

The Environmental Values of Tasmanian Decision Makers and Environmental Professionals

Masters Thesis for Environmental Studies

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Abstract

The thesis uses qualitative research methods to examine the environmental values of environmental professionals and decision makers active in Tasmania during the period 1996 – 2001. It uses 'insider' based research, grounded research theory, and maximum variation sampling strategies to examine 12 in depth interviews with the participants from the selected study group.

Grounded research methods have been combined with personal construct psychology to develop a system for analysis and grouping of the values data. Open coding was undertaken using dichotomy scales to rate individual's values. Basic numerical methods of correlation, based on Microsoft's Excel program, were used to group the responses for the purposes of analysis.

8 main trends were identified in the data. These trends are examined critically and compared to existing qualitative, quantitative and theoretical research on environmental values.

It was concluded that of the study groups, the Green politicians had the strongest environmental values, followed by the environmental professionals, and the Labor politicians. The Liberal politician interviewed had the least developed environmental values of the study group.

Opportunities for further quantitative and qualitative research were identified.

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GLOSSARY OF TERMS

Some simple definitions should be established to help frame the discussion in this study.

green values or ecocentric values	life based values that are not just supportive of human life but place equal value on all life. An example of an ecocentric value is the idea that all life has equal intrinsic value, and that this confers an equal right to exist, for instance to a native quoll and a human. There also may be linkages to the intrinsic rights of physical objects, such as rivers and rocks, to exist through the broad inclusive concept of the ecosystem in this value.
brown values	are aimed at minimising environmental impact of human activity but not necessarily promoting the non-human world over the human. Brown issues quite often have linkages to environmental issues with related human health management strategies, such as sewage treatment. Brown issues are Green issues that have become mainstream due to the maturation of public debate on the issue, and the acceptance of the required economic investment. Recycling and pollution abatement technologies are examples of brown values at work.
anthropocentric	values place value only on human life and endeavour. Someone who is anthropocentric would believe that a quoll's welfare is not as important as a human's. Anthropocentrism and ecocentrism have been placed as two opposites on a dichotomous scale within this study for some purposes of analysis.

environmental values	are the values that a particular person holds towards the environment, of which all of the values described above are subsets. For convenience a value has been described as being the interactions between at least one and possibly many dichotomous constructs, and is a deep psychological/spiritual position, as distinct from an attitude, which is more shallow and less permanent (Kelly 1955). A value will cause someone to act in the long term, while an attitude is momentary, and not likely to cause change or action.
liberal	individualist, market based politics
Liberal	Parliamentary Liberal Party of Tasmania
socialist	egalitarian, inclusive, community minded politics
Labor	Parliamentary Labor Party of Tasmania
Major Party	Parliamentary Liberal Party or Parliamentary Labor Party or both
Green	The Tasmanian Greens
DPIWE	Tasmanian State Government Department of Primary Industries, Water and Environment
Environment Division	A Division of DPIWE that functions as a regulator of industrial environmental management and pollution generally.

Marine Resources Division	A Division of DPIWE that functions as a regulator of fish farming activities and aquaculture in general.
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CHAPTER 1 INTRODUCTION

SOCRATES: Unless either philosophers begin to rule as kings in the cities or those who are now called kings and bosses start doing philosophy genuinely and adequately, until there is a conjunction of these two things – philosophy and political power –while the motley crew of those who at present pursue one or the other separately is compulsorily excluded, until then there will be no end to the troubles for our states, my dear Glaucon, nor, I think, for the human race either (Plato's Republic, Cornford 1941:465)

1.1 Background to study

This project was framed and undertaken by the researchers during a very active period in the development of Tasmania's environmental policy, between 1996 and 2001. The revolutionary change to Tasmania's environmental regulatory framework, particularly in respect to water quality management and air and noise pollution, has been rapid since the decision was made to move away from the inflexible and over simplistic 1970s “end of pipe” regulatory systems. The change in water policy (Tasmania 1997), for instance, has presented the opportunity for the government, community and industry to nominate for the first time to what level an individual water body is protected, and therefore how it will be managed.

Examining the effects of this move away from end of pipe limits on water pollution management yields some interesting possible future effects. The shift away from simple, concentration-based allowable discharge limits to a policy based on “accepted modern technology” (AMT) may open the gate to negotiation on permitted discharge limits, for instance. There is a certain relativity of performance established, as activities which were non-compliant under the water pollution

regulations, and are not covered by Emissions Limit Guidelines, have to achieve AMT – a standard relative to industry’s pollution abatement technology base.

