garrett_hfZ_8_02.html (accessed 23 September).

to preserve the biodiversity of the area and to achieve a coordinated approach to controlling future development.¹⁶³ The Review will make recommendations on the most appropriate policy/legislative amendments to address emerging issues and an appropriate management model, including any amendments to the decision-making framework for development applications.¹⁶⁴

7.6.3 The Mount Lofty Ranges Regional Strategy Plan 1993

The Mount Lofty Ranges Regional Strategy Plan was promulgated by the Government of South Australia in 1993 to address the degradation of the natural resources of the region and growing conflicts between competing land uses.¹⁶⁵ The Onkaparinga Catchment includes parts of the Mount Lofty Ranges. The role of the Strategy Plan was to ‘provide the necessary link between the broad objectives for the region and the specified land management practices and planning controls needed to achieve the objectives for the region.’¹⁶⁶ It sought to balance the protection of water resources from degradation and over use with sustainable commercial primary production land uses, the rural character of the region, and the natural and cultural characteristics.¹⁶⁷ This is a very interesting plan because it is a land use plan that tries to draw a link between new development and on-going management of activities.

The purpose of the Plan includes:

- protecting and enhancing the natural and cultural characteristics of the region;
- protecting and conserving its water resources, while maximising their contribution to the development of the region and state; and
- protecting and enhancing sustainable commercial primary production land uses and the rural character of the region.¹⁶⁸

¹⁶³ Planning SA, *ReVIVE Hills Face Zone RE-VISIONING* (2003) <http://www.planning.sa.gov.au/hfzreviewmain%5frame.html> (accessed 27 March).

¹⁶⁴ Planning SA, *Hills Face Zone review up and running* (2003) <http://www.planning.sa.gov.au/planningnews/mar%5F03/hfz.html> (accessed 27 March).

¹⁶⁵ Mount Lofty Ranges Catchment Program Board, *Mount Lofty Ranges Catchment Program 1993-1997 Completion Report* (1997) Mount Barker, SA, i.

¹⁶⁶ Department of Housing and Urban Development, *Mount Lofty Ranges Regional Strategy Plan Summary* (1993) Government of South Australia, Adelaide, SA, 2.

¹⁶⁷ *Ibid.* 1.

¹⁶⁸ *Ibid.* 2-6.

The Plan promotes a ‘whole-of-government’ approach and provides a management framework for a consistent and integrated approach to the management of issues in the region.¹⁶⁹

Since the early 1990’s there have been restrictions on many forms of development in the Region except for a range of primary industries and associated activities.¹⁷⁰ Recent changes have been made which allow ‘on-merit’ consideration of environmentally sensitive small scale agricultural processing and value adding industries.¹⁷¹ Regulation of development in the Mount Lofty Ranges has been coordinated and supervised to some extent by Planning SA (and its predecessor departments). The Minister has, for example, utilized provisions in the *Development Act 1993* to initiate changes to development plans for the whole of the Ranges.¹⁷² This has been to ensure a consistent approach to development in all the relevant local government development plans. It is worth noting that the Mount Lofty Ranges Catchment Program, discussed earlier, was enabled by this Plan.

7.6.4 Local Plans

The DA requires the preparation of Development Plans,¹⁷³ against which proposed development is to be assessed and these must seek to promote the provisions of the Planning Strategy.¹⁷⁴ Development Plans have two purposes i.e. to provide a vision and a local policy framework for development; and to provide the detail for assessment of individual development applications.¹⁷⁵ The DA requires Councils to regularly review planning policies and the Plan Amendment Report¹⁷⁶ process provides for public input and community involvement through written submissions, general consultation and

¹⁶⁹ Ibid. 2.

¹⁷⁰ Planning SA, *Mount Lofty Ranges Watershed Amendment. Development Plan Amendment Report by the Minister - For Public Consultation*. (n.d.) Government of South Australia, Adelaide, SA.

¹⁷¹ Small Scale Rural/Agricultural and Home Based Industries – Plan Amendment Report 2000.

¹⁷² See for example, Mount Lofty Ranges Watershed Amendment 2001.

¹⁷³ DA s. 23.

¹⁷⁴ DA s. 23.

¹⁷⁵ Planning SA and the Local Government Association of South Australia, *Council Members' Guide to Planning. An overview of South Australia's Planning and Development Assessment System* (2000) Planning SA, Adelaide, Australia.

¹⁷⁶ DA s. 25(4). A council must prepare a Plan Amendment Report based on various investigations which must assess the extent to which the proposed amendments to the development plan accords with the Planning Strategy, other parts of the development plan and satisfies the matters prescribed in the regulations; and include certain other information.

participation in a public hearing.¹⁷⁷ The Development Plan provides direction to the community on the types of development that are appropriate within the council area. This is done through land use zoning and development principles and objectives that may apply either to a particular zone, or across the whole council area.¹⁷⁸ Planning SA advises that catchment water management boards should be consulted by councils in the same manner as government departments when reviewing Development Plans.¹⁷⁹

Policy in Development plans is expressed on three levels: 'Objectives' of desired conditions for the area; 'Proposals' for government action to achieve these objectives; and 'Principles of Development Control' which detail matters relevant to deciding whether a development is complying, or should be granted consent on planning merits. The interaction of these three levels in the development assessment process is not uncomplicated.¹⁸⁰ Zone provisions generally spell out the desired character of a particular area, the types of development that are preferred and the specific policies for development within that zone.¹⁸¹ The Development Plan also lists the relevant public notification requirements and they may give rise to third party appeal rights.¹⁸²

Development Plans must be regularly monitored and reviewed every three years, or up to 5 years with the Minister's approval¹⁸³ and the DA includes a mechanism by which they can be altered or amended.¹⁸⁴ The Development Plan amendment process reflects that in the WRA for plan making, with the exception that there is no public consultation requirement at the Statement of Intent stage (see Chapter Six). Depending on the nature of the proposed amendments to the Development Plan specified in the Statement of Intent a number of investigations may be undertaken which can include evaluation of

¹⁷⁷ DA s. 25(5).

¹⁷⁸ Planning SA and the Local Government Association of South Australia, *Council Members' Guide to Planning. An overview of South Australia's Planning and Development Assessment System* (2000) Planning SA, Adelaide, Australia.

¹⁷⁹ Planning SA, *Advisory Notice Planning 11. Development Plans and Water Plans - Making the Links*. (2000) Government of South Australia, Adelaide, SA.

¹⁸⁰ Daniell R., "To what extent do land use planning controls and policy in South Australia facilitate sustainable development?" (1998) (1 & 2) *Australian Environmental Law News* 50-80, 54.

¹⁸¹ Zone provisions generally list kinds of development that are 'complying, and 'non-complying' within the zone. Any development not specifically listed is assessed on its 'merits' by the relevant authority. Planning SA and the Local Government Association of South Australia, *Council Members' Guide to Planning. An overview of South Australia's Planning and Development Assessment System* (2000) Planning SA, Adelaide, Australia.

¹⁸² Ibid.

¹⁸³ DA s. 30(6).

¹⁸⁴ DA ss. 24, 25 see also Planning SA, *A New Generation of Development Plans for SA* (2002) Government of South Australia, Adelaide, SA..

other strategies where relevant. Councils are also required to refer the report on the plan amendment to any government Department or agency that has a direct interest in the matter for comment.¹⁸⁵ The requirement for regular review should provide the opportunity for adjustment to Development Plans to take into account the matters of relevance in a CWMP.

While there is an attempt under the WRA¹⁸⁶ to ensure integration and coordination at the strategic planning stage, water resource issues will only be considered by a planning authority as part of the development authorisation process if the relevant Development Plan refers to such matters.¹⁸⁷ For example, there are consent requirements for dams of a certain size or proposed to be constructed in both the Mount Lofty Ranges and the Hills Face Zone.¹⁸⁸ Where a dam is to be constructed in the Mount Lofty Ranges or a prescribed wells area the application must be referred to the EPA.¹⁸⁹

7.6.5 Consistency between plans under the Development Act and the Water Resources Act

Despite the existence of provisions in both the *Development Act* and the *Water Resources Act*¹⁹⁰ there continues to be a lack of consistency between development plans and catchment plans. At the strategic level there is inconsistency between the Planning Strategy and the Catchment Plan.

Recently a plan amendment report was prepared by the Onkaparinga CWMB to deal with a number of identified inconsistencies between the CWMP and the relevant land use plans. The Board began a process in 2000 to prepare a plan amendment report (PAR) to amend the Council Wide Section of the Development Plans of the City of Marion, City of Onkaparinga, Adelaide Hills Council, District Council of Mount Barker

¹⁸⁵ DA s. 45(5)(a).

¹⁸⁶ WRA s. 92(7).

¹⁸⁷ Leadbeter P., "Recent Trends & Developments in South Australian Environmental Law" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No. 3 Law and Policy* (1999), Federation Press, Sydney, Australia, 153.

¹⁸⁸ Planning SA, *Advisory Notice Planning : Consent Requirements for Dams* (2000) Government of South Australia, Adelaide, SA. Development Regulations 1993, Schedules 2, 3.

¹⁸⁹ Ibid.

¹⁹⁰ See Planning SA, *Advisory Notice Planning 11. Development Plans and Water Plans - Making the Links*. (2000) Government of South Australia, Adelaide, SA.

and the District Council of Yankalilla.¹⁹¹ A draft PAR was finally released for public comment in 2004 and includes provisions to: enable assessment of water affecting activities that are classified as development; improve land management practices for rural development such as intensive animal keeping; improve stormwater management within new developments; make horse-keeping a consent use within the Mount Lofty Ranges Watershed Area; and a number of other matters.¹⁹² While the original CWMP identified the need for improved consistency between the CWMP and development plans, its realisation has been slow. Despite the existence of formal procedures under the WRA discussed in Chapter Six to facilitate this integration the Board has preferred to work with councils to achieve change. This may be a reflection of both the complexity of the legislative provisions in the WRA and the political reality of catchment Board – local council relationships. The relevant State Government Department has undertaken research into the effectiveness of the mechanisms under the WRA for amendment of Development Plans deemed necessary as a result of a CWMP.¹⁹³

Despite the recent changes to Development Plans initiated by the Onkaparinga CWMB there are still inconsistencies between permissible uses in some zones and the WAP. For example, within the McLaren Vale region, horticultural development within the Rural Zone is a complying ‘form of development’, and subject to certain conditions, must be approved by the planning authority. However, the McLaren Vale WAP does not provide for the further allocation of new licences. In fact, the WAP introduces a staged reduction in existing allocations. It is conceivable therefore that a development might get approval but not be able to get access to water.

A further area of concern about integration between the *Development Act* and the *Water Resources Act* relates to the provision that where a water affecting activity is ‘development’ within the meaning of the DA it will not require a permit under the WRA.¹⁹⁴ This provision was introduced with the intention of avoiding duplication in

¹⁹¹ Onkaparinga Catchment Water Management Board, *Projects* (n.d.) <http://www.onkaparinga.net/projects/index.shtml> (accessed 16 June).

¹⁹² Onkaparinga Catchment Water Management Board, *News and Events: Catchment PAR Released* (2004) <http://onkaparinga.net/news/adhoc/catchpar.shtml> (accessed 15 June).

¹⁹³ PPK Environment and Infrastructure, *Water and Land Use Policy Study* (2001) Planning SA, Adelaide, SA, 5.

¹⁹⁴ WRA s.12(1)(d).

assessment processes. While there are requirements for the referral of water affecting activities to the Board these are limited and include, for example, dams in the Mount Lofty Ranges Watershed.¹⁹⁵ Whether a development approval is required will depend on the provisions of the relevant development plan. However it is apparent that an assessment for the same activity (i.e. dam construction) will differ depending on whether a permit under the WRA or a development approval is required. The assessment requirements under the CWMP for dam development are more stringent than those required by the Development Plan.¹⁹⁶

A further issue of concern to the Boards has been the impact of ‘acts or activities which could have a significant impact on a watercourse or floodplain.’¹⁹⁷ There is no requirement for Councils to refer these matters to the Onkaparinga CWMB for comment. The implication is that development could occur which may significantly impact water in a catchment without a framework for consideration of cumulative effect.

¹⁹⁵ Development Regulations 1993, Sch 8.

¹⁹⁶ PPK Environment and Infrastructure, *Water and Land Use Policy Study* (2001) Planning SA, Adelaide, SA, 7.

¹⁹⁷ Smith S., *Discussion Paper - Development Act Referrals* (2002) Onkaparinga Catchment Water Management Board, Aberfoyle Park, SA.

7.7 Water Quality Regulation

The scope of the WRA is such that a catchment water management plan may include measures to protect or improve water quality within the catchment. However, a disjunction occurs between the management measures undertaken by the Board and the regulatory provisions existing under the *Environment Protection Act 1993 (SA)* (EP Act). The EP Act is the primary pollution control and prevention legislation in SA. The Act provides for a general duty of care, offences, environment protection policies and regulation, and mechanisms for licensing of waste discharges.¹⁹⁸ The general environmental duty is that ‘a person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measure to prevent or minimise any resulting environmental harm.’¹⁹⁹ Larger industries with point source discharges are licensed and required to comply with conditions. Smaller industries are not licensed but are required to meet the general environmental duty of care.²⁰⁰ Local government has a significant role in implementing provisions of the EP Act in relation to unlicensed industries.²⁰¹

Development applications involving activities of environmental significance, or activities of major environmental significance²⁰² must be referred to the EPA for direction or advisory comment.²⁰³ There is a requirement that applications for environmental authorisations made under the EP Act be referred to the Water Resources

¹⁹⁸ Environment Protection Authority (SA), *Environment Protection - Water* (2003) http://www.environment.sa.gov.au/epa/water_protect.html (accessed 23 November).

¹⁹⁹ EPA s 25.

²⁰⁰ Environment Protection Authority (SA), *Environment Protection (Water Quality) Policy and Explanatory Report 2003* (2003) Government of South Australia, Adelaide, SA, 1.

²⁰¹ See Leadbeter P., "EPA lackey or Equal Partner? Local Governments Role under the South Australian Environment Protection Act" (2001) 6 (February) *Local Government Law Journal* 155-166. for a discussion of the role of local government in the implementation and management of the Environment Protection Act, 1993 (SA).

²⁰² As detailed in Schedules 8, 21 and 22 of the *Development Regulations 1993*.

²⁰³ *Development Regulations 1993* Sch. 8 – ‘regard’ means that the relevant authority cannot consent to or approve the development without having regard to the response of the prescribed body; ‘concurrence’ means that the relevant authority cannot consent to or approve the development without the concurrence of the prescribed body (which concurrence may be given by the prescribed body on such conditions as it thinks fit); ‘Direction’ this means that the prescribed body may direct the relevant authority (A) to refuse the relevant application; or (B) if the relevant authority decides to consent to or approve the development to impose such conditions as the prescribed body thinks fit (and that the relevant authority must comply with any such directions).

Minister for comment where the proposed activity will take place in a water protection area.²⁰⁴ The Minister can be given the power by regulation to veto a proposal.²⁰⁵

A key tool, in the EP Act, for addressing environment protection matters is the environment protection policy (EPP).²⁰⁶ An EPP may be made for any purpose and include a wide range of provisions.²⁰⁷ An EPP (Water Quality) was developed to provide a consistent State-wide approach to the protection of water quality from point and diffuse sources.²⁰⁸ The principal object of the Water Quality EPP is to achieve the sustainable management of waters, by protecting or enhancing water quality while allowing economic and social development. The Policy seeks (amongst other matters) to focus water quality management on achieving water quality objectives that will protect or enhance the water quality values assigned by the policy to the various areas of water and ensure that pollution from both diffuse and point sources does not prejudice the achievement of those water quality objectives.²⁰⁹

The objectives of the policy are to be met by a number of regulatory mechanisms.²¹⁰ The EPA is required to take into account an EPP when assessing applications for environmental authorisation or development applications referred to it under the *Development Act 1993*.²¹¹ In addition, the main features of the EPP are to be included in the development plans of each council.²¹² The EPP is silent on the relationship, if any with CWMPs and there is potential for duplication particularly in relation to the

²⁰⁴ Leadbeter P., "Recent Trends & Developments in South Australian Environmental Law" in Leadbeter P., Gunningham N. and Boer B. (ed), *Environmental Outlook No. 3 Law and Policy* (1999), Federation Press, Sydney, Australia, 155.

²⁰⁵ EP Act s. 64.

²⁰⁶ EP Act s. 27.

²⁰⁷ EP Act s. 27 (2)-(4).

²⁰⁸ EPA (SA), *Environment Protection Water Quality Management* (2002) <http://www.environment.sa.gov.au/epa/water.html> (accessed 23 September).

²⁰⁹ Environment Protection Authority (SA), *Environment Protection (Water Quality) Policy and Explanatory Report 2003* (2003) Government of South Australia, Adelaide, SA, p 4.

²¹⁰ Including setting ambient water quality objectives for all water bodies, using codes of practice for particular activities which can be enforced using Environment Protection Orders, specifying requirements, with offences as appropriate, to ensure that essential practices are met, providing the ability to set discharge limits for particular activities, establishing an obligation not to discharge listed pollutants into waters, restricting the discharge of listed pollutants onto land where they are liable to enter into waters, and monitoring water quality. Ibid. 5.

²¹¹ *Environment Protection Act, 1993* ss. 47, 57. see Hawkes P. J., "Land Use and Environment Protection in Australia and South Australia" (2000) (1) *Australian Environmental Law News* 37-46. For a discussion of the relationship between the land use planning and environment protection system.

²¹² Environment Protection Authority (SA), *Environment Protection (Water Quality) Policy and Explanatory Report 2003* (2003) Government of South Australia, Adelaide, SA, 3.

management of diffuse pollution. Codes of practice developed by the SA EPA for specific activities provide guidelines for best environmental practice. Codes of practice are the key strategy to be employed for the management of diffuse source pollution under the EPP.²¹³

In addition to regulatory functions the EPA funds a number of programs. For example, the EPA runs a riparian zone management project which aims to improve the water quality and ecological 'health' of watercourses in the Mount Lofty Ranges through better management of the riparian zone.²¹⁴ The project objectives are to develop watercourse management plans; consult with the community to encourage an increased understanding of the issues; integrate the prioritised watercourse management actions of the landholders, agencies and local government, and provide practical assistance.²¹⁵ The relationship, if any, between this program and the Onkaparinga CWMP is not clarified. The EPA has produced a watercourse management plan for the Onkaparinga River (1997). The EPA also has a significant monitoring and data collection role and has prepared a Resource Assessment Index. It has been instrumental in water monitoring and reporting in the Ranges. Water Quality matters in the Mount Lofty Ranges are coordinated through the multi-agency Watershed Protection office which had a budget of up to \$40 million over five years.²¹⁶

An important tool under the EP Act is the power to proclaim water protection areas. The Mt Lofty Ranges Watershed is proclaimed and as a consequence dam development requires a permit and a number of other activities are deemed to be activities of environmental significance²¹⁷ and require a licence.²¹⁸ In sum, activities with the potential to be a significant risk to the water resource are both restricted and subject to close scrutiny. Activities can either be refused development authorisation, or granted authorisation with conditions such that the potential for pollution is minimised.²¹⁹

²¹³ Ibid. 17.

²¹⁴ EPA (SA), *Environment Protection Water Quality Management* (2002) <http://www.environment.sa.gov.au/epa/water.html> (accessed 23 September).

²¹⁵ Ibid.

²¹⁶ Environment Protection Agency, *The State of Health of the Mount Lofty Ranges Catchments from a water quality perspective* (2000) Government of South Australia, Stirling, SA, 27.

²¹⁷ Development Regulations 1993, Sch 21.

²¹⁸ EP Act s. 36.

²¹⁹ Environment Protection Authority (SA), *E.P.A Environment Protection * Water Quality Management* (2002) <http://www.environment.sa.gov.au/water.html> (accessed 23 September).

7.8 Discussion

The Onkaparinga is a mixed-use catchment, under considerable development pressure, showing signs of both water quantity and water quality stress. This chapter has described the administrative arrangements for catchment and water planning; catchment, water and land use plans; and the approach to the regulation of water quality.

Integration

‘Integration’ can be considered from a number of different angles and those that are relevant to this case study are: broadly integrated natural resource management; integration between catchment and water plans and land use plans; integration between management of water quantity and quality; integration between the regulation and management of activities; and, integration between existing and new land (and water) uses.

In broad terms, the State Water Plan, the Onkaparinga Catchment Water Management Plan, the Mt Lofty Ranges Catchment Program and the Integrated Natural Resource Management Plan for the Mt Lofty Ranges and Greater Adelaide Region are concerned with integrated natural resource management, although the latter is most expansive in this regard. The strategic land use plans such as the Planning Strategies for Metropolitan Adelaide and Regional South Australia contemplate the idea of integrated natural resource management but ultimately are concerned with providing a framework for ‘development’. The Hills Face Zone policy and the Mount Lofty Ranges Regional Strategy Plan are concerned with the protection of natural resources from inappropriate development but do not provide an integrated approach to its assessment. In general, indications from State Government are that land use plans should be concerned with land use and that it is inappropriate to incorporate natural resource issues.

In statutory terms primary responsibility for catchment management rests with the Onkaparinga CWMB. There is a clear legislative mandate under the WRA for catchment boards to manage water quantity, quality and existing land uses. The Onkaparinga CWMB has been expansive in its concern to manage the full range of land

uses including agricultural, urban and industrial. The Board has some control over on-going demand for water extraction through the Water Allocation Plan. Otherwise the management approach to ‘existing uses’ is limited to the provision of technical advice, funds and education since the regulation of water quality is the responsibility of the Environment Protection Authority under the provisions of the EP Act.

The potential of the Onkaparinga Board to influence new land uses would appear to be very limited. While the CWMP defines the regulatory requirements for a limited range of ‘water affecting activities’ the majority of new land uses, are regulated by local councils through the *Development Act*. The WRA provided a mechanism for a CWMP to amend a local development plan if necessary to achieve consistency. These provisions, however, have not been utilized by the Onkaparinga Board. Instead, some four years of negotiations were needed before agreement could be reached between the Board and relevant local councils for amendments to the council-wide sections of the development plans. The result is that there continues to be inconsistencies between for example, the intent of the WAP and the relevant local development plan. This lack of consistency between the catchment and land use plans is clearly problematic.

These inconsistencies are also evident at the strategic level. The State Planning Strategies that provide strategic guidance to local councils on plan making fail to adequately account for the environmental constraints identified at the catchment level. The review, in this Chapter, of land use plans applicable in the Onkaparinga catchment demonstrated a considerable complexity. In addition to the state planning strategies there are specific plans in respect to particular parts of the catchment. These include the Hills Face Zone policy and the Regional Strategy Plan for the Mt Lofty Ranges, both of which restrict developments on specific environmental and amenity grounds. If it is considered that in addition to the provisions of the Regional Strategy Plan, parts of the Mt Lofty Ranges are a designated water protection area under the EP Act with additional consent requirements, the extent of the complexity is apparent. Comprehensive, effective and clear regulation of development in the catchment is clearly a necessity, however the complexity of plans may militate against its effective implementation in practice.

Importantly, there is a potential for conflict between the objectives of the WRA with its explicit concern for sustainable management of resources and the *Development Act*. The *Development Act 1993* does not define sustainable development and the legislation is silent on the method or approach, which should be adopted when there is a conflict between environmental protection and economic development.²²⁰

With respect to water quality, a disjunction occurs between the management measures undertaken by the Board and the regulatory provisions existing under the EP Act. There would appear to be no link drawn between investment in works by the Board and the regulatory approach of the EPA. The EPA licences point source pollution and a category of developments are referred to it under the DA for comment and/or consent. It has no obligation however to consult with the Board on these matters. In addition, there is a potential duplication between for example, the Environment Protection Policy (Water Quality), which must be reflected in the local development plans, and initiatives in the CWMP. In addition, the programs run by the EPA, for example the riparian zone management plans and programs in the Mt Lofty Ranges, would appear to address the very same issues taken up by the CWMP. These problems are further evidenced by the distribution of water resource monitoring and assessment programs between responsible agencies (quantity and quality). This creates significant gaps in knowledge and limits the capacity to carry out meaningful resource assessments.²²¹

A consistency between management of existing uses and regulation of new uses is vital to ensure that the environmental improvements achieved in the former are not undermined by an overall increase in development that is not consistent with catchment protection. It would appear, that with the limited exception of the Mount Lofty Ranges Regional Strategy, land use plans are concerned entirely with new development. The regulation of existing development, in water quantity terms is the responsibility of the Board and in water quality terms, the EPA. While these two bodies are able to progressively improve standards by reducing water allocations or emissions, the relationship between the two is not elaborated.

²²⁰ Hawkes P. J., "Land Use and Environment Protection in Australia and South Australia" (2000) (1) *Australian Environmental Law News* 37-46, 45.

²²¹ Mount Lofty Ranges Catchment Program, *Mount Lofty Ranges Interim Integrated Natural Resource Group* (2003) http://www.mlrcp.sa.gov.au/INRM_Group.html (accessed 17 September), 63.

This case study has demonstrated that while the need for integration is recognised, its realisation is another matter entirely. Catchment management by the Board is overlaid by a sectoral approach to the regulation of water quality and land use, which results in unclear relationships between the management of existing uses and new uses and between the regulation and management of existing uses.

Administration

The Onkaparinga CWMB is a legally separate entity from both State and local government. It is funded from catchment levies in the main and is responsible and accountable for its expenditures. It has clarity of purpose and a clear mandate. However its actual degree of autonomy is more contestable. The structure of the WRA clearly places the Board under the direction and supervision of the Minister. Board members are selected and appointed by the State Government and plans must conform to the direction provided by the State in the State Water Plan. The benefit of this is that the State Plan sets the strategic direction at the State level, which can then be prioritised as appropriate at the catchment level. The disadvantage may be that this approach restricts the scope of actions, which may be undertaken at the catchment level and requires consideration of issues, which may not be a specific concern. Any potential disadvantage however, is outweighed by the need for the State to guide management at the catchment level so as to ensure equity across the State and for future generations.

There is a wide range of management tools available to Boards which include direct control over taking of water through the licensing system, regulatory control over some activities that affect water, financial activities including direct investment in works, funding of activities and programs and the provision of financial incentives, and education and public awareness. This would seem to provide a broad scope to engage in a range of strategies to further the sustainable management of water. Command regulation would appear to be the less significant, and indeed less favoured, tool of the Board.

In terms of accountability, it may be argued that the CWMBs have a rather indirect accountability to its constituency. State Government is elected, as are local councils.

The Boards are appointed and have no direct accountability to the community in broad democratic terms. This provides a degree of insulation from the vagaries and short-term pressures of electoral cycles and could provide the opportunity for longer-term persistence of initiatives. It means however that despite the characterisation of Boards as community based their only accountability is in fact to the State. This is not to diminish the extent to which the Board engages with the community or the transparency of its administration. The make up of Boards can act as a limit to the range of interests that can influence their programs and perspectives. Of particular note in this regard is the lack of indigenous representation and non-consumptive water users on the Board even in 'expert' form.

Sustainable regional- and catchment-scale organisations need to be designed with an emphasis on persistence, legal status, resourcing and coordination.²²² The model of catchment administration found in SA has a number of these attributes. However it demonstrates a key weakness in the area of coordination, discussed further below. This approach does not necessarily result in a dynamic exchange of information and ideas between the Board and the relevant departments, which sit outside the plan-making process.

A significant non-statutory player in catchment and water management on private agricultural land in the Onkaparinga Catchment is the Mount Lofty Ranges Catchment Program, which is the designated authority for delivery of the Commonwealth's Salinity and Water Quality Strategy. The scale of investment under the Strategy in the catchment is very significant and harmonising the objectives of this plan with the CWMP is important to the achievement of the programs of the latter. Furthermore, the Regional Strategy Plan, which the MLRCP was set up to implement has a distinctly agricultural focus. The MLRCP became the designated authority for the salinity strategy and was responsible for preparing the INRMP. There is some concern that the agricultural focus is on-going and while its priority is important, rural living, tourist facilities and a range of other developments are also in need of improved management.

²²² Dovers S., *Institutions for Sustainability* (2001) Australian Conservation Foundation, Melbourne, Australia, 24.

Regulation

The general administrative principle under the WRA is for catchment Boards to develop rules and for the relevant agencies to implement them. From the perspective of regulatory theory it might be argued that this is a good principle, since the relationships developed in the rule-making phase will not influence the administering agency in the rule implementation phase. On the other hand, this means that the shifts in values postulated to arise from a consultative rule-making approach will not be brought to bear in the enforcement of regulations.

Rule-making in the McLaren Vale prescribed wells area was consultative and a high level of consensus reached about the need to reduce total water extraction. It can be argued that the context within which the rules were developed has been important in achieving a high level of compliance.

Sustainability

It was argued in Chapter Four that the elements of a sustainable approach to natural resource management must be taken as a package. From this perspective, features of the WRA and its implementation would suggest that it has considerable potential to facilitate the sustainable management of water. Its particular strength lies in the area of administration discussed above.

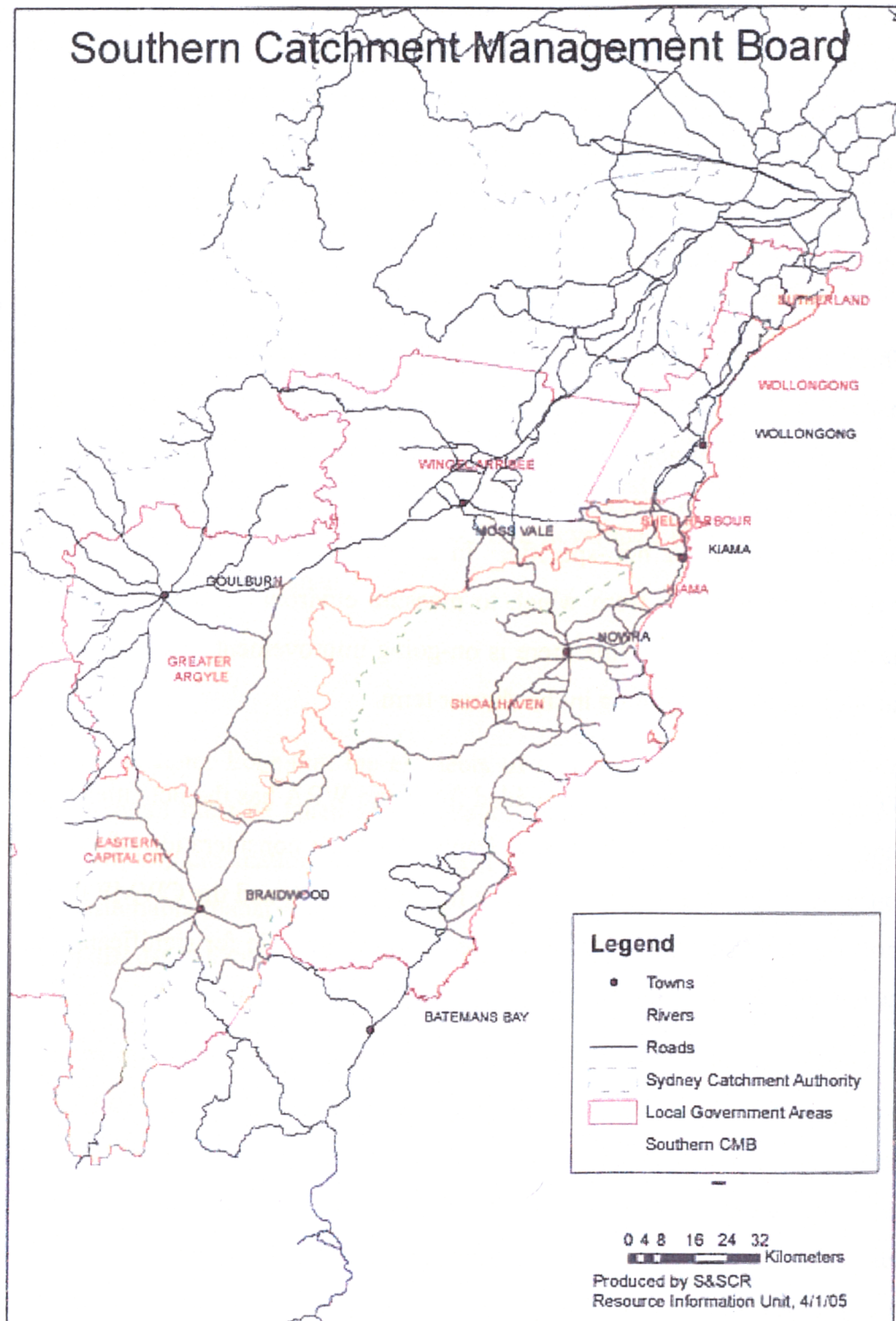
The WRA does not give an unconditional priority to the environment. Indeed, the assessment by the Water Resources Council of CWMPs concluded in part, that much work was still to be done to provide water for the environment. This is a consequence of two practical issues with water management in SA. In the first case, there is only direct control over the taking of water in prescribed areas, which constrains the capacity of governments to limit water extraction. Secondly, the WRA does not guide the content of CWMPs and so direct a priority to works or other strategies to restore water to the environment. In contrast, where this is specifically required for the WAPs it would appear to have been achieved.

The requirement for information in CWMPs provides a degree of separation of the technical determination of environmental needs and the political decision-making about the means to achieve them. The SA model of ‘expertise-based’ Boards is potentially a less politicised approach than an ‘interest-based’ approach. The public is involved in plan making and management is transparent. The Onkaparinga Board makes considerable efforts to provide information to the community and it is held accountable to the State for expenditure.

While there is a commitment to adaptive management in SA, its realisation is undermined to a considerable extent by the poor quality of indicators in both the State Water and Onkaparinga CWMPs. It is really very difficult to make conclusive assessment of the management actions and the need for adjustments if the original indicator is vague or non-specific. In addition, there is a considerable time lag in developing a baseline from which to measure environmental performance and assess management actions. While there is on-going improvement in this regard it constrains the adaptability of planning in the shorter term.

While the hierarchy of plans provided for in the WRA has the potential to protect intra-generational equity, the short time frames limit the consideration of inter-generational concerns. The State Water Plan has a life of ten years and the CWMP five. With these short time frames the kind of vision necessary to provide for significant remediation of the environment to ensure equity for future generations is unlikely.

Southern Catchment Management Board



Chapter Eight – A case study of the implementation of the legal and administrative arrangements for catchment and water planning in the Southern Catchment (NSW)

8.1 Introduction

In Chapter Six the *Catchment Management Act 1989* and the *Water Management Act 2000* were reviewed and analysed against the elements of a sustainable approach to natural resource management defined in Chapter Four. It was concluded that broadly speaking the key elements of sustainability were incorporated in the framework for planning established under the Acts. In contrast to SA however the framework for catchment and water planning is provided by two separate pieces of legislation. Indeed there are significant differences between the two States particularly in the area of administration. It was pointed out that in SA, bodies have been established which have both planning and implementation functions. In contrast, in NSW the only effective role of bodies set up by the respective legislation, is to plan. The intention of this chapter is to move from a study of the ‘law on the books’ to the implementation of the NSW legislation in the Southern Catchment Management. Furthermore, the objective is to place planning under the CMA and the WMA into a broader natural resource management context. To this end, the legal and administrative arrangements for land use and water quality as they apply both generally and specifically in the Southern Catchment have been reviewed. Clearly the catchment and water planning legislation does not operate in isolation and its effectiveness in achieving sustainable water management is conditioned to some extent by the broader system of water quality and land use management and regulation.

This chapter describes the administrative arrangements for catchment and water planning in the Southern Catchment. A brief description of the catchment and key environmental issues provides the context for this review. In the first part of this chapter the Southern Catchment Management Board (SCMB), the Shoalhaven/Illawarra Water Management Committee (SIWMC) and the Sydney Catchment Authority (SCA) are discussed. The responsibilities, functions and plan making powers of the SCMB, the SIWMC and the SCA are then described. All three bodies have plan making responsibilities. However, only the SCA has the power to implement plans. Following

this the catchment and water plans i.e. the State Water Management Outcomes Plan, the Catchment Blueprint, the Water Sharing Plan for the Kangaroo River Water Source and the draft Regional Environmental Plan are described. In addition, the Shoalhaven River Statement of Intent and review of its implementation are detailed. The latter is included because it was an important attempt to improve the integration of administration in part of the Southern Catchment. In order to draw out the relationship between catchment management and land use the third part of this chapter includes a broad description of the land use planning system in NSW. It is true to say that the land use planning system in NSW is in a state of flux. Accordingly, this part of the chapter includes a brief review of the proposals for change. This is pertinent to the critique because it draws out the apparent lack of strategic planning in NSW, which contrasts quite strongly with the situation in SA. This is followed by an overview of the applicable 'strategic plans', which include State Environmental Planning Policy 58 *Protecting Sydney's Water Supply* and Illawarra Regional Environmental Plan No 1, and relevant parts of 'local plans'. Finally, this chapter briefly describes the approach to water quality regulation in NSW and its application in the Southern Catchment.

As has been indicated in Chapter Six the legal and administrative arrangements for catchment planning in NSW are in a state of flux. The Southern Catchment Management Board no longer exists and has been replaced by the Southern Rivers Catchment Management Authority. At the time of writing the Authority had not prepared a plan and the Blueprint will continue to have currency until such time as it does so. The extent to which the new arrangements deal with deficiencies identified in this case study will be drawn out. However this does not constitute an attempt to comprehensively review the new arrangements for catchment planning.

This case study, despite its demonstrated complexity, is not exhaustive. Rather it is purposive to the extent that the focus has been on drawing out the relationships between catchment, water and land use planning and water quality regulation. The point of reference is the Southern Catchment Management Board. The Sydney Catchment Authority has jurisdiction in only part of the larger catchment but it has the potential to be a very significant player. It will be demonstrated that while the Southern Catchment Management Board embraces the notion of integrated natural resource management it sits within the context of a sectoral approach to the regulation of water quantity, water

quality and land use. It will be drawn out that the trend in NSW is to establish bodies to plan, which have little or no capacity to implement plans. This case study differs from the Onkaparinga because the NSW plans have only been in operation for a short-time and there is little on which to base comment on their effect. The final discussion is developed along four themes i.e. integration, administration, regulation and sustainability.

8.2 The Southern Catchment

The Southern Catchment Management Board area includes the Hacking River catchment, Illawarra catchments, Shoalhaven River catchment, and smaller coastal catchments south of Nowra to Point Upright at North Durras.¹ This is an area of 917,000 hectares with a population of approximately 390,000.² It includes some major urban areas,³ three national parks,⁴ supports a diverse range of agricultural activities and is an important holiday destination. There are eight local councils in the catchment area.⁵ Parts of the catchment fall within the administrative catchment of the Sydney Catchment Authority.

The catchment is very diverse. The major land uses include:

- Grazing, dairy farming, horticulture and hobby farms;
- Tourism and recreation;
- Commercial fishing and aquaculture;
- Urban and rural residential developments;
- Manufacturing industries including iron, steel, dairy, starch and paper processing;
- Forestry;
- Surface and underground mines;

¹ This largely represents the management areas covered by the former Hacking, Illawarra and Shoalhaven catchment management committees. Southern Catchment Management Board, *Southern Catchment Management Board* (2001) <http://www.cmb.org.au/southern/txt/catchments.html> (accessed 27 July).

² Ibid.(accessed

³ Wollongong, Nowra, Shellharbour, suburbs surrounding Port Hacking in southern Sydney.

⁴ Morton, Royal and Budderoo National parks.

⁵ Sutherland, Wollongong, Shellharbour, Kiama, Shoalhaven, Tallaganda, Mulwaree and Wingecaribee.

- Rock, sand and gravel extraction.⁶

Tourism is a particularly significant issue causing the population to approximately double in summer.⁷

The Kangaroo River, which is a particular focus of the following analysis, forms part of the Shoalhaven River system. The upstream reaches include parts of Morton and Budderoo National Parks. Kangaroo Valley is the largest township on the Kangaroo River. The village and surrounds have a reticulated water supply but rely on on-site sewage management. The water source has an area of about 241 square kilometres and is drained by three main tributaries.⁸ The primary agricultural activities are dairying or beef cattle production, with significant potato production occurring in the upper catchment near Robertson.⁹ The Valley has a growing popularity for rural residential living, and its proximity to Sydney has resulted in considerable developmental pressure. Riparian water use is significant and estimated to be as much as one third of total extraction from the river.¹⁰ There are about 80 water access licences, the majority being for irrigation, domestic and stock and farming purposes.¹¹

8.3 Issues and threats in the catchment

A comprehensive picture of catchment condition for the Southern Catchment is not readily available. The Blueprint, unlike the Onkaparinga CWMP, does not include a comprehensive profile of the environmental and other attributes. However, a range of information is available about parts of the catchment, which are indicative of the key issues and threats across the catchment generally.

⁶ Southern Catchment Management Board, *Southern Catchment Blueprint. An Integrated Catchment Plan for the Southern Catchment 2002*. (2002) DLWC, Sydney, Australia.

⁷ Ibid. 8.