This new reliance on flexible policy frameworks rather than non-negotiable pollution regulations has created a situation in which it could be argued that, given the right pressures, individual environmental professionals and decisions makers can have considerable influence over the environmental performance of an individual industry. In historical terms (Tasmania 1974), the ability to negotiate with industry about appropriate standards of environmental performance, and most importantly non-performance or non-compliance, was politicised through the use of ministerial exemptions, which could take the issue of regulation out of the hands of the regulator entirely. The comprehensive environmental policy-based approach adopted by the Tasmanian government can therefore be said to be an important step towards making the environment an issue which cannot be ignored by developers now that the achievement of environmental outcomes has been largely depoliticised.

This raises several issues which are worthy of long term examination:

- If policy rather than regulations drives the Tasmanian environmental management system, to what level do individuals influence issues like discharge limits in the new system?
- If individuals and groups are making environmental management decisions on a case by case basis, what effects does an individual’s values toward the environment have on policy enactment?
- What personal values do the individuals currently engaged in environmental management hold toward the environment?
- What is the effectiveness of a complex policy-based approach compared to a simpler regulation-based approach?

This thesis has been framed in such a way as to provide information on the third of these dot points:

“What personal values do the individuals engaged in environmental management hold toward the

environment?” The other questions require long term study in their own right, preferably through recourse to quantitative statistically-based data, in order to develop conclusions or test hypotheses.

1.2 Justification for this Study

The decision to study the personal values of environmental professionals and decision makers is based on a lack of such information about this influential group in the Tasmanian community. A literature search undertaken during the course of the study into this small group of specialist individuals yielded no pertinent previously published material. For broader values studies the reader is referred to Cotgrove and Duff 1980; Milbrath 1984; Hay and Haward 1988; Charlton Research 1996; Thompson 2000.

In situations where no previous research has been done, trend based, qualitative research is seen as a valuable guide to future possible quantitative statistical research (Trochim 2001). The study is therefore descriptive, attempting to describe what values the decision makers and environmental professionals selected display. Trends in personal values of the participants are described in order to make some generalised statements for the purposes of discussion, verification of results and to guide any future possible inquiries involving this group. The results cannot be generalised to any groups outside this small study group. Subsequent quantitative research can be applied to test the statistical validity of the findings in the broader community (Trochim 2001:2,1).

The outcomes of the study are trend based, cross sectional and descriptive. Quantitative values have been ascribed to qualitative data in undertaking this analysis using methods based on the grounded theory (Strauss and Corbin 1990) system of “open coding” and the personal construct psychology (Kelly 1955) “repertory grid” system.

Field research was undertaken from the perspective of the “insider”, as the researcher undertaking the interviews works as an environmental regulator in the Environment Division of the Department of Primary Industries, Water and Environment (Department of Primary Industries, Water and

Environment) (Burgess 1993, Schatzman and Strauss 1973). The insider research strategy has strengths and weaknesses, and these have impinged upon the study, with various effects that are described during the course of the writing. For example the methodology of qualitative research used, the effects of insider status on the study results, and the way the study group was selected will be discussed further in Chapter 2, "Approaches to Qualitative Research".

It is important to iterate that the small size of the study group does not allow for statistically viable generalisations that can extend to the broader community of environmental professional and decision makers, or to the Tasmanian community as a whole. The study is also a snapshot of the present values of individuals who consented to be interviewed, with no opportunity for long term investigation or study over several timelines.

Participants were selected from the Tasmanian environmental management industry, and from Tasmanian Members of Parliament. The interviews were conducted over a period of three months during 2001. The interview guide was tested on a separate group to ensure that a predetermined range of environmental values was relevant to the observable response.

Environmental values that were investigated in the course of the study were not overt within the data collection. Instead environmental issues were used to build guidance questions for the semi-structured/informal interview process employed in the study. Participant responses to the issues presented are related to their values or "psychological constructs". The link between the environmental issues and environmental values is made in Chapter 3, "Determining the Benchmark Environmental Values for Both the Development and Analysis of the Study Data".

The results of the study are descriptive, both in using actual statements from the individuals interviewed, and in terms of trends and groupings observed in the qualitative data. The results are summarised in Chapter 4, "Analysis of Interview Data". Several trends and similar value groupings

are identified using correlation and axial coding and are discussed with supporting material taken directly from the interviews.

The lack of comparative studies in this specialist group necessitates the use of a strong framework for ensuring the quality of the research findings. Quality is assessed throughout the thesis document, and several frameworks for assessing the quality of the results are presented within Chapter 2, “Philosophy for Using Qualitative Research”, whilst an evaluation of the strength of this research is presented in Chapter 5, “Validating the Results – Confirmability”. Ultimately the merit of the qualitative research study can only be judged by the readers’ assessment of the future usefulness of the information so obtained.