⁸ NSW Department of Sustainable Natural Resources, *A Guide to the Water Sharing Plan for the Kangaroo River Water Source* (2003) Sydney, Australia., 1.

⁹ Shoalhaven/Illawarra Water Management Committee, *Draft Water Sharing Plan for the Kangaroo River Water Source* (2002) Department of Land and Water Conservation, Sydney, Australia., Part A, 5.

¹⁰ Healthy Rivers Commission, *Independent Inquiry into the Shoalhaven River System. Final Report July 1999*. (1999) Healthy Rivers Commission., Sydney, Australia., 135.

¹¹ NSW Department of Sustainable Natural Resources, *A Guide to the Water Sharing Plan for the Kangaroo River Water Source* (2003) Sydney, Australia., 1.

Water quality has been of critical concern in parts of the catchment particularly in the administrative catchment of the water supply for Sydney. The Sydney Water Inquiry was established in 1998 by the NSW Government to investigate water contamination and examine whether the water supply was being adequately managed.¹² The Inquiry found that the catchment was ‘... seriously compromised by many possible sources of contamination, both of *Cryptosporidium* and *Giardia* and a wide variety of other pollutants.’¹³ The concerns of the Sydney Water Inquiry in relation to water quality have been confirmed by the catchment audit conducted by the CSIRO which reported that ‘many of the risks to water quality within the catchment come from existing development’.¹⁴ Further investigation by the SCA identified more than 350 pollution sources (both point source and diffuse).¹⁵

In 1999 the Healthy Rivers Commission (HRC) conducted an Inquiry into the Shoalhaven River System.¹⁶ The Shoalhaven River system is part of the Southern Catchment Management Board area. The Inquiry concluded that:

- Many parts of the catchment are in relatively good condition;
- The River downstream of Tallowa and Danjera Dams is affected by cold, poor quality water releases;
- The upper part of the catchment suffers from significant land degradation, clearing of riverside vegetation, weed invasion and the effects of past mining practices;
- Past and present drainage practices in the lower part of the River, have caused the oxidation of acid sulfate soils with subsequent impacts on fish.¹⁷

The Stressed Rivers Assessment (1999) of the Kangaroo River concluded that it had a high environmental stress rating, low hydrological stress rating and identified conservation value, and that at full development water extraction would be contributing

¹² Sydney Catchment Authority, *Sydney Catchment Authority. Annual Report 1999-2000* (2000) SCA, Sydney, Australia., 6.

¹³ McCellan P., *Sydney Water Inquiry. Final Report.* (1998) Premier's Department, Sydney, Australia., 94.

¹⁴ CSIRO, *Audit of the Hydrological Catchments managed by the Sydney Catchment Authority. Final Report* (1999) CSIRO, Canberra, Australia., 7.

¹⁵ Gutteridge Haskins & Davey Pty Ltd, *Pollution Source Risk Management Plan* (2000) Sydney Catchment Authority, Sydney, Australia.

¹⁶ Healthy Rivers Commission, *Independent Inquiry into the Shoalhaven River System. Final Report July 1999.* (1999) Healthy Rivers Commission., Sydney, Australia.

¹⁷ Ibid. 39.

to environmental stress.¹⁸ The HRC Inquiry into the Shoalhaven River System found a mixed picture of river health for the North-Eastern Division,¹⁹ with

- high levels of bacteria and nutrients in agricultural and developed areas especially after rain;
- variable river flows, with high extraction in farmed areas;
- aquatic plants and animals in moderate to good condition except upstream of Tallowa Dam where native fish numbers are reduced;
- riverside vegetation in moderate condition in developed areas due to loss of native vegetation and numbers of exotic species; and
- bed and bank stability poor where stock have access to streams.²⁰

Generally then it can be concluded that the Southern Catchment is a mixed-use catchment under considerable pressure from urban, rural-residential and tourist development. Water quality would appear to be of primary concern although parts of the catchment experience water quantity stress.

8.4 Administrative arrangements for catchment and water planning in the Southern Catchment.

The three key administrative bodies in the Southern catchment are the Southern Catchment Management Board, the Shoalhaven Illawarra Water Management Committee and the Sydney Catchment Authority. The relationship between these bodies is far from clear although they would appear to have overlapping and complementary responsibilities and functions.

8.4.1 Southern Catchment Management Board (SCMB)

Prior to 2000, catchment planning in NSW was undertaken by catchment management committees. The formation of Catchment Boards was the response of the NSW Government to a review of both total catchment management and community

¹⁸ Department of Land and Water Conservation, *Stressed Rivers Assessment Report, NSW State Summary* (1998) Government of New South Wales, Sydney, Australia., 47.

¹⁹ Which includes the Kangaroo River and Tributaries.

²⁰ Healthy Rivers Commission, *Independent Inquiry into the Shoalhaven River System. Final Report July 1999.* (1999) Healthy Rivers Commission., Sydney, Australia., 79.

involvement in natural resource management committees.²¹ The Review identified a number of issues including the capacity of catchment management committees to address major natural resource problems, their ability to implement strategies and the problem of on-going demands on community representatives.²² In announcing the appointments to the Boards, Minister Avery said “[t]he new Catchment Management Board members will be responsible for developing an integrated catchment management plan which will form the basis of future directions for natural resource management in their catchments.”²³

The SCMB was appointed in May 2000. The Board was made up of 17 members representing natural resource users (farmers), conservation groups, local government, Aboriginal interests and State Government agencies.²⁴ Two key players in natural resource management in the catchment i.e. the Sydney Catchment Authority and the then Department of Urban Affairs and Planning were not formal members of the Board.

In the first instance the Board was directed to focus on five tasks:

- Identify the opportunities, problems and threats associated with the use of natural resources to support rural production, and protection and enhancement of the environment;
- Identify the first order objectives and targets, within the overall legislative and policy framework, for the use and management of the region’s natural resources;
- Develop management options, strategies and actions to address the identified objectives and targets;
- Assist in developing a greater understanding within the community of the issues identified and action required to support rural production and enhance the environment;

²¹ In 1999 there were 45 catchment management committees, 5 river management committees, 22 water management committees, 15 regional vegetation committees and about 70 floodplain and coast/estuarine committees. NSW Department of Land and Water Conservation, *Strengthening Catchment Management in New South Wales* (1999) Government of NSW, Sydney, NSW.

²² Ibid.

²³ Amery R., *Minister appoints members to Southern Catchment Management Board* (2000) http://www.dlwc.nsw.gov.au/mediare1/mr20000531_640.html (accessed 1 December).

²⁴ For a full list of Board members see Ibid.(accessed

- Initiate proposals for projects and assess against the targets, all projects submitted for funding under Commonwealth and State natural resource management grant programs.²⁵

At first sight, it would appear that the Boards were to maintain the traditional rural focus of the former catchment management committees. The concern seemed to be with setting targets, management options and funding priorities in support of agricultural land use in the catchment. However, the “Message from the Chair” describing the purpose of the SCMB appeared somewhat broader than this original directive.²⁶ According to Paul Martin, the Chair of the SCMB, the purpose was to:

- Provide broad direction on catchment management to all stakeholders;
- Provide frameworks for ecologically sustainable management of natural resources in the Board areas, which balance environmental, economic, cultural heritage and social needs;
- Develop an integrated catchment management plan which will influence future natural resource management throughout the Board area, through being adopted by relevant natural resource managers;
- Involve the broader community in the preparation of the catchment management plan.²⁷

The SCMB began preparing a catchment plan in September 2000. This would

‘provide focus and direction to natural resource management, help coordinate government investment, such as extension work and grant funding, and contribute to the implementation of legislation such as the *Native Vegetation Conservation Act 1997* and the *Water Management Act 2000*.’²⁸

²⁵ NSW Department of Land and Water Conservation, *Catchment Management Boards* (2000) <http://www.dlwc.nsw.gov.au/care/cmb.html> (accessed 19 June).

²⁶ Martin P., *Message from the Chair* (n.d.) <http://www.cmb.org.au/southern/txt/chair.html> (accessed 27 July).

²⁷ Ibid.(accessed

²⁸ Southern Catchment Management Board, *The Catchment Management Plan* (2000) <http://www.cmb.org.au/southern/txt/plan.html> (accessed 27 July).

The ‘First Order Objectives’ which the Board established were:

- River/Waterway Management – A river/fresh waterway system with a healthy riparian corridor, vegetated and with banks and riverbeds that support good water quality, provision of habitat and sustainable production;
- Land Management – Sustainable primary production and use of lands within their capability (soil characteristics, erodability, natural values, weed, invasion, topography);
- Coastal/Estuary Management – Healthy coastal and estuary areas with non-polluted waters, diverse aquatic ecosystems and foreshore vegetation, and ample opportunities across the region for enjoyment of coast and estuaries as natural systems;
- Habitat Management – Protection of the native biological diversity and maintenance of ecological processes and systems;
- Developed Environmental Management – Healthy urban and industrial environments which provide a sustainable balance between natural systems and social/cultural and economic interests.²⁹

It is apparent from this that the SCMB had expanded its scope from primary production to a broader conceptualisation of catchment management. Natural resources including rivers, the coast, land and biodiversity were of concern, as was the urban environment. This shows recognition at least of the integrated nature of natural resources and the need to consider both rural and urban issues in catchment management.

Plan preparation

The *Catchment Management Act*, 1989 gives little guidance on the process for plan preparation. In preparing the Plan, the SCMB adopted a consultative approach and sought to build on existing information. To this end the first order objectives were developed through a review of the relevant catchment management strategies prepared by the catchment committees, State of the Environment reports and other studies by councils and specialised agencies, and with input from identified stakeholder groups.³⁰

²⁹ Ibid.(accessed

³⁰ For a full description of the consultation steps undertaken to develop the “First Order Objectives” see Southern Catchment Management Board, *Briefing Paper* (2001) Southern Catchment Management Board, Sydney, Australia., 5-6.

While it was clearly important for the SCMB to build on existing information and plans, the preparation of a publicly available overview of catchment condition could have provided an important baseline.

In developing programs to support these objectives the SCMB took the approach of selecting a lead agency for each program area; preparing a brief on the physical and management issues that needed to be addressed; and driving the planning process to ensure local government involvement, stakeholder engagement and appropriate community consultation.³¹ To this end, three streams of communication and consultation were developed i.e. with agencies, local government and the community.³² In addition, the draft plan was publicly exhibited and submissions called for.

The SCMB had a separate comment process on catchment targets.³³ The Board's objective was to set targets at two levels i.e. "catchment targets" - measurable and time specific 'top-level' targets for the work plan; and "management targets" - measurable and time-specific indicators of progress towards the catchment targets.³⁴ In setting the context for this consultation the Board emphasised that 'where the following targets have the capacity to affect private land they can only be implemented through the voluntary agreement of the landholder. Management on private land, or lands under Council control, will be achieved through partnership arrangements. The Board intended to see the targets achieved through collaboration based on negotiation, incentives and education.'³⁵ The clear intention was to continue an emphasis on a voluntary approach to the management of the catchment.

8.4.2 Shoalhaven/Illawarra Water Management Committee (SIWMC)

The SIWMC was appointed as an advisory committee³⁶ by the Minister for Land and Water Conservation in 2000, to prepare water management plans for the Shoalhaven,

³¹ Ibid. 11.

³² Community and stakeholder consultation involved a series of information meetings, mail out of information to identified stakeholders, consultation with indigenous peoples, direct consultation as required and the provision of information on the web-site. Ibid. 11-12.

³³ Southern Catchment Management Board, *Community Discussion Paper Draft Targets* (2001) Southern Catchment Management Board, Sydney, Australia.

³⁴ Ibid. 3.

³⁵ Ibid. 1.

³⁶ WMA s 388.

Illawarra and coastal Clyde catchments. The first task of the SIWMC was to prepare a water sharing plan for the Kangaroo River. This was driven by the legislation itself, which specifically identifies Parliament's intention that water sharing arrangements should be in place within 12 months for priority streams, of which the Kangaroo is one.³⁷

The Government's decision to limit the terms of reference to water quantity was not without criticism given the results of an earlier enquiry by the Healthy Rivers Commission (HRC) which found that water quality was a major concern in the Kangaroo.³⁸ The HRC has been very critical of the decision to limit the terms of reference of the SIWMC to water sharing.³⁹ The HRC pointed to the 'failure of [the department] to undertake a land and water management plan'⁴⁰ : '[t]he claimed need for consistency in policy approach to all rivers is not a sufficient reason to set aside an explicit Government decision, based on lengthy public consultations and determined for the specific circumstances of the Shoalhaven river system.'⁴¹ The HRC was clearly concerned that the determination of water sharing rules would prejudice the resolution of the range of other river health issues identified in the Inquiry.

The SIWMC has an independent chairman and is made up of representatives of water users, recreational fishing interests, environmental interests, Indigenous communities, the Southern Catchment Management Board, local councils and government agencies.⁴² There were 38 members on the Committee in total, including 21 representatives of State and local government.

³⁷ WMA s 7(4).

³⁸ Healthy Rivers Commission, *Independent Inquiry into the Shoalhaven River System. Final Report July 1999*. (1999) Healthy Rivers Commission,, Sydney, Australia.

³⁹ Healthy Rivers Commission, *Hawkesbury Nepean & Shoalhaven River Systems. Independent Audit of the Statements of Intent* (2003) Healthy Rivers Commission, Sydney, Australia., 24.

⁴⁰ Ibid. 26.

⁴¹ Ibid. 25.

⁴² Including Department of Land and Water Conservation, National Parks and Wildlife Service, Environment Protection Authority, NSW Agriculture, NSW Fisheries and the Sydney Catchment Authority.

Bodies established under the WMA are required to make their decisions on the basis of consensus.⁴³ Consensus stresses the cooperative development of decisions with group members working together.⁴⁴ It emphasises the need to listen to all ideas and concerns of the group in an attempt to find the most universally acceptable decision possible.⁴⁵ Preconditions for effective consensus decision-making are a level of trust that allows directness, honesty and candour; a healthy interactive style; strong leadership; adequate time; and all group members being well informed of the critical issues.⁴⁶ It is argued that consensus decision-making can change behaviours and attitudes, increase group support for decisions, improve the quality of decisions and empower participants.⁴⁷ The extent to which these preconditions existed in the SIWMC, or indeed any of the water sharing committees, warrants closer consideration and may have a bearing on the legitimacy of the final deliberations.

Plan Preparation

Although the SIWMC was to prepare a Minister's Plan,⁴⁸ the water management procedures were adopted as a matter of practice. The procedure for plan preparation is prescribed in the legislation (see Chapter Six).

Executive support was provided to the SIWMC by the then, Department of Land and Water Conservation. The various relevant departments briefed the committee on a range of matters including the biophysical system, water quality, hydrology, uses of water, economic and social profile, and cultural issues. There was a concerted effort to draw together a diversity of data to provide the background for planning.

During the development of the Plan the Committee held two public meetings, and met with the Illawarra Local Aboriginal Land Council, Shoalhaven City Council, water

⁴³ Consensus is most often associated with the Religious Society of Friends (Quakers) who have used and developed this approach for over 300 years. Avery M., Auvine B., Streibel B. and Weiss L., *A Handbook for Consensus Decision Making*

Building United Judgment (1981) The Centre for Conflict Resolution, Madison, Wisconsin.

⁴⁴ Ibid.

⁴⁵ Ibid.

⁴⁶ McEwan E. K., *Leading Your Team to Excellence*

How to Make Quality Decisions (1997) Corwin Press Inc, Thousand Oaks, California.

⁴⁷ Ibid.

⁴⁸ WMA s 50.

licence holders in the water source, Kangaroo Valley Water Users Association, the Illawarra Region of Councils and the Southern Catchment Management Board.⁴⁹

A draft plan was submitted to the Minister for Land and Water Conservation on 15 December 2001 and placed on public exhibition until May 2002. A number of submissions were received. The Plan was eventually gazetted in 2004.

A water sharing plan is supposed to sit within a hierarchy of water management plans, such that the State Water Management Outcomes Plan (SWMOP) 'is to set out the overarching policy context, targets and strategic outcomes for the development, conservation, management and control of the State's water resources'.⁵⁰ However, at the time the water sharing plan was being prepared the SWMOP was still in preparation (discussed further below). It was only after the draft Plan had been prepared that the SWMOP and Guidance Notes were finalised.

8.4.3 Sydney Catchment Authority

The Sydney Catchment Authority (SCA) was established following the Sydney water contamination incidents in 1998.⁵¹ A total of 91 recommendations were made by the Sydney Water Inquiry including that a catchment authority with a wide range of functions and powers should be established;⁵² improved planning controls;⁵³ improved regulatory and enforcement powers;⁵⁴ and the provision of sufficient resources for catchment protection.⁵⁵

The SCA is responsible for a hydrological catchment with an area of 16,000 square kilometres.⁵⁶ The catchment extends from the headwaters of the Coxs River near

⁴⁹ NSW Department of Sustainable Natural Resources, *A Guide to the Water Sharing Plan for the Kangaroo River Water Source* (2003) Sydney, Australia., 2.

⁵⁰ Department of Land and Water Conservation, *Interim State Water Management Outcomes Plan* (2002) Government of New South Wales, Sydney, Australia.

⁵¹ Cryptosporidium and Giardia were found in Sydney's water supply. Sydney Catchment Authority, *Sydney Catchment Authority. Annual Report 1999-2000* (2000) SCA, Sydney, Australia., 6.

⁵² See Recommendations 25 & 26 McCellan P., *Sydney Water Inquiry. Final Report*. (1998) Premier's Department, Sydney, Australia.

⁵³ See Recommendations 17-24 Ibid.

⁵⁴ See recommendations 41-42 Ibid.

⁵⁵ See recommendation 49 Ibid.

⁵⁶ Gutteridge Haskins & Davey Pty Ltd, *Pollution Source Risk Management Plan* (2000) Sydney Catchment Authority, Sydney, Australia., 8.

Lithgow in the upper Blue Mountains to the headwaters of the Shoalhaven River near Cooma.⁵⁷ The Shoalhaven catchment has an area of approximately 575,000 hectares and consists of the Shoalhaven and Kangaroo Rivers and Tallowa Dam, which is used to supplement the main storage network.⁵⁸ The catchments include a number of special areas which have been gazetted under the *Sydney Water Catchment Management Act, 1998* (SWCMA) for the purpose of water quality protection.⁵⁹ The *Sydney Water Catchment Management (General) Regulation, 2000* regulates conduct in special areas and details prescribed offences and penalties, which authorised officers of the SCA can enforce.

The Sydney Catchment Authority (SCA) was established by the *Sydney Water Catchment Management Act 1998*. The role of the Authority is to manage and protect the catchment areas and catchment infrastructure works, to be a supplier of bulk water, and to regulate certain activities within or affecting the catchment.⁶⁰ The principal objectives of the Authority are:

- to ensure that the catchment areas and the catchment infrastructure works are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment;
- to ensure that water supplied by it complies with appropriate standards of quality; and, where its activities affect the environment, to conduct its operations in compliance with the principles of ecologically sustainable development.⁶¹

The SCA is run by a Board of between four and eight members appointed by the Minister. This includes the Chief Executive, nominees of the NSW Farmers' Association and the Nature Conservation Council of NSW, and a person selected by the Minister who is an elected councillor of a local government area within the catchment.⁶² The persons appointed must each or together have expertise in the areas of protection of the environment and public health.⁶³ This is an interesting mixture of interest- and

⁵⁷ Ibid. 9.

⁵⁸ Ibid. 12.

⁵⁹ SWCMA 43-50.

⁶⁰ SWCMA s 13(a)-(c).

⁶¹ SWCMA s 14(1)(a-c).

⁶² SWCMA s. 7(1)-(2).

⁶³ SWCMA s. 7 (3).

expertise-based representation. The functions of the Board include determining the policies and long-term strategies of the Authority and ensuring that it meets all public health and environmental requirements as set out in the operating licence.⁶⁴

The SCA is funded,⁶⁵ can employ staff,⁶⁶ has regulatory and enforcement powers,⁶⁷ has formal accountability requirements⁶⁸ and planning responsibilities (discussed below). It conducts its water supply functions in accordance with the provisions of an Operating Licence.⁶⁹ The SCA was required by the Act to enter into Memoranda of Understanding⁷⁰ with a number of agencies to establish cooperative relationships, develop consultative processes, exchange data and information and establish a process for dispute resolution.⁷¹

The SCA prepared an environmental plan⁷² in accordance with the requirements of its Operating Licence in 2000. The Environmental Plan details the environmental policy of the SCA, implementation strategies, and targets and timetables for compliance.⁷³ The Environmental Plan is subject to regular review and audit by the Licence Regulator.⁷⁴ In the main the targets are specific and measurable.

Plan preparation

The SWCMA requires the SCA to prepare ‘as soon as practicable’, a Regional Environmental Plan (REP) under the *Environmental Planning and Assessment Act, 1979* (EPAA) for activities carried out or proposed to be carried out within the catchment or outside the catchment if they may affect the catchment area.⁷⁵ The REP

⁶⁴ SWCMA s. 8(1).

⁶⁵ SWCMA ss 24A – 24C.

⁶⁶ SWCMA s. 12.

⁶⁷ SWCMA s. 57, 63-69 and Sydney Water Catchment Management (Environment Protection) Regulation 2001.

⁶⁸ SWCMA s. 39, the SCA must in addition to its statutory annual report furnish reports specified in the operating licence to the Minister who must lay such reports before both Houses of Parliament.

⁶⁹ SWCMA s. 25.

⁷⁰ SWCMA ss 35-38.

⁷¹ Sydney Catchment Authority, *Sydney Catchment Authority. Annual Report 1999-2000* (2000) SCA, Sydney, Australia., 12.

⁷² Sydney Catchment Authority, *Sydney Catchment Authority Environmental Plan 2000-2005* (2000) SCA, Sydney, Australia.

⁷³ Ibid. 1.

⁷⁴ Ibid. 5.

⁷⁵ SWCMA s. 53.

can set water quality objectives; require consent authorities to refuse development consent unless proposed development can be shown to have a neutral or beneficial effect on the quality of the water; and require the development of action plans to rectify development not having a neutral or beneficial effect on the quality of water.⁷⁶

REPs are prepared in accordance with the provisions of the EPAA in relation to matters of environmental planning significance for a region or part of a region.⁷⁷ Generally they are prepared by the relevant department and their content is ultimately determined by the Minister for Urban Affairs and Planning. When required, the Director of the State planning agency prepares an environmental study after notification to councils, advisory bodies and public authorities.⁷⁸ The draft plan is then exhibited and submissions called for.⁷⁹ The Director considers submissions on the plan⁸⁰ and then may order an inquiry or decide to re-exhibit if amendments are proposed.⁸¹ The draft plan with any amendments and the Director's report is forwarded to the Minister⁸² who makes the final determination.⁸³

A draft regional environmental plan *Sustaining the Catchments* was released for public comment between October 2000 and March 2001. There was considerable community concern about the draft plan and over 400 written submissions were received.⁸⁴ A number of concerns were raised in submissions and these included: the focus on water quality, the need for roles and responsibilities of various agencies to be clarified, the application of the concept of 'neutral or beneficial' effect, the effect of a proposed pollution off-set scheme and a number of other matters.⁸⁵ The significance of the plan cannot be overstated. This plan contemplated measures to address the impact of both new land uses and existing uses. This is very unusual and has some parallels with the Mount Lofty Ranges Regional Strategy Plan, 1993. It, like the regional plan is a land

⁷⁶ SWCMA s. 53(2)(a)-(d).

⁷⁷ EPAA s. 51(2).

⁷⁸ EPAA ss. 41, 45-46, 74(2)(a).

⁷⁹ EPAA s. 47.

⁸⁰ EPAA s. 49.

⁸¹ EPAA s. 49.

⁸² EPAA s. 50.

⁸³ EPAA s. 51.

⁸⁴ Department of Infrastructure Planning and Natural Resources, *Sustaining the Catchments. DRAFT. The Regional Plan for the drinking water catchments of Sydney and adjacent regional centres* (2004) Sydney, Australia., Part 1, 3.

⁸⁵ see NSW Planning, *Sustaining the Catchments. A draft regional plan for the drinking water catchments of Sydney and adjacent regional centres. Submissions Report.* (n.d.) Sydney, Australia.

use plan which is more expansive than the traditional concern of regulation of new development. In March 2001, the Minister for Urban Affairs and Planning announced that the plan would be revised in order to address community concerns. The plan was originally scheduled for completion by early 2001 and the delay in finalising it has been of concern.⁸⁶ Five regional community groups were formed to assist community input into the plan revision.⁸⁷ During 2001 and 2002 both the community groups and technical advisory groups contributed to the plan revision. There was considerable debate about the impact of the 'neutral or beneficial effect' requirement, its relationship with a pollution offsets scheme and the socio-economic impact on farmers in the upper catchment. A second draft of the regional plan was finally released for comment in March 2004.⁸⁸ In December 2004 it had still not been finalised.

8.5 Catchment and Water Plans

At least four catchment and water plans apply in the Southern Catchment. There is a clear statutory relationship between the State Water Management Outcomes Plan (SWMOP) and the Water Sharing Plan for the Kangaroo River Water Source. The water sharing plan must conform with the general direction provided by the SWMOP. There is no such clarity in relation to the Catchment Blueprint and neither the CMA or the WMA address this issue. However, the importance of the Catchment Blueprint, lies in part, in providing the regional planning framework necessary to access a range of Commonwealth funds. The relationship between these plans and the draft regional plan is not clear. The Shoalhaven River Statement of Intent, while not a plan as such, is also of considerable relevance to the intent of catchment management in the Southern Catchment. It provides a legal mechanism for coordinating the management actions of the relevant agencies in the Shoalhaven River Catchment.

⁸⁶ Healthy Rivers Commission, *Hawkesbury Nepean & Shoalhaven River Systems. Independent Audit of the Statements of Intent* (2003) Healthy Rivers Commission, Sydney, Australia., 28.

⁸⁷ Cox's River, Warragamba, Southern Highlands, Southern Tablelands and Upper Shoalhaven Regional community groups. Department of Infrastructure Planning and Natural Resources, *Sustaining the Catchments. DRAFT. The Regional Plan for the drinking water catchments of Sydney and adjacent regional centres* (2004) Sydney, Australia. Part 1, 3.

⁸⁸ Ibid.

8.5.1 State Water Management Outcomes Plan

The WMA provides that the State Water Management Outcomes Plan (SWMOP) is to set out the ‘overarching policy context, targets and strategic outcomes for the development, conservation, management and control of the State’s water sources’. The Act is silent on the issue of plan preparation procedures. The SWMOP has a duration of five years. The first SWMOP represents a consolidation of the range of policies and agreements, principles, standards and processes that have been developed over the ten year period of reform in NSW. It sets both long-term outcomes and five-year management targets. The SWMOP was prepared without community or stakeholder consultation.

The long-term outcomes of the SWMOP were defined in three categories i.e. environment, society and economic prosperity.⁸⁹ The environmental outcomes include maintaining or improving primary ecological production, improvement in degraded wetlands, and protection and restoration of the diversity and abundance of native aquatic animals and plants. Social outcomes include: assured water supplies for urban and rural communities; protection and improvement of Aboriginal traditional and contemporary dependencies and cultural associations; and reduction in the incidence of blue-green algal blooms. The economic outcomes include maintenance of productive capacity of land and water such that the *rate* of land degradation associated with irrigation activity and the *rate of increase* in river salinity is reduced (emphasis added), water use efficiency increased and economic efficiency of investment in water industries improved. The long-term goals are general in character and fall within the category of ‘parenthood statements’. It is somewhat alarming that the long-term economic goal effectively accepts a worsening of land degradation and river salinity.

There are a number of five-year targets, some of which are specific and measurable, such as specific reductions in long-term average annual extractions of groundwater.⁹⁰ Others concern the collection of baseline data, for example, the establishment (but not implementation) of long-term average annual extraction limits for coastal water

⁸⁹ Department of Land and Water Conservation, *State Water Management Outcomes Plan* (2002?) NSW Government, Sydney, Australia., 5-6.

⁹⁰ See Target 1e, 4a, 4b, 4c.

sources.⁹¹ Others are vague and generic such as the reduction in peak volumes of urban stormwater runoff reaching natural watercourses.⁹²

The Interim Environmental Objectives for Water Quality and River Flows are to be considered when assessing progress against the long-term objectives and five-year management targets.⁹³ A performance strategy, covering assessment of performance against the management targets, assessment of social and economic impacts, benchmarking of current conditions, and evaluation of future trends in respect to the long-term outcomes, was to be established within six months of the gazettal of the SWMOP.⁹⁴ It is apparent that some regional variation in compliance with the targets contained in the SWMOP was expected in that ‘some water sources that are significantly below a SWMOP target, may achieve a positive result in moving towards the target ...’⁹⁵ However, continuous improvement was expected.

The SWMOP could not be described as a visionary document. The long-term outcomes are neither ambitious nor measurable. The five-year targets are a mixed bag, reflecting a very pragmatic assessment of the likely impact of current programs and resource allocations. The SWMOP fails to provide a strategic overview of the water sources of the State or to set the stage for significant environmental improvements. The tone in this case is one of ‘sustainable *development*’ as distinct from ‘sustainable *management*’.

8.5.2 A Blueprint for the sustainable use and enjoyment of our natural resources

The catchment Blueprint, titled ‘A Blueprint for the sustainable use and enjoyment of our natural resources’ was released for public comment in October 2001.⁹⁶ It was submitted to the Minister for Land and Water Conservation in November 2001⁹⁷ and

⁹¹ See Target 1c, 25a.

⁹² see Target 31, 32.

⁹³ Department of Land and Water Conservation, *State Water Management Outcomes Plan* (2002?) NSW Government, Sydney, Australia., 3.

⁹⁴ Ibid. 5.

⁹⁵ Ibid. 4.

⁹⁶ Southern Catchment Management Board, *A Blueprint for the sustainable use and enjoyment of our natural resources. Draft for Comment.* (2001) Southern Catchment Management Board, Sydney, Australia.

⁹⁷ Southern Catchment Management Board, *A Blueprint for the sustainable use and enjoyment of our natural resources. Submission to the Honorable John Aquilina, Minister for Land and Water Conservation* (2001) Southern Catchment Management Board, Sydney, Australia.

was finally launched by him in late 2002.⁹⁸ In doing so the Minister stated that ‘[t]he Blueprint is an advisory and not a compulsory document. It will guide investment from the allocation of funds from the Natural Heritage Trust and National Action Plan for Salinity and Water Quality.’⁹⁹ The Blueprint, like the Integrated Natural Resource Management Plan for the Mount Lofty Ranges and Greater Adelaide Region, provides the mechanism for accessing potentially significant funds from the Commonwealth.

The Blueprint is arranged around six program areas¹⁰⁰ and identifies the first order objective, catchment target and management targets. Projects and actions are identified, given a priority and assigned a deadline. Lead and support agencies are also identified as is an indicative cost.¹⁰¹ In the Water Program¹⁰² the management targets are general in nature, for example ‘[f]rom 2002, the length/area of riverine corridors and wetlands protected and/or rehabilitated will increase.’¹⁰³ Others targets reflect existing legislative requirements for example, in relation to the preparation of water sharing plans. Most of the projects identified are ‘enhancements’ of existing programs and only one of the 19 programs identified could be described as new or innovative.¹⁰⁴ The Plan does show a welcome commitment to the implementation of the Shoalhaven River Joint Statement of Intent (discussed below). An indicative cost of \$1.5 million was identified.¹⁰⁵

The Blueprint sets the direction for investment and action and was to be supported by an implementation and investment strategy.¹⁰⁶ An Implementation Manual was to outline a process for periodic audit and review of the outputs (management actions) and

⁹⁸ NSW Department for Land and Water Conservation, *Southern Catchment Blueprint Website Launched* (2003) http://www.dlwc.nsw.gov.au/mediare1/mo20030313_1914.html (accessed 1 December).

⁹⁹ Ibid. (accessed

¹⁰⁰ Water, Coasts, Lakes and Estuaries, Sustainable land use, Biodiversity, Developed environment, and Board program.

¹⁰¹ See for example the Water Program Southern Catchment Management Board, *A Blueprint for the sustainable use and enjoyment of our natural resources. Submission to the Honorable John Aquilina, Minister for Land and Water Conservation* (2001) Southern Catchment Management Board, Sydney, Australia., 8-10.

¹⁰² The other program areas are not discussed but are similar in structure and content.

¹⁰³ Southern Catchment Management Board, *Southern Catchment Blueprint. An Integrated Catchment Plan for the Southern Catchment 2002*. (2002) DLWC, Sydney, Australia., 14.

¹⁰⁴ Develop market based mechanisms that encourage and remunerate landholders to deliver environmental services, using the Upper Shoalhaven Catchment as a pilot for implementation. However no indicative cost i.e. new budget allocation, has been identified. Ibid. 17.

¹⁰⁵ Ibid. 14.

¹⁰⁶ These strategies were to be prepared by the agencies, local government and the community under the guidance of the Board.

outcomes (catchment and management targets).¹⁰⁷ However, the key weakness of the Blueprint is the absence of an implementation *mechanism*. The Blueprint was intended to be ‘the basis for government programs ... the basis for bids for resources to implement works.’¹⁰⁸ The ‘proof’ of implementation was to be ‘the flow of resources into the work programs.’¹⁰⁹ In defence of the Board however it should be acknowledged that its charter was to prepare a plan; implementation was to be a matter determined by the Government. It was hoped by the Board that a link would be made between the Blueprint and agency budget cycles.¹¹⁰

In any event the plan is to be reviewed by the Board once every five years and an independent audit panel report every five years on whether the provisions are being given effect to.¹¹¹ It was expected that the actions and targets would inform the preparation of the proposed regional strategy (discussed below).

According to DLWC, the targets in the Blueprints were to be “SMART” i.e. specific, measurable, achievable, relevant and timebound.¹¹² With respect to the targets, several comments can be made. They are relevant and timebound, but not specific and measurable. The management targets are often very general in nature. Targets such as “to achieve improved water quality, reflecting ANZECC guidelines” or “support local government to reduce water use and water contamination” are so vague as to be almost meaningless. Many of the programs listed were already in existence, not given an indicative costing and not connected with a specific outcome. The lack of specificity reflects a lack of commitment and makes the measurement of progress a very subjective matter.

¹⁰⁷ Southern Catchment Management Board, *Southern Catchment Blueprint. An Integrated Catchment Plan for the Southern Catchment 2002*. (2002) DLWC, Sydney, Australia., 42.

¹⁰⁸ Southern Catchment Management Board, *A Blueprint for the sustainable use and enjoyment of our natural resources. Submission to the Honorable John Aquilina, Minister for Land and Water Conservation* (2001) Southern Catchment Management Board, Sydney, Australia., 4.

¹⁰⁹ Ibid. 4.

¹¹⁰ Catchment Blueprint community consultation, Wollongong Town Hall, 10 April, 2002.

¹¹¹ Southern Catchment Management Board, *Southern Catchment Blueprint. An Integrated Catchment Plan for the Southern Catchment 2002*. (2002) DLWC, Sydney, Australia., 42-43.

¹¹² Department of Land and Water Conservation, *Overview - catchment blueprints, water management plans, regional vegetation management plans* (2002) Department of Land and Water Conservation, Sydney, Australia.

The Audit Office of New South Wales in a recent Performance Review¹¹³ concluded that ‘Catchment Blueprints contain aspirations, assumptions and broad statements of intent.’¹¹⁴ It concluded that while there was an intention to audit the implementation of the Blueprints every five years ‘[a]ny audit is likely to be more difficult due to the general nature of the Catchment Blueprints.’¹¹⁵

The strengths of the Blueprint however lie in the whole-of-government process used for its development, the educative value of the agency involvement in plan preparation, and the potential for informal coordination to develop out of a shared understanding of agency programs and priorities. While the Board made a conscientious effort to draw links between the different program areas there appears to be no clarification of the relationship between this plan and other environmental or land use plans. The Blueprint clearly recognises the existence of water management and other plans and supports their implementation through the listed programs. According to advice from the then DLWC the catchment Blueprint is the ‘primary integrating mechanism for all natural resource planning. It sets the overarching natural resource priorities for the catchment as a whole.’¹¹⁶ While there is a clear legislative requirement to prepare the Blueprint there is no such requirement to implement it. The real focus of this planning is government coordination, transparency and accountability.

The CMA has had limited impact in the past because catchment management committees were not given adequate powers or resources to influence natural resource and land use decision-making. The Boards and their plans would appear to suffer the same constraints as the former committees with the key issues of the statutory status of plans, resourcing and the relationship with local councils not addressed.

¹¹³ The Audit Office of New South Wales, *Performance audit : protecting our rivers* (2003) The Audit Office of New South Wales, Sydney, Australia.

¹¹⁴ Ibid. 28.

¹¹⁵ Ibid. 28.

¹¹⁶ Department of Land and Water Conservation, *Overview - catchment blueprints, water management plans, regional vegetation management plans* (2002) Department of Land and Water Conservation, Sydney, Australia.

8.5.3 The Water Sharing Plan for the Kangaroo River Water Source

The Water Sharing Plan for the Kangaroo River Water Source (the Plan) was gazetted in May 2003 and is effective from 1 July 2003 to 30 June 2013. This is a regulatory plan, which provides the rules for access to, and trade of water.

The Vision of the Plan is to establish ‘water sharing arrangements that contribute to the protection and rehabilitation of the Kangaroo River Water Source and its dependent ecosystems, whilst the social, cultural and economic future of the community of the Kangaroo River is recognised, maintained and fostered.’¹¹⁷

The water sharing plan for the Kangaroo River:

- Identifies, establishes and maintains water for the environment;
- Identifies water to satisfy basic landholder rights;
- Defines the total volume of water available for extraction under licence (the bulk access regime); and
- establishes rules for trading water access licences.¹¹⁸

The Plan was intended to:

- Protect pool and riffle habitats for aquatic and terrestrial flora and fauna;
- Recognise and maintain existing basic landholder rights while ensuring an equitable share between these rights during very low and zero river flows;
- Allow licensed water users access to an equitable share of available water and access to water for future development through trading of licences;
- Maintain and improve recreational amenity; and
- Recognise cultural and cross-cultural presence within the catchment.¹¹⁹

The Plan is exclusively concerned with water quantity. Water quality was to be dealt with by a subsequent plan.

¹¹⁷ NSW Department of Sustainable Natural Resources, *A Guide to the Water Sharing Plan for the Kangaroo River Water Source* (2003) Sydney, Australia., 4.

¹¹⁸ Shoalhaven/Illawarra Water Management Committee, *Draft Water Sharing Plan for the Kangaroo River Water Source* (2002) Department of Land and Water Conservation, Sydney, Australia. Part A, 1-2.

¹¹⁹ Ibid. Part A, 3.

The Plan includes provisions (rules) in relation to:

- Long-term average extraction and total daily extraction limits, expressed through provisions for flow classes;
- Water for the environment;
- Basic landholder rights;
- Share component to be expressed on an access licence, which also prioritises access to different categories of licence;
- Available water determinations;
- Water allocation accounts;
- Group registration (a system which permits an individual access licence holder to exceed their individual daily extraction limit provided the group as a whole does not);
- Access licence dealing rules;
- Mandatory conditions for access licences and water supply works approvals;
- Plan amendments; and
- Monitoring and reporting requirements.¹²⁰

The determination of the environmental health water was highly contested in the plan-making phase. The volume for very low flows is defined as the ‘cease to pump’ level where the level of river flows is falling.¹²¹ Provision is made in the Plan to allow a proportion of ‘fresches’ to flow before pumping can be recommenced (referred to as the ‘commence to pump’ level). Options before the Committee ranged from 1-31 ML/day.¹²² Ultimately a ‘holistic assessment’ set the level of environmental health water at 7ML/day, after a three-year transitional period.

While this level is a significant improvement on the then current arrangements for ‘cease to pump’ levels of 1 ML/day, from an environmental protection perspective the result is poor. For example, ‘[i]n terms of threatened biota, the most significant species for the Kangaroo River is the Macquarie Perch that has been recorded in the lower

¹²⁰ NSW Department of Sustainable Natural Resources, *A Guide to the Water Sharing Plan for the Kangaroo River Water Source* (2003) Sydney, Australia.

¹²¹ Shoalhaven/Illawarra Water Management Committee, *Draft Water Sharing Plan for the Kangaroo River Water Source* (2002) Department of Land and Water Conservation, Sydney, Australia. Part A, 10.

¹²² Ibid. Addendum after Part A, 11.

reaches. The Inter-agency Scientific Panel¹²³ *was not clear* (emphasis added) that the minimum environmental health water discharge of 7 ML/day would meet the requirements of Macquarie Perch. The Panel recommended that further research into the flow requirements of Macquarie Perch is required.¹²⁴ This result can not be described as precautionary. A water sharing plan may be amended, without triggering compensation, if the Plan provides for such an amendment. The Plan allows an amendment to the total daily extraction level (TDEL) for unregulated river licenses, if necessary, as a result of growth in basic landholder rights and the grant of any new access licences that are not covered by the embargo; and very low flow provisions based on field verification.¹²⁵ It would appear that explicit concern with threatened biota is not sufficient grounds to trigger an amendment during the Plan's operation. Given the Scientific Panel's recommendation that more research is required, scope to feed the results of that research into the Plan and adjust the TDEL particularly in periods of low flow would have been appropriate. It was acknowledged by the Committee that the flow rules probably do not meet the requirements of fish at very low flows and are a trade off between environmental flows and social and economic needs.¹²⁶ A National Competition Council Review in 2004 found that evidence was not provided to show that these rules and limits would meet environmental needs.¹²⁷

The quality of the social and environmental impact assessment and the inability of the Committee to offer off-sets to, or incentives for water conservation was clearly problematic in this local decision-making context. In the short-term, economic and social concerns have been given precedence in a context of uncertain science.