A summary of the research findings and an identification of future possible research directions is presented in Chapter 6, “Conclusion”.

CHAPTER 2 APPROACHES TO QUALITATIVE RESEARCH

This chapter sets out the theory and the method used for the qualitative research framework which has been adopted within this study.

To examine a person's environmental values is not, in itself new, and indeed, Tasmania is currently engaged in determining environmental values for the whole community, for the purposes of environmental management of water courses through Department of Primary Industries, Water and Environment's Protected Environmental Values process (Tasmania 1997:4). However, research into the environmental values of environmental managers and decision makers has not been undertaken before. A literature search undertaken as a part of this study has shown that there is little information about personal environmental values with respect to this group, in the Tasmanian community specifically, or of this cohort more generally. Milbrath (1984, 1989), Cotgrove and Duff (1980), Cotgrove (1982), Hay and Haward (1988), and Charlton Research (1996) all deal with the *attitudes* of either the general population, activist organisations, or, in the case of Milbrath, generalist categories such as "business leaders", or "elected officials" or "appointed officials". Dunlap *et al* (1983:146) concur with my assessment, and add that while environmentally relevant *behavior*, such as recycling, has also been studied, none of these studies (except his own) have focussed on the relationship between such behaviour and values.

Much has been written by contrast, on general environmental ethics and politics/philosophy. The three major streams of eco-philosophy – social ecology (eg. Bookchin 1982), deep ecology (eg. Devall and Sessions 1985), and ecofeminism (eg. Warren 1990) can be easily associated with political, spiritual and psychological values towards environmental justice in the available literature. Some studies of the broader population have constructed or derived basic belief systems that may be the basis for an individual's perspectives about a particular issue (eg. Thompson 2000, Charlton Research 1996, Cotgrove 1976).

A group that has not been studied before should be subject to qualitative research in order to determine trends, and to generally set the scene for future quantitative methods that may be hypothesis based (Neuman 1997). Qualitative, descriptive, cross-sectional research methods have therefore been selected to collect information with respect to the personal environmental values of the research group of Tasmania's environmental managers and decision makers.

2.1 What is qualitative research?

There are numerous sources that attempt to describe qualitative research methods (eg. Glaser and Strauss 1967, Schatzman and Strauss 1973, Lincoln and Guba 1985, Patton 1990, Burgess 1993, Neuman 1997, Boeree 1998, Trochim 2001). Researchers have long debated the relative value of qualitative and quantitative inquiry (Patton, 1990), with "hard scientists" generally suspicious of methods that do not have statistical, reproducible, mathematical, outcomes. Qualitative research has been described as "sensitive", "nuanced", "detailed", and "contextual", and is considered to be not numerically based. Words, interviews, photos, and sound recordings are all examples of qualitative data (Trochim 2001:12). Trending analyses do not represent definitive answers. But it is clear that both quantitative and qualitative methods are becoming more difficult to separate as the epistemology of social science is debated and new methods in statistics reveal the complex relationship between the two tools. "All quantitative data" writes Trochim, "is based upon qualitative judgements; and all qualitative data can be described and manipulated numerically" (Trochim 2001:12)

Adversarialism seems to epitomise the qualitative/quantitative debate. If examined closely however, it becomes evident that both methods need each other and are closely interrelated. It is, therefore, not necessary to pit these two research paradigms against each other. Patton (1990:39) advocates a "paradigm of choices" that seeks "methodological appropriateness as the primary criterion for judging methodological quality." This will allow for a "situational responsiveness" that strict adherence to one paradigm or another will not. Furthermore, some researchers believe that

qualitative and quantitative research can be effectively combined in the same research project (Strauss and Corbin 1990, Patton, 1990, Trochim 2001).

Nevertheless, phenomenological inquiry, or qualitative research, uses a field research approach that seeks to understand phenomena in context-specific settings, whilst logical positivism, or quantitative research, uses experimental methods and quantitative measures to test hypothetical generalisations. Each represents a fundamentally different inquiry paradigm, and researcher actions are based on the underlying assumptions of each paradigm.

Qualitative research, broadly defined, means “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification” (Strauss and Corbin 1990:17). Whilst quantitative researchers seek causal determination, prediction, and generalisation of findings, qualitative researchers seek instead illumination, understanding, and extrapolation to similar situations. Qualitative analysis therefore results in a different type of knowledge than does quantitative inquiry.

Within this study qualitative methods have been used to construct a guided interview to gain information about the values to be studied (see Chapter 3). Quantitative methods have also been used to code an individual’s response to help analyse correlations and trends within the data set.