The Plan provides for the phased implementation of the new 'cease to pump' level over three years. This was really the only off-set available to the Committee. However,

¹²³ Comprising the National Parks and Wildlife Service, NSW Fisheries and the Department of Land and Water Conservation.

¹²⁴ Shoalhaven/Illawarra Water Management Committee, *Draft Water Sharing Plan for the Kangaroo River Water Source* (2002) Department of Land and Water Conservation, Sydney, Australia. Addendum after Part A, II.

¹²⁵ NSW Department of Sustainable Natural Resources, *A Guide to the Water Sharing Plan for the Kangaroo River Water Source* (2003) Sydney, Australia., 10.

¹²⁶ Shoalhaven/Illawarra Water Management Committee, *Draft Water Sharing Plan for the Kangaroo River Water Source* (2002) Department of Land and Water Conservation, Sydney, Australia. Addendum at Part A, 11.

¹²⁷ National Competition Council, *New South Wales: allocation of water to the environment, National Competition Policy Deferred 2003 Water Reform Assessment* (2004) AusInfo, Canberra, Australia.

provision for transitional arrangements provides water users with time to adjust their practices to meet the new requirements.

The Plan provides for group registration (see above). While this affords flexibility to water users, it may also have other benefits. For example, it can be argued that it mobilises an extrinsic enforcement strategy. If water users are cooperating in the use of water, they will undoubtedly be very concerned with monitoring each other's water use.

Implementation Program

In accordance with the provisions of the WMA, implementation of the Water Sharing Plan is provided through an Implementation Program. Preparation and implementation is the responsibility of the relevant department. The SIWMC was given the opportunity to comment on the Program. The Program details the actions, policies and programs required of the Department for implementation of the Plan. It also includes the detail in relation to performance indicators and the five-yearly audit of the Plan provisions. The Program was prepared without public consultation but annual audit results are available to the public. This provides for some transparency and accountability.

8.5.4 Draft Regional Plan – *Sustaining the Catchments*

The focus of the draft regional plan –*Sustaining the Catchments* - is on protecting the health of the drinking water catchments within the Hawkesbury-Nepean, Shoalhaven, and George's Rivers. Its concern is principally with water quality. The draft regional plan is innovative to the extent that it considers measures to manage the impact of existing land use, as well as the regulation of new development. The regional plan is comprised of three parts:

- Part 1 provides background information;
- Part 2 is the statutory component consisting of a REP made under Part 3 of the EPAA and Ministerial Section 117 Directions to Councils to review local environmental plans;
- Part 3 includes guideline documents, which support the implementation of the regional plan.

The vision for the region is to have '[h]ealthy catchments delivering high quality water while sustaining diverse and prosperous communities.'¹²⁸ Part 1 includes an action plan which addresses key priorities with catchment management strategies and specific actions.¹²⁹

Part 2 is the statutory component, which includes the REP made under Part 3 of the EPAA and Ministerial Section 117 directions. The aims of the *Drinking Water Catchments Regional Environmental Plan No 1* are 'to create healthy drinking water catchments that will deliver high quality water while sustaining diverse and prosperous communities'; and 'to achieve the water quality management goals of improving water quality in degraded areas and critical locations where water quality is not suitable for the relevant environmental values and maintaining or improving water quality where it is currently suitable for the relevant environmental values'.¹³⁰ The REP will repeal SEPP 58 – *Protecting Sydney's Water Supply* which introduced consent and concurrence requirements for certain types of development in the catchment.

The REP has a number of components and is much broader than the standard land use plan. It adopts the water quality objectives specified in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000¹³¹ and requires the SCA to prepare annual reports on water quality measured against these objectives.¹³² It introduces a requirement for the SCA to prepare rectification action plans for existing developments or activities that do not have a neutral or beneficial effect on water quality within five years.¹³³ Rectification action plans are to be prepared in consultation with relevant agencies, councils, natural resource management bodies, interest groups and communities, exhibited and comment invited.¹³⁴ Rectification action plans are not binding and do not affect the exercise of statutory discretion, rather they are to inform the budgetary decisions and programs of the SCA and should be used by other agencies

¹²⁸ Department of Infrastructure Planning and Natural Resources, *Sustaining the Catchments. DRAFT. The Regional Plan for the drinking water catchments of Sydney and adjacent regional centres* (2004) Sydney, Australia. Part 1, 24.

¹²⁹ Ibid. see Part 1, 31-69.

¹³⁰ Ibid. Part 2, 4, cl 2(a)(c).

¹³¹ Ibid. Part 2, 7, cl 6.

¹³² Ibid. Part 2, 7, cl 7.

¹³³ Ibid. Part 2, 8-9, cl 8-10.

¹³⁴ Ibid. Part 2, 8-9, cl 10-11.

and councils for the same purpose.¹³⁵ They are to be reviewed every five years.¹³⁶ The SCA is required to prepare strategic land and water capability assessments which councils and other public authorities must take into consideration when preparing an EPI.¹³⁷

The REP is also concerned with assessment and approval of development and activities. Determining and consent authorities are required, having regard to the assessment guidelines, to decide whether the development or activity will have a neutral or beneficial effect on water quality.¹³⁸ Certain types of development¹³⁹ require the concurrence of the Chief Executive.¹⁴⁰

In addition the REP includes a Ministerial Section 117 Direction, which requires councils to review their local environmental plans, after the SCA has completed relevant strategic land and water capability assessments. These are assessments of the physical capabilities of the natural features of the land and waterways to identify appropriate types and intensities of land use, which will not adversely impact on water quality.¹⁴¹

Part 3 of *Sustaining the Catchments* provides detailed guidelines to support the implementation of the statutory component of the draft regional plan. These include Assessment Guidelines for Neutral or Beneficial Effect on Water Quality, Pollution Offsets for the Sydney Drinking Water Catchments, A Guideline to Rectification Action Planning and a Framework for Applying Strategic Land and Water Capability Assessments.¹⁴²

At first sight the draft regional plan appears to be an innovative planning document with concern for the management and regulation of both new and existing uses. In spite of

¹³⁵ Ibid. Part 2, 9, cl 13.

¹³⁶ Ibid. Part 2, 9, cl 15.

¹³⁷ Ibid. Part 2, 11, cl 19.

¹³⁸ Ibid. Part 2, 13, cl 21.

¹³⁹ Development that requires Level 2 or Level 3 assessment under the Assessment Guidelines.

¹⁴⁰ Department of Infrastructure Planning and Natural Resources, *Sustaining the Catchments. DRAFT. The Regional Plan for the drinking water catchments of Sydney and adjacent regional centres* (2004) Sydney, Australia. Part 2, 14, cl 22.

¹⁴¹ Ibid. Part 2.

¹⁴² Ibid. Part 3.

the delay in its making, the content demonstrates a commitment by the SCA to enlist a suite of tools, including planning both for new uses (development consent and concurrence requirements) and existing uses (rectification plans). Further, the incorporation of requirements for land and water capability assessment as an underlay for local environmental plan development should improve planning at the strategic level. It incorporates some innovative ideas such as the pollution offsets scheme,¹⁴³ which attempts to provide a mechanism to deal with development pressure while not allowing a net depletion in environmental quality.

In addition, the availability of regulatory powers under the *Protection of the Environment Operations Act (Sydney Water Catchment Management (General) Regulation 2000)* and funding to provide incentives represents a comprehensive and holistic approach to catchment management. However, the priority focus on ‘water quality’ for drinking water supply may be a significant restriction on the role of the SCA in relation to broader issues of environmental health.

8.5.5 Shoalhaven River Statement of Intent

Another approach to the integrated management of catchments has been the initiative of the Healthy Rivers Commission (HRC). The HRC was established in 1996 to provide the Government with independent strategic advice about river health goals and the strategies to achieve them. It released its report on the ‘Independent Inquiry into the Shoalhaven River System’ in July 1999.¹⁴⁴ The Report identified key management issues and made a number of recommendations¹⁴⁵. The recommendations of the HRC were operationalised through a ‘Statement of Intent’ (SOI) by Cabinet, which outlined the agreed actions and commitments of the agencies.¹⁴⁶

¹⁴³ The NSW Government will trial pollution offsets in the drinking water catchment to assist those developments and activities that demonstrate significant social and economic benefits to the community and cannot otherwise meet the requirements of a neutral or beneficial effect on water quality. An offset is an action or set of actions taken outside a development site (but near to it) that reduces water pollution overall. Ibid. Part 3 Regional Plan ,1.

¹⁴⁴ Healthy Rivers Commission, *Independent Inquiry into the Shoalhaven River System. Final Report July 1999*. (1999) Healthy Rivers Commission., Sydney, Australia.

¹⁴⁵ Key management issues were categorised as follows: integrated management, river flow management, wastewater management, river corridor management, coastal floodplain and estuary management and rural land management. Ibid.

¹⁴⁶ The Audit Office of New South Wales, *Performance audit : protecting our rivers* (2003) The Audit Office of New South Wales, Sydney, Australia., 23.

The recent independent audit of the Shoalhaven River SOI by the HRC¹⁴⁷ concluded that ‘most actions are behind schedule and only limited progress had been made.’¹⁴⁸ In its conclusion¹⁴⁹ to the Audit the HRC stated that overall progress had been disappointing and made a number of sobering comments. These are worth quoting at length:

- ‘The implementation of SOI requirements has too often been accorded too low a priority within agencies, *especially in comparison with sectoral initiatives, while the large number of disconnected planning initiatives has tended to delay effective implementation* (emphasis added) of key actions;
- Agencies and authorities come together much more frequently than several years ago to discuss collective management and planning responsibilities but, *in the absence of the drive to integrate around common goals* (emphasis added), this process generally results in only loose coordination and collaboration;
- Agencies have failed to commit to the common agenda ... with too much continuing policy and program conflict. This lack of integrated management, in terms of agreed goals and common priorities, and strong feedback informing the application of all available resources, is resulting in inadequate achievement of river health outcomes;
- The Commission noted in agency responses the almost complete absence of feedback loops leading to adaptive approaches to the delivery of programs and services... there is a clear need for such adaptive regimes to help agencies secure the desired catchment and river health outcomes.’¹⁵⁰

¹⁴⁷ Healthy Rivers Commission, *Hawkesbury Nepean & Shoalhaven River Systems. Independent Audit of the Statements of Intent* (2003) Healthy Rivers Commission, Sydney, Australia.

¹⁴⁸ Ibid. 26.

¹⁴⁹ These comments related to the Audit of both the Hawkesbury Nepean and Shoalhaven Rivers Statements of Intent.

¹⁵⁰ Healthy Rivers Commission, *Hawkesbury Nepean & Shoalhaven River Systems. Independent Audit of the Statements of Intent* (2003) Healthy Rivers Commission, Sydney, Australia., 30.

8.6 Land Use Plans

Land use and development planning is regulated in NSW by the provisions of the *Environmental Planning and Assessment Act, 1979* (EPAA). The objects of the Act are

‘to encourage the proper management, development and conservation of natural and artificial resources ... for the purpose of promoting the social and economic welfare of the community and a better environment, the promotion and co-ordination of the orderly and economic use and development of land, the protection, provision and co-ordination of communication and utility services, the provision of land for public purposes, the provision and co-ordination of community services and facilities, and the protection of the environment, ecologically sustainable development and the provision and maintenance of affordable housing; and to promote the sharing of the responsibility for environmental planning between the different levels of government in the state; and to provide increased opportunity for public involvement and participation in environmental planning and assessment’.¹⁵¹

The EPAA provides the framework for plan making and allocates responsibility for regulating development between State and local government. Generally, development assessment is undertaken in accordance with the provisions of the local environmental plan (LEP) and the local council is the consent authority. However, a regional environmental plan (REP) or State Environmental Planning Policy (SEPP) may apply and have the effect of amending provisions of an LEP. The Minister is the consent authority for State significant development i.e. development declared by a SEPP or REPP,¹⁵² declared by the Minister to be of State or regional significance,¹⁵³ development which the Minister has called in for determination,¹⁵⁴ or prohibited development.¹⁵⁵ Certain types of development are ‘designated development’¹⁵⁶ in which case an environmental impact assessment must accompany an application for development consent.

In contrast to the situation in SA, strategic planning in NSW is a more patchy affair and there is very little genuine guidance on the direction of development across the State from government. The EPAA sets up a hierarchy of plans (SEPP, REP, LEP) but in reality the relationships are not so clear. SEPPs can only be made where the Minister

¹⁵¹ EPAA s. 5.

¹⁵² EPAA s. 76A(7)(a).

¹⁵³ EPAA s. 76A(7)(b).

¹⁵⁴ EPAA s. 76A(7)(c).

¹⁵⁵ EPAA s. 76A(7)(d).

¹⁵⁶ EPAA s. 77A and Environmental Planning and Assessment Regulation 1994, sch 3.

for Urban Affairs and Planning is of the opinion that they are concerned with matters of significance for environmental planning for the State.¹⁵⁷ According to Farrier *et al* writing in 1999 ‘the word ‘policy’ is a misnomer. A number of SEPPs have been made but only one of them .. is a true policy document, in the sense that it lays down a broad framework to be fleshed out and applied to particular circumstances by other instruments.’¹⁵⁸ In practice most SEPPs amend LEPs and deal with detailed planning matters.

REPs can only be made where the Minister for Urban Affairs and Planning is of the opinion that they are concerned with matters of significance for a region or part thereof.¹⁵⁹ While some REPs (such as the Illawarra REP discussed below) are concerned with broader regional issues, many relate to only small areas and are ‘surrogate’ LEPs.¹⁶⁰ Other REPs set the parameters within which councils must exercise their discretion at the level of forward planning and development control.¹⁶¹ In general however they have not provided strategic direction in relation to the broad range of issues relevant to environmental planning in a region.

The weaknesses of the NSW planning system have been the subject of concern for some time. Proposals for reform of the plan making system in NSW under the EPAA i.e. reform of Part 3 of the Act, were generated by the Department of Urban Affairs and Planning (DUAP) in 1999. A discussion paper ‘Plan making in NSW – Opportunities for the Future’¹⁶² identified two important deficiencies with the current system i.e. complexity, and lack of clarity as to which level of government had responsibility. Particular concern related to the lack of clarity between land use plans and those concerned with natural resources.

More specifically, concerns about the plan making system in NSW revolve around:

¹⁵⁷ EPAA s. 39(3).

¹⁵⁸ Farrier D., Lyster R. and Pearson L., *The Environmental Law Handbook* (1999) Redfern Legal Centre Publishing, Redfern, Australia., 100.

¹⁵⁹ EPAA s 51(2).

¹⁶⁰ Farrier D., Lyster R. and Pearson L., *The Environmental Law Handbook* (1999) Redfern Legal Centre Publishing, Redfern, Australia., 97.

¹⁶¹ *Ibid.* 97.

¹⁶² Department of Urban Affairs and Planning, *Plan making in NSW : Opportunities for the Future - discussion paper* (1999) NSW Department of Urban Affairs and Planning,

- Local planning lacking strategic vision, with LEPs amounting to little more than zoning instruments;
- Regional planning complexity, with the original intent of regional plans being lost. This was to enable State government to plan for matters that are of regional significance (undefined in the legislation). However, in practice three types of REPs can be characterised – some are like textbook models for the expansion of urban settlements (REP 19 Rouse Hill Development Area), others are concerned with protecting natural resources and the natural environment (Williams River Catchment Regional Environmental Plan and Regional Planning Strategy 1997), yet others are more akin to LEPs (Sydney REP No. 5 Chatswood Town Centre).¹⁶³

A White Paper *planFirst*, released in 2001 proposed reform of Part 3 of the EPAA which, while maintaining the three levels of planning – State, regional and local – would involve significant change to their content.¹⁶⁴ The aim was to simplify the system by having a single document prepared for each level.¹⁶⁵ At the State level, some 64 SEPPs would have been compiled into a document called State Planning Policies.¹⁶⁶ In addition, the proposal was to change the content of State planning by giving a wider range of agencies a greater input into State Planning Policies. The intention was to expand the scope of such policies to cover environmental and resource management matters. In short both simplification and expansion were entailed in these proposals. Probably the most significant area of the reform proposals was in relation to regional planning. Regional planning was to shift from planning for matters of regional significance to planning for spatially defined regions. *Planfirst* suggested that NSW be divided into 13 or 15 regions each with a regional strategy whose objective was to provide a framework and directions for achieving a sustainable region.¹⁶⁷ Regional strategies intended to inform the preparation of local plans were to be based on State economic and social planning policies and incorporate the key outcomes of statutory natural resource plans. The clarification of key natural resource management parameters at this strategic level would have been a welcome innovation.

¹⁶³ Vipond J., "Regional Planning in NSW" (2001) 38 (3/4) *Australian Planner* 121-127.

¹⁶⁴ Department of Urban Affairs and Planning, *Planfirst Review of plan making in NSW White Paper* (2001) NSW Department of Urban Affairs and Planning, Sydney.

¹⁶⁵ Ibid.

¹⁶⁶ Ibid.

¹⁶⁷ Ibid.

According to Vipond (2001) when regional planning focused mainly on preparing for population growth, it was not a priority in the sparsely populated regions that expected little demographic change¹⁶⁸. Accordingly these proposals would have expanded both the scope and range of issues embraced by regional planning. Critically, this would have improved the integration of natural resource and land use planning and enabled the consideration of the cumulative impacts of development.

The PlanFirst Review Taskforce¹⁶⁹ (The Taskforce) has stepped away from a comprehensive reform of the land use planning system, although it remains committed to some of the core ideas. The preparation of regional strategies as proposed in *PlanFirst* was considered by the Taskforce to be 'inappropriate'.¹⁷⁰ Rather, the preparation of non-statutory regional strategies is proposed. This will 'guide and direct the sustainable development, growth and change of regions and should address environmental, social and economic outcomes along with the infrastructure and programs required to support those outcomes.'¹⁷¹ It was further recognised that regional strategies must be developed which recognise the differing needs of metropolitan, coastal and inland NSW.

With respect to the relationship between environmental planning and natural resource management the Taskforce concluded that:

- there is an opportunity to reconcile the critical objectives and provisions of catchment blueprints and natural resource plans within the provisions of SEPPs, regional strategies and REPs;
- in some circumstances it may be appropriate to introduce the provisions of a catchment plan or recovery plan as a SEPP or REP to provide it with appropriate statutory weight;

¹⁶⁸ Vipond J., "Regional Planning in NSW" (2001) 38 (3/4) *Australian Planner* 121-127.

¹⁶⁹ On 12 June 2003, the Minister for Infrastructure and Planning and Minister for Natural Resources announced that a Taskforce was to be formed to report on whether the PlanFirst reforms announced in 2002 should be pursued either in whole or in part as a means of reforming the NSW planning system.

¹⁷⁰ Department of Infrastructure Planning and Natural Resources, *Planning System Improvements. Report by the PlanFirst Review Taskforce to the Minister for Infrastructure and Planning and Minister for Natural Resources*. (2003) DIPNR, Sydney, Australia., 13.

¹⁷¹ *Ibid.* 13.

- alternatively, the provisions of natural resource plans could inform the preparation of SEPPs, REPs and regional strategies without necessarily becoming an explicit statutory component of plans;
- to achieve the integration of natural resource management and land use planning in a practical manner it is vital to resolve conflicting issues at the plan making stage. The consolidation of the separate Acts that deal with natural resource management (such as the *Threatened Species Conservation Act 1995*) and environmental planning should be pursued.¹⁷²

The proposals of the Taskforce in relation to regional strategies would go some way to improving the strategic oversight of land use and natural resource planning at the regional level. These proposals however do not provide an effective mechanism to resolve the relationship between the diversity of plans or clarify or reinforce the actions of plans that regulate with those that manage, to ensure a consistency of approach.

In September 2004 the NSW Government announced its intention to proceed with reforms to the planning system.¹⁷³ These proposals involve a focus on strategic planning for growth areas, simplification of planning controls, changes to development assessment processes and flexibility in the use of developer levies.¹⁷⁴ It is proposed that the *Environmental Planning and Assessment Regulation, 2000* be amended to provide for a State Strategic Planning framework.¹⁷⁵ In addition, non-statutory whole-of-government regional strategies are proposed, which would identify where growth will occur, the infrastructure required to support economic development, and inform the budgeting process.¹⁷⁶ The idea is that local councils will be required to translate parts of the relevant regional strategies into enforceable development requirements within the local environmental plans,¹⁷⁷ in addition to a number of other changes. With respect to integration of land use planning and development control with the regulation and management of natural resources it is proposed that '[l]egislative changes will make sure that catchment action plans and the State Strategic Planning Framework both work

¹⁷² Ibid. 15-16.

¹⁷³ Department of Infrastructure Planning and Natural Resources, *News Release : NSW Planning System to be Streamlined* (2004) DIPNR, Sydney, Australia.

¹⁷⁴ Department of infrastructure Planning and Natural Resources, *Improving the NSW planning system* (2004) DIPNR, Sydney, Australia.

¹⁷⁵ Ibid. 4.

¹⁷⁶ Ibid. 5.

¹⁷⁷ Ibid. 6.

towards the same outcomes. Partnerships between catchment management authorities and local government will also be fostered to generate consistency in objectives and outcomes.¹⁷⁸

8.6.1 State Environmental Planning Policy 58 –*Protecting Sydney’s Water Supply*

SEPP 58 was prepared as an interim measure until a REP was prepared, to ensure that development in the Sydney hydrological catchment does not have a detrimental impact on water quality. The delay in finalising the REP (discussed above) means that SEPP 58 has been in effect for a considerably longer period than originally envisaged. It introduces both consent and concurrence requirements for specific types of development. In the relevant parts of the Southern Catchment the consent of Shoalhaven City Council (SCC) and concurrence from the SCA is required¹⁷⁹ for certain types of development in the relevant parts of the Southern catchment, such as dairies accommodating more than 1,000 head of cattle and unsewered residential development in the rural zone that involves subdivision of land into 4 or more lots;¹⁸⁰ and, developments such as dairies accommodating more than 50 and less than 1,000 head of cattle, intensive agriculture, intensive horticulture and irrigated agriculture.¹⁸¹ Both the SCC and the SCA must consider whether the development will have a ‘neutral or beneficial’ effect on water quality; whether proposed water quality management practices are sustainable over the long term; and whether the development is compatible with relevant environmental objectives and water quality standards.¹⁸² The matters for consideration, then relate entirely to the water quality impacts of development.

8.6.2 Illawarra Regional Environmental Plan No 1

The Illawarra REP was gazetted in June 1998 and applies to parts of the Southern Catchment.¹⁸³ The REP is given effect to by a requirement for local councils, in the preparation of draft local environmental plans to incorporate, as far as practicable the

¹⁷⁸ Ibid. 6.

¹⁷⁹ SEPP 58 cl. 11.

¹⁸⁰ SEPP 58 sch. 1.

¹⁸¹ SEPP 58 sch. 2.

¹⁸² SEPP 58 cl. 10.

¹⁸³ Cities of Shoalhaven and Wollongong, the Municipalities of Kiama and Shellharbour and the Shire of Wingecaribbee.

objectives, policies and principles of the Plan.¹⁸⁴ The aim of the REP is to identify regional planning issues and provisions; advise Government, public authorities and other persons in determining the way in which they manage their land resources, exercise their function and order and prioritise funds in relation to the planning of the region; and establish parameters and controls relating to development, particularly as they relate to the environmental quality and social well-being of residents of the region.¹⁸⁵ There are a number of provisions which relate to rural lands¹⁸⁶ the objectives of which are many, diverse and contradictory. For example they include ‘to retain the productive capacity of prime crop and pasture lands’, ‘to protect valuable natural environments’ and ‘to allow for future urban expansion’.¹⁸⁷ There is however a clear intent within the REP to protect rural lands through minimum subdivision requirements and protection of environmental attributes through environment protection zones and the introduction of specific requirements in relation to development applications. The Illawarra REP means that a consistent approach across the region is required for the specified matters.

8.6.3 Consistency between plans under the EPAA and the CMA and the WMA

The relationship between land use plans prepared under the EPAA to regulate development at the local level, the Catchment Blueprint and the water sharing plan for the Kangaroo River Water Source is far from clear. It would seem that there is no relationship at all between the Blueprint and local environmental plans. However, the new *Catchment Management Authorities Act, 2003* specifies that a catchment authority in formulating a draft plan must have regard to the provisions of any relevant landuse plan and other natural resource plans.¹⁸⁸ The inverse relationship i.e. between local plans and catchment plans is proposed to be dealt with in the current planning reforms (discussed above). At the present time there is a lack of consistency between the provisions of local plans and the water sharing plan.

¹⁸⁴ Illawarra Regional Environmental Plan No 1 cl. 9.

¹⁸⁵ IREP cl. 3.

¹⁸⁶ The IREP has in addition provisions in relation to extractive materials, coal, energy, industry, living areas, commercial centres, transport and service corridors, ports and harbours, waste disposal, the escarpment, coastal lands, wetlands and other water bodies, recreation and tourism, environmental heritage, coordination of other public authorities and high rise buildings.

¹⁸⁷ IREP cl. 11.

¹⁸⁸ *Catchment Management Authorities Act, 2003* s. 20(2).

City of Shoalhaven Local Environmental Plan 1985 applies to much of the Kangaroo River catchment. The two critical issues for water demand in the Kangaroo catchment are intensification of agriculture and the increasing demand for, and reliance on, the basic landholder right. The latter means that water for stock and domestic purposes only can be taken without a licence. It is on these issues that the interface between the land use planning system and natural resource plans becomes critical.

There is considerable pressure for rural residential development in parts of the Southern catchment, particularly on the Kangaroo River. The demand for water can be influenced subdivisions, since the creation of lots with frontage to a river or water source will result in the proliferation of basic landholder rights. Currently the minimum subdivision permissible in land zoned 1 and 7 is 40ha.¹⁸⁹ However, the existence of a large number of ‘paper subdivisions’ means that lots may be sold off as separate parcels without the need for approval although construction of a dwelling will require approval. It is at this point that the relevant council could impose conditions on the development such as a requirement to install tanks or landscape design approval to reduce pressure on the water source. However, to date, Shoalhaven City Council has been reluctant to introduce such requirements through development control plans or other mechanisms.

The Shoalhaven/Illawarra Water Management Committee was concerned that a growth in basic landholder rights presented a significant threat to the health of the river and the water available to existing users.¹⁹⁰ The Committee sought to utilize the ‘environmental protection provisions’ available under the WMA (discussed in Chapter Six). The Committee proposed the introduction of provisions that would have required new dwellings or additions to dwellings to include rainwater storage tanks, and sought to ensure that new subdivisions of land that front a river did not increase the number of basic landholder rights.¹⁹¹ The proliferation of basic landholder rights is of concern across the catchment. According to the Hawkesbury Nepean River Management Forum ‘[w]ater entitlements under basic landholder rights are not managed’ and ‘will lead to a

¹⁸⁹ City of Shoalhaven LEP 1985 cl.11(1)(2).

¹⁹⁰ Shoalhaven/Illawarra Water Management Committee, *Draft Water Sharing Plan for the Kangaroo River Water Source* (2002) Department of Land and Water Conservation, Sydney, Australia. Part A, 17.

¹⁹¹ Ibid. Part A, 17.

widening gap between the supply and total water demand.’¹⁹² The Minister’s Note in the draft water sharing plan agreed that this was an issue of concern but asked water management committees not to include environment protection provisions in the plan.¹⁹³ Rather a whole-of-government approach was to be developed on the issue of the growth in basic landholder rights.

The intensification of agriculture from broadacre agriculture (predominantly dairy farming) to more water intensive activities such as vine growing or olive production is also problematic. In the Shoalhaven, area zoned 1(a)Rural “A” (Agricultural Production Zone) agriculture is permissible without development consent.¹⁹⁴ SEPP 58 introduced consent requirements for certain types of development including intensive agriculture, horticulture and irrigated agriculture.¹⁹⁵ However this only directs decision-makers to consider matters with implications for water quality not water quantity. While an embargo on new water licences was introduced in 2002¹⁹⁶ the possibility that unactivated licences will be activated needs to be considered. It is quite possible that a development consent could be granted for development without proper consideration of water quantity and broader river health issues.

8.7 Water Quality Regulation

The *Protection of the Environment Operations Act* 1997 (PEOA) includes a broad criminal prohibition on polluting waters, or permitting them to be polluted.¹⁹⁷ The definition of ‘water pollution’, is clearly broad enough to encompass diffuse pollution insofar as it extends to placing potential pollutants in a position where they are likely to be washed into a watercourse.¹⁹⁸ However, water quality management has largely been framed in terms of regulating point source pollution. The Act specifies activities which can only be carried out under an environment protection licence issued by the

¹⁹² Hawkesbury Nepean River Management Forum *Water and Sydney’s Future. Balancing the Values of our rivers and economy*. (2003) Sydney, Australia, 20 (summary section).

¹⁹³ Shoalhaven/Illawarra Water Management Committee, *Draft Water Sharing Plan for the Kangaroo River Water Source* (2002) Department of Land and Water Conservation, Sydney, Australia. Part A, 18.

¹⁹⁴ City of Shoalhaven LEP 1985 cl. 9(3)(2).

¹⁹⁵ SEPP 58, cl. 8.

¹⁹⁶ Shoalhaven/Illawarra Water Management Committee, *Draft Water Sharing Plan for the Kangaroo River Water Source* (2002) Department of Land and Water Conservation, Sydney, Australia.

¹⁹⁷ PEOA s. 120.

¹⁹⁸ PEOA Dictionary.

Environment Protection Authority (EPA).¹⁹⁹ Nearly all the activities scheduled involve large scale development capable of being regulated as point sources. This includes milking facilities intended to accommodate more than 800 cows in milk production, and substantial sewage treatment systems.²⁰⁰ Framed another way, there is no licensing requirement for significant agricultural activities such as piggeries with *less* than 1,000 head or cattle feedlots with *less* than 400 head. The only exceptions to the focus on point sources are logging operations on State forests, and aspects of the activities of irrigation corporations in inland NSW.

With respect to diffuse pollution from agricultural activities the EPA has played a limited role. While the EPA recognises the role of diffuse pollution in river health problems,²⁰¹ its priority has been to develop programs for the management of stormwater, particularly urban stormwater. The EPA response to rural runoff has been to rely on NSW Agriculture and DLWC programs aimed at changing land use practices and adopting sustainable farming systems.²⁰²

The result is that the regulation of water pollution from these unlicensed sources falls to local councils,²⁰³ who are designated as the ‘appropriate regulatory authority’ for the purposes of the Act.²⁰⁴ The main mechanism is the prevention notice, which can be issued whenever a council reasonably believes that an activity is being carried on in an ‘environmentally unsatisfactory manner.’ A notice can require, for example, the preparation and implementation of a plan of action to prevent or minimise pollution and could be used to require compliance with codes of practice.²⁰⁵ Guidelines have been prepared by the EPA for the use of effluent in irrigation and it has worked with industry

¹⁹⁹ PEOA ss. 47, 48.

²⁰⁰ PEOA Sch. 1.

²⁰¹ Environment Protection Authority (NSW), *State of the Environment Report* (2000) Government of New South Wales, Sydney, Australia, see Water 5.9.

²⁰² Ibid.

²⁰³ see Mooney C. and Farrier D., "A micro case study of the legal and administrative arrangements for river health in the Kangaroo River (NSW)" (2002) 45 (11) *Water Science and Technology* 161-168, for a detailed discussion of the regulation of water quality from agricultural sources by the local council in the Kangaroo River.

²⁰⁴ PEOA s. 6.

²⁰⁵ PEOA s. 96.

to develop guidelines for on-site sewage management, dairy effluent, piggery effluent and feedlot effluent.²⁰⁶

The WMA can incorporate measures to protect water quality. The WMA provides for example, that plans can contain provisions relating to ‘the preservation and enhancement of the quality of water in the water sources in the area.’²⁰⁷ The links between water quality and water quantity issues are recognised insofar as plans can include ‘water sharing measures for the protection and enhancement of the quality of the water.’²⁰⁸ As discussed above the recently completed Water Sharing Plan for the Kangaroo River Water Source did not include any provisions of this nature. The potential of the WMA in this regard remains to be exploited.

The limitations of the current regulatory framework in relation to the management of diffuse pollution from agriculture have recently been recognised by the NSW Audit Office. The NSW Audit Office concluded that regulation had been an effective means of limiting pollution, had focused on point source discharge, but could be extended to more dispersed forms of pollution.²⁰⁹ ‘In particular, pollution licences could be more extensively applied to rural properties to discourage poor practice. This could take the form of emission permit schemes, allowing a total acceptable level of pollution to be defined and set.’²¹⁰

The Water Quality Index Report for the Kangaroo River recently found that while water quality parameters had improved, the exception was the level of faecal coliform levels, which exceeded the guidelines for healthy, environmental conditions.²¹¹ Dairy farming and domestic on-site septic systems continue to be the principle sources of faecal pollution.²¹² Given the concern with water quality protection in the Kangaroo River the effective regulation of sources of diffuse pollution should be a priority.

²⁰⁶ The Audit Office of New South Wales, *Performance audit : protecting our rivers* (2003) The Audit Office of New South Wales, Sydney, Australia, 43.

²⁰⁷ WMA s. 17.

²⁰⁸ WMA s. 21(d).

²⁰⁹ The Audit Office of New South Wales, *Performance audit : protecting our rivers* (2003) The Audit Office of New South Wales, Sydney, Australia, 43.

²¹⁰ Ibid. 43.

²¹¹ Shoalhaven City Council, *Kangaroo River Catchment - 2003. What does the data tell us for 1999/1003* (2003) <http://shoalhaven.nsw.gov.au/coun...aterqualitykangarooriver%2003.html> (accessed 1 December).

²¹² Ibid.

8.8 Discussion

The Southern catchment is a mixed use catchment, under considerable development pressure with critical water quality issues. This chapter has described the administrative arrangements for catchment and water planning; catchment, water and land use plans and the approach to the regulation of water quality. Natural resource management and the system of land use planning is in a state of flux. New arrangements for catchment planning are in place and considerable reform of the land use planning system is proposed.

Integration

‘Integration’ can be considered from a number of different angles and those that are relevant to this case study are: broadly integrated natural resource management; integration between catchment and water plans, and land use plans; integration between management of water quantity and quality; integration between the regulation and management of activities; and integration between existing and new land (and water) uses.

In broad terms the State Water Management Outcomes Plan is concerned with environmental, social and economic aspects of the management of water quantity, although some concern with broader issues of environmental health is evident. The Blueprint is concerned with both rural and urban land use, river health including water quality, rivers, coasts and estuary management and habitat protection. The Water Management Plan is concerned with water quantity but its determination was contextualised with water quality, biodiversity and land use considerations. The SEPP and draft regional plan focus on the impacts of land use on water quality and the Illawarra REP with promoting consistency on regional planning issues. The REP has some concern with rural land management. Proposed amendments to the planning system could improve the incorporation of natural resource issues into land use planning. However, the most recent proposals would appear to be a retreat from the more expansive integration initially proposed.

Responsibility for catchment planning rests with the Southern Catchment Board. There is a clear mandate for the Board to plan for a wide range of catchment issues and it has been expansive in this regard. There is no statutory relationship between the Blueprint and the Kangaroo River Water Source Water Sharing Plan. In reality the Blueprint is primarily concerned with coordinating government investment and directing it to the achievement of goals determined in consultation with the community. It has no apparent influence over new land (and water) uses.

A stronger player in statutory terms, is the Sydney Catchment Authority which has a clear mandate to regulate and manage land use for its impact on water quality. It clearly has taken up responsibility for regulation of new land use and improved management of existing land use. It has however no role in relation to water quantity issues and the relationship between the draft regional plan, the Water Sharing Plan and the catchment Blueprint is unclear.

The Water Sharing Plan is concerned exclusively with water quantity but could have exercised some influence over land use had the Minister permitted the SIWMC to introduce environment protection provisions. SEPP 58 has ensured a consistent approach to the regulation of new land uses by local councils within the catchment. However, this is limited however to a small number of larger developments likely to have a significant impact on water quality. The impact of development on demand for water quantity does not appear to be effectively dealt with by the land use plans. Importantly there is a potential for conflict between the objectives of the WMA, which has an explicit concern with the sustainable management of water resources and the EPAA. The EPAA includes ESD as one of many objectives and does not direct decision-makers to give it any particular priority.

The SCA can regulate activities that affect water quality and invest in management activities to manage their impact. Generally though the regulatory responsibility falls to the NSW EPA for point source pollution and local councils for diffuse pollution. There is no link between the management actions proposed in the catchment Blueprint and the regulatory approach of either the EPA or local councils. In reality there would appear to be very little effective regulation or coordinated management of water quality.

The SWMOP theoretically at least sets the strategic context, the Blueprint and the SOI coordinate government activity and prioritise resource allocation, the water sharing plan establishes rules for water access and the draft regional plan creates rules relating to land use, sets the information context for local land use planning and provides for plans to manage existing uses. There is little effective strategic land use planning. The Illawarra REP recognises some regional priorities and these are translated through the local environmental plans. The LEP does not effectively grapple with the diversity of impacts of development in the catchment.

The legal and administrative arrangements for catchment and water planning described in this case study show some concern with the integrated management of natural resources. In practice there is a poorly coordinated mix of plans with no effective relationship between them. Catchment planning would appear to be simply an overlay over a sectoral approach to the regulation and management of land use and water quality. While there is scope for much improved integration the ‘whole of government’ approach adopted in catchment planning has the potential to improve coordination. Experience with the SOI developed by the HRC would lead to the conclusion that stronger incentives are required. Musgrave (2003) has emphasised the ‘logic of hierarchical planning’ and the need to clarify the relationship between planning concerned with flows, allocation and water use, water quality and effluent management in an integrated way.²¹³ There is a clear need to clarify the relationship between plans concerned with the components of catchment management.

Administration.

Bodies established to plan in NSW generally have no role in implementation. In contrast to SA, Catchment Boards have no mandate, power or resources to invest in works, provide education or technical advice or develop regulation. Similarly, the water sharing committees have been established to plan and they have no further role. Generally speaking, the sectoral administrative arrangements of departments are undisturbed by this approach. The Catchment Board has some on-going role in

²¹³ Musgrave W., "Planning and Management of Land and Water Resources" in Healthy Rivers Commission (ed), *Hawkesbury Nepean & Shoalhaven River Systems. Independent Audit of the Statements of Intent* (2003), Sydney, Australia, 37.

monitoring plan implementation and a Water Sharing Committee may be re-established to review a plan's implementation.

In contrast the SCA is established by legislation, is a separate body which can employ staff, has regulatory and enforcement powers, and resources to affect implementation. From an administrative perspective it has much to commend it and could indeed provide a model but for its narrow focus on water quality issues. The difficulty the SCA has had in finalising the regional plan may indicate a lack of legitimacy and broad political support. The SOI developed by the HRC is a novel approach to improve the coordinated administration of natural resources at the catchment scale. This tool however has proved to be ineffective in the face of pre-existing sectoral initiatives and lacks the means to drive coordination.

With respect to implementation of Water Sharing Plans and Catchment Blueprints the Audit Office commented that the then DLWC placed great reliance on committees but that they 'have neither the governance structure nor resources to implement the water management principles of the WMA.'²¹⁴ In the past the approach to catchment management in NSW has been criticised. While there are requirements to prepare plans, there are no regulatory powers to require implementation, no guarantees of funding to take action and no assurance of the adoption of proactive measures to prevent damage and pre-empt deterioration.²¹⁵ This lack of capacity continues to be a problem. According to Musgrave, 'the Board lacks the authority and resources to set the desired outcomes ... and the means to ensure compliance.'²¹⁶

Regulation

The approach to the development of rules in relation to water sharing described in this case study has the character of negotiated rule making. The process involved government, representatives of the regulated population, and third parties in the

²¹⁴ The Audit Office of New South Wales, *Performance audit : protecting our rivers* (2003) The Audit Office of New South Wales, Sydney, Australia, 33.

²¹⁵ Arcioni E., "Can Catchment Management Deliver Coordination of Natural Resource Management in New South Wales?" (2001) 7 (2) *The Australasian Journal of Natural Resources Law and Policy* 169-195, 195.

²¹⁶ Musgrave W., "Planning and Management of Land and Water Resources" in Healthy Rivers Commission (ed), *Hawkesbury Nepean & Shoalhaven River Systems. Independent Audit of the Statements of Intent* (2003), Sydney, Australia, 38.

development of rules for access to, and trade of, water. It may be argued that as an approach to consensual rule-making it has a number of benefits. These include:

- that the involvement of the regulated in rule making assists in designing rules that are appropriate and implementable;
- educative value, in that the full range of interests were exposed to input from the full range of values; and that there is broader knowledge of the requirements for and nature of, rules.
- better problem definition by regulators, improved understanding of the constraints on the regulated and the development of more appropriate compliance approaches; broader understanding of problems by the regulated and enhanced acceptance of rules.
- enhanced legitimacy of the rules which may generate more support for the regulation itself and facilitate compliance.
- a generally transparent and consultative process, which should facilitate public confidence in management actions and provide for accountability and public oversight.

Sustainability

It was argued in Chapter Four that the elements of a sustainable approach to natural resource management must be taken as a package. From the desk-top review of the NSW legislation it was concluded that the CMA and WRA had the potential to facilitate the sustainable management of natural resources. This case study has shown that the arrangements are very weak in terms of administration and there is very little capacity for plan makers to effect implementation of plans.

The WRA gives a very strong priority to the environment. The evidence from this case study would indicate however that this has not been reflected in practice. While there are compelling arguments from the perspective of regulatory theory for approach to rule making embraced by the WMA, it has not served to protect the environment. This may be a consequence the stakeholder representation on committees, the absence of effective trade-offs or incentives for change and the approach to decision-making.

One aspect of the NSW approach that warrants closer examination is consensus decision-making. Research has shown that consensus decision-making can result in poor quality decisions as a consequence of insufficient information; incomplete consideration of issues; agreement despite underlying disagreement; time pressure; lack of trust; or power imbalances.²¹⁷ In short, it can be a conservatising factor, resulting in poor decisions not fully satisfactory to anyone. It may mean accepting the lowest common denominator.²¹⁸ Given that these committees are established on the basis of stakeholder representation, it is difficult to see a viable alternative to consensus. The use of majority vote would put much more pressure on the determination of membership of the committees and critical questions about representativeness and accountability would have to be addressed. This is an area, which requires rigorous consideration.

While there is a commitment to adaptive management in NSW, like SA its potential is limited by the poor quality of indicators in the Blueprint. It is very difficult to make conclusive assessment of management actions and the need for adjustment if the original indicator is vague or non-specific. This issue has been drawn out in the case study.

The hierarchy of plans established by the WRA has the potential in theory to facilitate the incorporation of intra- and inter-generational concerns into local planning. However, in this case study it was shown that the SWMOP had not been prepared at the time water planning was taking place. The SWMOP lacked vision and failed to provide the kind of leadership necessary to achieve long-term change. It fails from the perspective of sustainability by its effective acceptance of a worsening of environmental condition. The CMA recognises the interests of future generations and contemplates restoration and repair of the environment. The content of the Blueprint however fails to reflect this perspective.

²¹⁷ Avery M., Auvine B., Streibel B. and Weiss L., *A Handbook for Consensus Decision Making Building United Judgment* (1981) The Centre for Conflict Resolution, Madison, Wisconsin.

²¹⁸ Ryan H., *Blocking Progress: Consensus Decision Making in the Anti-nuclear Movement* (1983) The Overthrow Cluster of the Livermore Action Group, Berkeley, California, 1-4.

Chapter Nine – Evolution, Revolution, Devolution

9.1 Overview

The theoretical challenges posed by and explored in this thesis were:

- to identify the elements of a legal approach to catchment and water planning which would operationalise the principles of sustainability; and
- to explore the potential of catchment and water planning for the development of an effective regulatory strategy.

In the first instance, these questions were examined and elaborated on through an examination of the relevant literature. In the second, the legal and administrative arrangements for catchment and water planning in SA and NSW were analysed and their implementation explored in the Onkaparinga and the Southern catchments.

This research was contextualised by a description in Chapter Two of the broad environmental, social and economic bottom line of agriculture; the influence of the attitudes of individuals on the environment; the historical role of governments in the development of agriculture; the contemporary role of the Commonwealth in natural resource management; and a critique of the broad pattern of natural resource, environmental and land use planning law at the State level.

A number of key points were drawn from this discussion of context in Chapter Two. The picture with respect to the environmental bottom line is bleak. There is extensive evidence of broadscale environmental degradation, species extinction, vegetation loss, land degradation and water quality decline. The environmental problems are complex and interconnected and no single issue can be effectively resolved in isolation. The social context is both complex and mixed. There has been dramatic structural change across the agricultural sector driven by the changing nature of agricultural production, economic factors and government policy. The agricultural sector is of significant but declining importance to the national economy. There are clear trends towards intensification and farm aggregation. Economic globalisation, contract farming and vertical integration, the introduction of genetically modified crops and the impact of

climate change will intensify the challenge of achieving a sustainable agricultural base in Australia. The environmental, social and economic context presents a number of challenges for regulators. The literature on regulation suggests that in a complex and dynamic environment such as this, the traditional response of static, single instrument approaches to management are likely to be ineffective.

There is considerable debate about individual attitudes to the environment and how they affect natural resource outcomes. There is no dispute however, that the early settlers 'misread' the Australian environment, introduced alien species, used inappropriate production techniques and profoundly disturbed the fragile ecological balance that had existed for millennia. While changing attitudes is clearly important, changing behaviour is much more critical. The promotion of a stewardship ethic and the introduction of a duty of care may have a role in the long-term. Landscape-scale change however, depends on the availability of enabling factors such as knowledge and financial resources. It also depends on the provision by government of clear and coherent environmental, social and economic policy and the legal tools to support its implementation.

Until very recently, Australian Governments have funded, facilitated, encouraged and subsidised the development of agriculture. These policies have been closely allied with notions of the national interest, nation building and social development. They have been instrumental in shaping the current structure, form and extent of agriculture. The Australian national identity is much influenced by an idealised version of country life. The influence of the farm lobby on policy development was strong until well into the 1970's. The effect of this has been twofold. Not only have governments supported agriculture, they have been reluctant to restrain it through the use of regulation. While there is evidence of a change to this approach the responsibility for current environmental problems rests in part with government.

The law can have a symbolic significance by declaring forms of behaviour to be unacceptable. It can send important moral signals, which emphasise that a deviation should be viewed as a concession rather than a right. This may contribute to value change over the long-term. However, the normative value of law is undermined by a failure to provide appropriate resources to enforce the law. In the agricultural context,

the characteristic resistance to regulation has served to constrain enforcement activity. Despite declarations of illegality, it is quite apparent that there is ambiguity about regulating this sector. The literature however suggests that compliance is a more fluid concept in the environmental law context, than in a criminal law context. Accordingly, activities which are directed at improving compliance with regulation, but which fall short of enforcement, can still have an important role in improving the performance of a sector.

While the Commonwealth has limited constitutional authority with respect to the environment, it has none-the-less been very influential in natural resource management at the State level. This influence is mobilised through economic, environmental and social policy, policy coordination activities, monitoring and research, environmental programs, funding, and more recently, regulatory initiatives such as the EPBC Act. Arguably, the most significant aspect of Commonwealth activity in recent years has been the funding initiatives through the NHT, NHT2 and NAP. The latter two particularly have driven reform initiatives at the State level because of funding delivery through regional groups. In many respects the States have had to play catch up and reform legal and administrative arrangements for regional planning in order to qualify for Commonwealth funds. With significant and important exceptions, the practice in catchment management is that the Commonwealth provides funding and the States regulation. This separation tends to reinforce the traditional disjunction between the provision of incentives for change on the one hand and the legal disincentives on the other. A comprehensive and mature regulatory strategy would link both incentives and disincentives i.e. drive and lever change with the use of multi-instrument approaches.

The case studies in Chapters Seven and Eight have drawn out the influence of the Commonwealth in this regard. In SA the delivery of funds through the Mount Lofty Ranges and Greater Adelaide Region INRMP has the potential to overwhelm and conflict with the State catchment planning programs. Accordingly, the SA Government has introduced reform in the Natural Resource Management framework. Similarly, in NSW the reform of catchment Boards and the creation of the much larger Catchment

Authorities has been driven in part at least by the need to conform with Commonwealth funding mechanisms.¹

At the State level the legal framework has developed organically. Early natural resource law was concerned principally with facilitating equitable access to resources. Land-use planning law was concerned with facilitating orderly development of land with some attention to social equity and public health. Environmental law was an adjunct that focussed on managing the ‘excesses’ of development. The resulting picture is one of sectoral legal regimes that are complex, fragmented and uncoordinated. Command regulation, has been developed as a reaction to particular problems with little thought given to its design. This issue has been discussed in detail in Chapter Five. There has been no thought given to how incentives to do certain things on the one hand, fit with disincentives or restraints on the other. In response to these concerns the idea of catchment management has emerged. Catchment management and planning has been introduced to provide a framework for coordination and integration of government activities and programs within natural boundaries. Catchment planning itself has evolved from a non-statutory program to one firmly embedded in the legal framework for natural resource management. The extent to which these initiatives will result in the sustainable management of natural resources has been a key question explored in this research.

The idea of sustainable development emerged out of the policy dialogue at the international level during the 1970’s. Ecologically sustainable development has been adopted as a guiding policy in Australia and has gradually and subtly infiltrated the thinking and language of policy-makers across the country. Implementation by the Commonwealth has been patchy with a tendency in public administration to correlate ESD with ‘environment’. The influence of the concept is evidenced at the State level by the adoption of the ideas and principles of ESD into a range of legislation.

As an idea sustainable development has roots in the broad concern with, and critique of, both industrialism and developmentalism. At the international level there has been much concern with issues of equity but this has been of less significance in the

¹ These changes occurred after the period covered by this research and are not critiqued in it.

Australian context. There has been an almost exhaustive effort to define just exactly what sustainable development means. For some it is a 'middle line' for others a 'political fudge'. It has been defined as strong or weak, depending on the extent to which non-renewable resources are consumed. A third view sees sustainability as a new 'grand narrative' replacing the modernist conception of 'progress' which dominated thinking for much of the 20th Century. A fourth view, one that accords more with the Australian policy position on ecologically sustainable development, is that it is a 'process' of change. It is not an easily definable endpoint, but rather an evolving concept that postulates an alternative vision of the future. If we see sustainability as a normative concept then the role of law can be to provide means, rather than engage in a process of defining ends.

Taking the position that ESD is a 'process' of change the challenge becomes to define the nature of the process which will further the achievement of sustainability. According to McLaren a useful process is a planning framework which is inclusive, accountable and transparent; coordinates policy and integrates environmental, social and economic goals; sets targets which reflect environmental capacity; and engages a broad package of measures.² The task then, is to consider the role for law in establishing and implementing the planning framework.

A key premise of this research is that there is a critical role for law in defining, enabling and implementing the process of planning for sustainability. It has been proposed further that the planning process can also facilitate improvements in the quality and implementability of regulation. There follows two questions from this. Firstly, how should the law be designed to facilitate this shift to sustainability in broad terms? The second is, what is the character of the planning process that will improve the quality of regulation?

In response to the question on the design of law concerned with establishing planning processes for sustainability, a number of 'elements' were identified in Chapter Four. The sustainability literature was further examined to extract what might be the key elements of a planning framework. These were defined to include: priority to the

² McLaren D., "The Constraints on Sustainability Planning in the UK" in Buckingham-Hatfield S. and Evans B. (ed), *Environmental Planning and Sustainability* (1996), John Wiley and Sons, England.

environment, inter- and intra-generational equity, precaution, integration, adaptation and participation. In one sense the first three are parameters for decision-making and the latter four process elements. However, priority to the environment and equity can be operationalised through legal requirements, which reduce discretion, define time frames and prioritise particular types of information in decision-making.

In Chapter Four the profound challenges that sustainability poses to traditional forms of public administration both in terms of the process of, and priority in, decision-making was examined. In the first instance it requires a shift from a valuation of societal performance from a simple economic basis, to one that encompasses social and cultural development and environmental protection. It requires a much broader assessment of the distributional effects of decisions both within and between generations. It requires us to think in much longer time frames than those, which the current political processes allow. Equity needs to be framed not just in protective terms but also in restorative terms. The precautionary principle profoundly challenges rationalism, expert decision-making and many of the traditional decision-making tools. It involves a shift in decision-making from a basis of known facts to one that embraces uncertainty. It requires explicit recognition of values in decision-making and a shift in the onus of proof. Integration challenges reductionist scientific thinking which is reflected in medium specific legal and administrative arrangements. Integration involves the use of environmental, social and economic information in decision-making, coordination at a program level and harmonisation of rules and tools at the point of implementation. Adaptive management is the antithesis of the linear, forward-thinking approach that so pervades our 'progress-oriented' society. It involves taking small steps, monitoring and reviewing impacts and changing course when necessary. It embraces uncertainty and opens processes up to the possibility of continuous change. Finally, change involves transparent and accountable public administration and decision-making, which is inclusive of a broad range of values. The mechanism to achieve this is public participation in decision-making, performance review and implementation.

The elements of sustainability defined in Chapter Four formed the basis for the analysis of the legal and administrative arrangements for catchment and water planning in Chapter Six. This was a detailed desk-top examination of catchment and water law in SA and NSW. This review found that in broad terms, not only the language of

sustainability, but also the very elements, had found their way into the legal frameworks for catchment and water planning. Both States have introduced significant reform to the decision-making framework and adopted a procedural approach for planning which incorporates to a greater or lesser extent the elements of ESD. The SA legislation involves extensive reform of the administrative framework, which provides significant capacity to implement plans. NSW has a two-tiered legislative approach and the emphasis of bodies established under the respective legislation is planning as distinct from direct implementation. There has clearly been an evolution in the approach to decision-making about natural resources. No longer is access to resources determined on the basis of a simple assessment of availability. Rather a decision-making process, which looks at a range of environmental attributes and engages a spectrum of values, forms the basis for this determination.

The most common form of regulation in the agricultural sector is command regulation. While its efficacy is much questioned it is increasingly relied upon to respond to the range of environmental impacts arising from current practices. There are however a number of other approaches to the management of the environmental impacts of agriculture. In Chapter Five a number of alternatives to command regulation including economic instruments, self-regulatory approaches, partnerships, environmental management agreements and voluntary agreements were discussed. Each of these approaches has some role but the most effective approach is likely to be one based on a mix of instruments. Ironically enough, while these approaches are often framed as an alternative to command regulation, they generally require a sound underpinning by it. Many assessments of regulation turn on the question of efficiency and efficacy however there are other compelling grounds on which to assess approaches to regulation. In the environmental context the broader public interest is a critical consideration. The public interest is a legitimate concern in management of publicly owned resources (such as water), common pool resources (such as clean air) and in situations of potential irreversible damage (such as species loss). Broader democratic concerns are also valid, particularly in the context of the sustainability debate where issues of accountability, transparency and adaptability must be given priority. Key principles such as the precautionary principle and inter-generational equity must inform the choice of regulatory approach. There are sound arguments for the retention by government of control over the management of natural resources so as to maintain a capacity to

manage adaptively, cautiously and equitably. It is likely therefore that command regulation will continue to be a mainstay. For these reasons it is suggested that there is a need to improve the efficacy of command regulation and there may be a role for new approaches to its design.

In Part Two of Chapter Five the literature on command regulation was examined. The three themes explored in this regard were the design of rules, enforcement and compliance, and the normative role of law. It was concluded that despite stereotypical characterisations of command regulation as prescriptive, inflexible, reactive and rigid, depending on its design it can also be flexible, preventive and dependable. The implementation of command regulation, particularly in the agricultural sector, has been much criticised for its weakness in relation to enforcement. Problems of enforcement are not a direct consequence of command regulation itself, but rather relate to resources and political will. In the face of these issues regulators have still exercised their powers in a flexible manner in an effort to achieve compliance, not necessarily involving prosecution. While not always ideal, it has been shown that regulators use suasion, bargaining, negotiation and discretion to move towards compliance in situations where there is broad moral ambiguity about an agency's mandate, political reluctance for the use of enforcement powers and resistance from the regulated. Compliance is a much more fluid concept in the environmental context than in the criminal law context. The law can have a normative role reflecting the importance of an issue to the legislature and the broader community. In this way it can reflect changing social norms and provide a mandate to mobilise resources to respond to a particular issue of concern.

In the third part of Chapter Five the literature on regulatory (re)design was explored to examine the question of whether the manner, and the context, in which regulation was designed had a bearing on the quality of rules, their enforceability and normative value. This is a diverse and interesting literature. A number of ideas were drawn from this review. In the first place the importance of understanding the context of regulation i.e. the problem of concern, the relevant interests and the levers and drivers of behaviour, was identified. There is also a need also to recognise the complexity of modern society and explicitly account for the range of social factors and extra-legal processes which affect the operation of law. The value of mobilising these diverse forces to build a consensus for change and engage third parties in instrument design and implementation

was apparent. Complex problems require complex solutions that feature flexibility and variety. This is a complex regulatory challenge and points to bottom-up, strategic, multi-actor, multi-instrument approaches. Ultimately the context and manner in which regulation is designed can be critical to its effectiveness because it can deal with problems of regulatory imprecision, inadequate causal theories, lack of knowledge about rules and moral ambiguity about its use. Rather than designing solutions themselves, the need is for a process to generate solutions. This means designing procedure that improves problem identification, mobilises a diversity of actors and facilitates learning.

There is a synergy between the conclusions drawn from regulatory theory and those from the sustainability literature. Both sustainability theory and regulatory theory argue the need to recognise and respond to complexity. In the context section the complexity and interconnected nature of environmental problems was drawn out along with the complexity of modern systems of administration and law. The project of sustainability is also one explicitly concerned with acknowledging complexity. This is apparent from its most basic premise of maximising and measuring human progress in at least three-dimensional terms, to its more complex prescriptions for decision-making. The regulatory design literature also provides a powerful argument for moving away from rigid, prescriptive legal strategies, which entrench solutions, to approaches based on procedure and communication to facilitate integration and compromise between competing social objectives. From both perspectives the need to build a consensus for change, recognise the multiplicity of interests and values and design multi-instrument responses that feature flexibility and variety is recognised.

Thus we find theoretically at least that consultative and cooperative approaches to rule making support the adoption of rules by the regulated. From a sustainability perspective it has been argued that the process of change is supported by community-based approaches to definition of problems and solutions. Accordingly, the argument for natural resource planning can be made from both the perspective of regulatory theory and sustainability theory. Gaines (2003) has argued that reflexive legal strategies facilitate the generation of knowledge, reflection on performance and reform.³

³ Gaines S., "Learning Sustainability" (2003) 10 (1) *Buffalo Environmental Law Journal* 462-470.

9.2 Key findings from the case studies:

Environmental priority

The CMA was the first legislation in Australia to introduce the concept of sustainability into its objects clause. Its effectiveness has been limited however by the absence of sufficient mandate, resources or power to effect implementation. The NSW WMA gives explicit priority to the environment through the objects clause and water management principles. The WMA in addition directs plan makers to determine environmental need ahead of other uses. The SA WRA has a more diluted priority with the environment being one of several objectives to be achieved by the Act.

Despite however the stronger terms in the WMA the case study of the Water Sharing Plan for the Kangaroo River Water Source showed that the final determination did not provide an unequivocal priority to environmental requirements. The explanation for this has three elements. Firstly, there was a contest between uncertain science in relation to the requirements for threatened species and more certain social and economic impacts of change. Secondly, the locus of this determination in a stakeholder-based group, with little effective representation of non-consumptive users, which was also required to make its decision on the basis of consensus, meant that the values of consumptive users were given higher priority. Thirdly, the absence of any effective trade-offs, particularly in the face of considerable economic pressure on water users, meant that there was little room for the Water Management Committee to offer incentives for change. From the perspective of regulatory theory it might be argued that the regulators were ‘captured’ in the consultative process i.e. they came to identify with the regulated.

In contrast, in the SA case study of the McLaren Vale Water Allocation Plan the environmental priority appears to have been less fiercely contested. This similarly is a consequence of three factors. Firstly, the science would appear to have been less contested, there were longer time frames for planning and the evidence of environmental decline was more available and more directly relevant to consumptive users. Secondly, the determination was made by the one-step-removed Catchment Water Management Board, which is made up of ‘experts’ with less direct interest in the

specific outcome. Thirdly, while there were no more direct offsets available in SA the nature of the Board meant that it could commit to mobilise resources to respond to the problems of water scarcity in other ways i.e. to identify alternative sources such as recycled water.

The nature and extent of environmental problems in Australia generally and in these two catchments specifically makes it evident that more is required than constraining resource use to the current level. In many instances environmental repair and restoration is necessary in order to maintain the long-term integrity of ecosystems. For this to occur both vision and in many cases long-time frames will be necessary. The planning frameworks in both SA and NSW do not provide these elements nor were they reflected in the plans.

Adaptive management

The legislative arrangements for catchment and water planning in SA and NSW put in place the essential procedures necessary for adaptive management, that is, the establishment of management goals and targets, and requirements for performance monitoring and review. The requirement to feed back information in plan review is not specified but assumed. Structural processes such as these, which generate information on which to review outcomes, are reflexive in character. The law has institutionalised a process, which will encourage self-reflection about environmental performance. These kinds of provisions can lead to policy learning. They facilitate the sharing of information between government and non-government actors and contribute to greater transparency or structural openness.

However, what the case studies have shown, is that there is insufficient information on which to base a proper review of performance and thus from which to adapt management. Goals are too broadly defined, targets ill-specified and indicators of performance too general in nature. The opportunity for learning and reflection on performance is lost. The Mount Lofty Ranges INRM is potentially an exception because its targets specify both management and condition goals. The complexity of environmental problems and their interrelated causes, time lag and other factors mean that it can be difficult to measure environmental response to management change.

These issues should not cloud the apparent reluctance of government to develop firm commitments to environmental repair. The need for proxy environmental indicators was discussed in Chapter Four and much more work needs to be done in this area.

Public participation.

Catchment and water planning legislation in both SA and NSW makes a strong commitment to the idea of public participation. This thesis has examined the arguments for and role of public participation in natural resource management in Chapters Four and Five. The arguments for public participation span both the sustainability and regulatory (re)design literature. A detailed critique of its form is beyond the scope of this research. Nevertheless the case study examination has raised a number of important questions in this regard.

There are a range of arguments for, and expectations of, community participation in natural resource management. If we see sustainability as a normative concept, then the role of public participation is to change values and expand the range of issues relevant to discourse. Broad participation is seen as a way of fostering the evolution of the values of individuals, communities and decision makers. It is also seen as a way to build consensus for change, to identify commonalities and overcome conflicts and barriers to action. The precautionary principle calls for the inclusion of a range of values in decision-making especially at the point where science becomes uncertain and the issues are around the level of risk which society is willing to accept. Decision-making also needs to move from a purely scientific or economic basis and broad participation is seen as a way to incorporate social, cultural, Indigenous and other non-instrumental values. It is also suggested that public participation can foster greater transparency in policy-making and encourage accountability through public scrutiny and oversight. It is argued further that public participation can increase functional legitimation such that if people feel they own decisions they are more likely to want to comply with them. There is some concern that the rhetoric does not match the reality.⁴

⁴ Jennings S. and Moore S., "The Rhetoric behind Regionalization in Australian Natural Resource Management: Myth, Reality and Moving Forward" (2000) 2 *Journal of Environmental Policy and Planning* 177-191.

The participation of the community in catchment and water planning in NSW and SA takes both direct and indirect forms. In SA Catchment Water Management Boards are made up of 'expert' community members. In NSW catchment boards and water management committees are made up of departmental representatives and representatives of identified stakeholders. In both cases there is public consultation about plans although the provisions are more formalised and expansive in the *Water Resources Act, 1997* (SA) than in the NSW legislation. In NSW the *Catchment Management Act, 1989* is silent on the public consultation requirements about plans but the practice has been to consult broadly with the community. The *Water Management Act 2000* is detailed in this regard.

The main potential benefit of the 'expert' approach employed in SA, is that it separates the representation of values from particular vested interests. It cannot however be characterised as community-based planning and the arguments in relation to education and value change cannot be advanced so strongly with this form. A dynamic exchange of information and perspectives between community and government is not a feature of this approach. In addition, there is more limited representation of interests with the omission of Indigenous 'expertise' significant. However, it may improve the design of regulation since the 'experts' can provide insight into technical limitations as well as motivations for change. This will assist the regulators to better understand the nature of the problems and thus improve the causal theory embedded in the regulation.

In contrast NSW has adopted the potentially more politicised approach of 'stakeholder' representation. Stakeholders together with government representatives on committees allows for a dynamic exchange of information and value change. It does mean however that the vested interests are represented at the table and the equitable representation of the range of values requires careful stewardship. The range of interests represented in NSW is more expansive than is the case in SA. The benefit of this approach is that it may have soft compliance effects. Since the regulated community is involved in the design of rules, they have knowledge about them and are more likely to comply. Rules developed in these contexts are said to have greater legitimacy with the regulated than purely top-down commands.

Indirect consultation with the broader community about plans can be educative and may improve understanding of both the limits of the natural resource base and the nature of problems affecting it. A critical issue is the diffuse nature of many environmental problems. Educating the community about specific concerns, such as water quality in the Kangaroo Catchment, may help to reduce ambivalence about the enforcement of regulation and increase the legitimacy of regulators over time. The extent to which this occurs will depend on the quality and inclusiveness of the consultation process.

A further issue and one that seems to have received very little attention is the relationship between democratically elected local councils and State government appointed catchment and water management bodies. There are compelling arguments for the integration of the plans produced by both bodies. However the legitimacy of the respective approaches to participation and the impact this has on relationship between plans needs to be considered. The representativeness and legitimacy of appointed regional natural resource management groups warrants closer examination.⁵

Integration

The existence of three levels of government in Australia with both separate and overlapping areas of responsibility creates particular problems for the broad harmonisation of policy. In Chapter Two the distribution of powers between the Commonwealth and State governments was drawn out. The need to harmonise environmental, social and economic programs to support a process of change was identified. There is little evidence that this is happening. The brief review of the Commonwealth's approach to taxation, broader economic policy and administration would lead to the view that there has not been a significant 'greening' of government.

There is broad agreement about the direction of natural resource management between levels of government. However the duplication of Commonwealth programs viz. NHT2 and NAP and State catchment planning programs can result in the emergence of

⁵ Lane M. B., McDonald G. T. and Morrison T. H., "Decentralisation and Environmental Management in Australia: a Comment on the Prescriptions of the Wentworth Group" (2004) 42 (1) *Australian Geographical Studies* 103-115.

different priorities. This could well have the effect of diluting the effectiveness of the respective planning and management initiatives.

The case studies have drawn out the issue of the problematic relationship between the functions of local councils and the planning and management initiatives of catchment and water management committees. Local councils have key responsibilities in the area of land use planning and environmental regulation including aspects of water quality. However there is no clear relationship between catchment management and planning and local council environmental regulation or land use planning.

The potentially distinct initiative, in terms of coordination of sectoral State government functions, is that of the Catchment Boards in NSW. The Boards produced Blueprints, which were effectively investment strategies aimed at coordinating the delivery of government programs and services to agreed objectives. This type of coordination is critical. The Blueprints were not concerned with individual actions or the regulation of activities. Rather, the plans developed by agencies and stakeholders attempted to provide a framework for harmonisation and prioritisation of spending. It was an attempt to meld disparate and sectoral programs into a coherent and complementary whole. Arguably, the coordination of agency effort and expenditure for a common goal should have improved the efficiency and effectiveness of government expenditure. A further anticipated effect would be the creation of transparent accountability mechanisms against which the community can measure agency performance against collective goals. The grave weakness of the approach however was that the Boards had no tools or mechanisms with which to enforce or even drive coordinated delivery of programs. The Blueprint, like the Statement of Intent developed by the Healthy Rivers Commission, was vulnerable to pre-existing agency mandates, responsibilities and traditional operating practices. In practice the effect may only have been to increase awareness of individual agency programs and priorities amongst agencies and of broader community values about the natural environment. This approach has effectively been abandoned in NSW with recent reforms, which have set up Catchment Authorities not dissimilar to the Catchment Water Management Boards in SA.

The case studies in Chapters Seven and Eight have produced two different messages. In NSW there is effectively no strategic planning by State government for rural areas. The

relationship between landuse planning and catchment and water planning barely exists. In contrast in SA there is substantial effort put into strategic landuse planning. However it would appear that these plans are drawn with almost no reference to the planning occurring at the catchment level. In both cases there would appear to be an uneasy relationship between landuse and natural resource planning. A determination of environmental capacity and the impact of existing uses should precede planning for new development. In both jurisdictions it would appear that there is a reluctance to embrace this notion. With limited but notable exceptions, such as the Sydney Catchment Authority draft REP and the Mount Lofty Ranges Regional Plan, landuse plans fail to grapple with the issues of existing uses or the on-going management of development. On another vein, the relationship between landuse planning and water planning needs to be carefully developed so as to ensure the effective delivery of natural resource management outcomes. In both SA and NSW it was shown that there was inconsistency between the prescriptions of the water plans and the landuse plans. In both cases the landuse plans provided for further development while the water plans concluded that the resource was already overdeveloped. Not only will this reduce the effectiveness of all plans but send contradictory messages to the community and engender tension and confusion.

In both SA and NSW catchment plans are integrated to the extent that they have a concern with the issue of water quality. This issue is dealt with from the perspective of management measures to decrease the impact of land use on water quality and improve the broader management of land in order to reduce diffuse pollution. The water sharing and water allocation plans provide the rules for access to and trade of quantities of water. However, in both SA and NSW the regulation of the quality aspects of water are dealt with in an entirely separate legal framework. In both cases point source pollution is regulated directly, however the regulation of diffuse pollution, while well within the scope of the legislation in both jurisdictions, is not directly regulated. In this case there is a management and investment approach unsupported by direct regulation. The effect is that water quality from diffuse sources is dealt with by what is in effect a voluntary approach. If we consider that the most common cause of water quality problems in an agricultural context is diffuse, this approach is very limited.

The moral hazard of rewards for regulatory compliance must be acknowledged as a very real one. There is however a role for off-sets and incentives linked with regulatory standards in the short-term. Incentives have a clear role to play in facilitating a shift in environmental performance to meet new regulatory objectives. However, while the use of incentives and off-sets is becoming more common, there has been little attempt to build an explicit relationship between their availability and regulatory objectives. This disjunction does nothing to shift the moral context of regulation and may lead to expectations that governments should pay for change that results in improved environmental outcomes. While from one perspective the reduction in damage produces a benefit, it can also be seen as reducing a harm for which, over time, an individual must come to accept responsibility.

The case studies have shown that there is generally a separation between the plans that manage and the plans that regulate. The idea is that we need to both lever and drive change, provide incentives and disincentives, induce and enforce. Linkages between the two approaches are essential. For effective change both management and regulation need to be aimed at achieving the same outcomes and be mutually reinforcing. There are compelling equity arguments for this linkage. If we understand that current practices are in part a consequence of past government policy then some form of assistance to achieve change is defensible. On the other hand public investment in private landscape repair needs to be protected and a linkage with broad regulatory objectives could achieve this goal.

A key message arising from this research is that the achievement of long-term change in environmental condition will depend on the development of a comprehensive and mature regulatory strategy. It would integrate the constraints on behaviour through rules with a range of positive measures, which seek to enable change.

Regulation

The idea which emerged from the review of regulatory (re)design literature in Chapter Five was that regulation could be improved if legal processes were purposively designed to facilitate learning and value change. The approach would incorporate

procedures, which starting with the ‘problem’ would allow for the identification of the levers and drivers of change and the designing of approaches to strategically target a mix of instruments. This is a form of “backward mapping”, a policy implementation strategy based on a bottom-up rather than top-down approach, which provides a degree of discretion at the grass roots to help build a consensus for incremental change among key stakeholders. Fiorino (1997) argues that such a strategy is “appropriate when there is a lack of political consensus on the *need for* and the *form* of change or when mechanisms for implementing change are unreliable”.⁶

The moral dimension can be addressed through approaches which facilitate a shift in understanding about the need for change and the nature of environmental impacts, and lead to the design of regulation that will facilitate cultural change and result in the internalisation of a new set of values. The strategic management of “regulatory conversations” can play a critical role in the process of change.⁷ Broadly consultative approaches that address not only the moral dimension but also enabling factors, such as knowledge and resources, will be most effective in the long term.

The argument is that the broad engagement of the community through a *planning* process in designing policy instruments will assist in the development of intrinsic incentives to change and broaden extrinsic capacity based on existing social institutions. For example, the negotiation of rules in relation to access to water by water-user groups creates both the opportunity for, and appreciation of, the need for constraint and the potential for co-regulation of access by users. These types of process can help to generate a perception of shared fate and recognition of mutual self-interest in compliance.

Catchment planning, which focuses on the definition of the sustainable limits of resource use and priorities for management, may contribute to the development of informal constraints on behaviour. To this extent, the context of regulation is shifted and the acceptability of regulation to the regulators and regulated may increase.

⁶ Fiorino D. J., "Strategies for Regulatory Reform: Forward Compared to Backward Mapping" (1997) 25 (2) *Policy Studies Journal* 249-265, 261.

⁷ Black J., "Regulatory Conversations" (2002) 29 (1) *Journal of Law and Society* 163-96.

Water planning in SA and NSW is concerned with the generation of command regulations relating to resource allocation and use. The procedure for water planning described in this thesis provides an institutional setting in which the regulated populations, as well as local communities, can engage and play an active role in negotiating, with government agencies and other members of the community, the rules under which they will operate. The process for arriving at these regulations i.e. in consultation with the regulated community, may be characterised as a form of co-regulation. It further offers the possibility of mobilising extrinsic implementation tools whereby industry third parties have a stake in the outcome of the rule-making process. This in turn has the potential to improve the understanding and acceptability of the particular regulations by the regulated community, while at the same time improving the legitimacy of regulators when enforcing regulations developed in a consultative framework. In addition, the transparency and accountability of agency decision-making is increased because publicly available documents are utilised and performance accounted for in the review process. Both these factors provide resistance against agency capture by the regulated community. It can readily be argued that water planning is an integral part of a soft compliance strategy.

While this new approach has many benefits it falls short of the bottom-up strategy advocated by regulatory theorists. Even though the stakeholders were involved in the process of design they had very little flexibility in the choice of policy instrument. Once the rules were made, implementation in both SA and NSW was centralised and uniform.

Catchment and water planning, influences the problem of regulatory failure in the agricultural sector in a number of ways. If the structure of social relationships shapes the style, form, and effectiveness of social control, then fundamental changes in relational structures should, consequently, produce basic shifts in social control systems.⁸ The plan-making process in SA and NSW involves just such a relational shift since it brings together a range of parties to explore problems and develop solutions. This can improve the understanding of the problems and possibilities and educate all

⁸ Aalders M., "Regulation and In-company Environmental Management in the Netherlands" in Hutter B. M. (ed), *A Reader in Environmental Law* (1999), Oxford University Press, Great Britain, 263.

parties about their responsibilities and constraints, and through this, build a consensus for change. It can play a crucial role in empowering the regulated community to devise solutions to environmental problems rather than having them imposed from above. Importantly it should improve decision making by drawing together a diversity of information and exposing it to the scrutiny of both experts and the community.

Despite all this reform to the context and manner in which rules are designed, the approach falls short of the multi-actor multi-instrument approach advocated by the theorists. With the limited exception of group registration through water user groups in NSW, third parties had no role in the enforcement of regulation.

Administration.

The case studies have drawn attention to the need for effective administrative arrangements for plan implementation. It would seem that 'coordinated administration' which the NSW approach through Blueprints and the SOI exemplifies is not sufficient to deliver the inter-sectoral approach, which is required. The administrative arrangements in SA have been shown to be relatively effective in delivering outcomes on the ground through direct investment, partnership arrangements, targeting education programs and so on. It must be recognised however that they constitute in effect another layer of government. While arguably more responsive to the community, their existence none-the-less generates its own coordination problems. In this regard the unclear relationship between Catchment Water Management Boards and local councils and the complexity of the issues around the regulation of water-affecting activities, is a case in point. Further the potential for duplication of programs between the Boards and government agencies was drawn out in the case study, particularly in relation to water quality management in the Mount Lofty Ranges.

9.3 Evolution? Revolution? Devolution?

*Evolution : any process of formation or growth, development –continuous adaptation to the environment.*⁹

A broad pattern of change in environmental law in response to changing norms has been described elsewhere.¹⁰ This research supports the idea that there has been an evolution in natural resources law and this is reflected at a number of levels. There is clearly a change in the objective and form of decision-making from one that has a developmentalist focus and is entirely centralised, to one, which is concerned with the sustainable management of resources and engages the broader community in setting the parameters for decision-making.

The evolution is further characterised by the adoption to a greater or lesser extent of the elements of a sustainable approach to natural resource management in catchment and water planning law in SA and NSW.

A more nuanced and localised approach to priority setting for investment in environmental restoration and repair is a product of the catchment planning process. This means that community concerns about specific issues in a catchment can be responded to, along within the broader priorities established by State Governments.

There is also evidence of an evolution in the approach to regulatory design. This is, that water planning in SA and NSW is providing a framework for rule-making which is consultative and has the character of negotiated rule making. The strategic management of regulatory conversations – “the communicative interactions that occur between all involved in the regulatory ‘space’”¹¹ – can improve the design of regulatory systems, deepen the understanding of important ‘enabling factors’ and facilitate cultural shifts in perception of environmental crime. In sum, these practical and perceptual shifts will result in more effective regulation and improved environmental outcomes. However, the scope of this change is very narrow with little application outside the catchment and water planning area.

⁹ *The Macquarie Dictionary* (Third Edition) (1999), the Macquarie Library Pty Ltd, NSW, Australia, 734.

¹⁰ Frawley K., "Evolving visions: environmental management and nature conservation in Australia" in Dovers S. (ed), *Australian Environmental History - Essays and Cases* (1994), Oxford University Press, Melbourne.

¹¹ Black J., "Regulatory Conversations" (2002) 29 (1) *Journal of Law and Society* 163-96, 163.

There are similarities and differences in the legal and administrative arrangements for catchment and water planning in SA and NSW. This reflects the influence of historical and cultural factors, as well as environmental conditions. It was evident from the case studies that the law in both States contained the essential elements necessary for the sustainable management of natural resources. However, the strength or weakness of particular aspects of the legislation could be offset by any of a number of factors. It is central to this thesis that local priorities should be allowed to figure in the reform process. Accordingly, it would be inappropriate to propose a universal model for reform. Rather the dynamic process of change should be encouraged, its effect monitored and the approach modified as appropriate.

*Devolution – the transfer or delegation of power or authority.*¹²

There a tendency to characterise the developments in natural resource planning as a devolution of decision-making to the community. While there is some evidence to suggest that there has been a devolution in *responsibility* there is little reason to believe that there has been a devolution of *power*. Communities are more involved in decision-making either through expert or stakeholder representatives. They are consulted about the objectives for natural resource management and they do have potentially more say through both these mechanisms and the increased transparency and accountability of government. However there should be no doubt that State governments still firmly hold the reins. State governments set the parameters for catchment management, they appoint the board and committee members, they have the legal power to ‘make’ plans and are ultimately responsible for their implementation.

Wholesale devolution is not advocated, but rather a division of responsibility proposed. The hands of government must remain firmly on the wheel in order to ensure that intra- and inter-generational equity and broad democratic principles are protected. The approach suggested is one of partial de-centering rather than decentralization. “‘Decentering’ involves a shift from state regulation to other, multiple, locations, and

¹² *The Macquarie Dictionary* (Third Edition) (1999), the Macquarie Library Pty Ltd, NSW, Australia, 591.

the adoption of indirect or negotiative strategies to regulation.”¹³ What is proposed is a nested approach with governments setting targets and enforcing rules developed by regional communities.

While there is evidence of some attempt to devolve responsibility to the communities, the corollary is leadership from government. While the SA government has met its statutory responsibility to provide leadership through the timely production of the highest level water plan which provides broad goals and parameters for catchment management, the same cannot be said for NSW.

*Revolution – Complete or marked change in something. Procedure or course as in a circuit, as back to a starting point in time.*¹⁴

The sustainability debate in Australia, as with the debate at the international level has avoided key macro policy issues, such as population policy, economic growth and consumption in order to achieve agreement on the general terms of a policy commitment to sustainability. Sustainability and its fundamental concepts have come to pervade the policy approach to agriculture in Australia and ostensibly at least shifted the context of debate. However the evidence of short planning time frames, lack of vision, insufficient resourcing, entrenched values and economic pressure means that the approach to natural resource management in Australia is well short of a complete or marked change so as to constitute a ‘revolution’.

However, the procedural approach described in this thesis, gives some cause for cautious optimism, that an evolution in values and decision-making will over time improve the management of natural resources on private agricultural land. These changes need to be reinforced by the development of multi-instrument multi-actor regulatory approaches, which feature flexibility and variety.

¹³ Black J., "Proceduralizing Regulation: Part I" (2000) 20 (4) *Oxford Journal of Legal Studies* 597-614, 601.

¹⁴ *The Macquarie Dictionary* (Third Edition) (1999), the Macquarie Library Pty Ltd, NSW, Australia, 734.

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Soil Conservation and Land Care Act 1989 (SA)

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