2.2 *Determining When Qualitative Methods Should be Used*

There are several reasons to adopt a qualitative research methodology. Strauss and Corbin (1990) argue that qualitative methods can be used to better understand any phenomenon about which little is yet known. Qualitative methods can also be used to gain new perspectives on things about which much is already known, or to gain more in-depth information that may be difficult to convey quantitatively. Thus, qualitative methods are appropriate in situations where one needs to first identify the variables that might later be tested quantitatively, or where the researcher has

determined that quantitative measures cannot adequately describe or interpret a situation (Trochim 2001).

Many research problems tend to be framed as open-ended questions that will support discovery of new information. Description, rather than proof of hypothesis, is the outcome of this kind of approach.

2.3 Characteristics of Qualitative Research

There are many definitions of what constitutes qualitative research. By compiling the concepts presented in several generalist publications (Boeree 1998, Neuman 1997, Patton 1990, Lincoln and Guba 1985) the following list of characteristics is revealed.

Qualitative research:

- uses the natural setting as the source of data. The researcher attempts to observe, describe and interpret settings as they are, maintaining what Patton calls an “empathic neutrality” (1990:55);
- uses the researcher as the “human instrument” of data collection (Neuman 1997);
- predominantly uses inductive data analysis;
- generates reports that are descriptive, incorporating expressive language; the participants “express themselves” (Boeree 1998:4.1);
- has an interpretative character, aimed at discovering the meaning values have for the individuals who feel them, and the interpretations of those feelings and their meanings by the researcher;
- pays attention to the idiosyncratic as well as the pervasive, seeking the uniqueness of each case; and
- has an emergent (as opposed to predetermined) design, and researchers focus on this emerging process as well as the outcomes or product of the research.

Given the nature of qualitative research, these are not absolute characteristics. They are more like useful guideposts for developing research frameworks and formalised data collection strategies (Burgess 1993). The value of a particular piece of qualitative research is itself evaluated by the reader. Researcher and reader “share a joint responsibility” for establishing the value of the qualitative research product (Glaser and Strauss 1967:232). The relevance of the research is judged by its users in an ongoing sense (Patton 1990:485)

It is important to emphasise the emergent nature of qualitative research design. Because the researcher seeks to observe and interpret meanings in context, it is neither possible nor appropriate to finalise research strategies before data collection has begun (Patton, 1990). The collection of the data is interactive, and data once collected can immediately be used to influence subsequent inquiry. Qualitative research proposals should, however, specify primary questions to be explored and plans for data collection strategies.

The particular design of a qualitative study depends on the purpose of the inquiry, what information will be most useful, and what information will have the most credibility. There are no strict criteria for sample size (Patton 1990). Glaser (1967:62–63) recommends “theoretical sampling ... in order to discover categories and their properties, and to suggest the interrelationships into a theory”. An “adequate sample” is determined by the judgement of the researcher, but occurs when further sampling fails to reveal additional categories, properties, or interrelationships. The researcher then must make the decision to discontinue collecting data and proceed to another research step. Judgements about usefulness of the data and its credibility are left to the researcher and the reader.

The sample group in this study consisted of individuals who work at various levels of influence within the broader environmental management/decision making group. The government agencies making up the reference group were selected from those whose decisions most affect the environment directly, through either a management or regulatory role. The group of politicians was

selected from across the spectrum of Labor, Liberal and Green parties, with more emphasis upon Labor as the incumbent government.

2.4 Role of the Researcher

Before conducting a qualitative study, the researcher must do three things. First, (s)he must adopt the stance suggested by the characteristics of the proposed field research paradigm. Being a known public servant in the environmental management area for example, creates opportunities for techniques such as insider research, and limits the use of other techniques. Second, the researcher must develop the level of skill appropriate for a human instrument, or the vehicle through which data will be collected and interpreted. Finally, the researcher must prepare a research design that utilises accepted strategies for field research and qualitative inquiry (Lincoln and Guba 1985).

Field based research projects display the following characteristics:

Advantages and Strengths of Field Observations

- Helps understand context*
- Helps researcher be inductive through direct experience*
- Helps see routines which are often unconscious to members of the culture*
- Can discover things that people are unwilling or unable to talk about*

Purposes of Observation

- Describe the setting*
- Describe activities that have taken place*
- Describe meaning of: Setting; Activities; Participation, as perceived by members of the culture*

Levels of Participant Observation

- 1. Complete Participant (role is concealed)*
- 2. Participant as Observer (role is partially concealed)*
- 3. Observer as Participant (role is known)*
- 4. Complete Observer (role is concealed) (Steckler 2002).*

The researcher undertaking this study has spent 5 years as an environmental reporter, and has completed the Graduate Diploma in Environmental Studies. This background has provided the requisite skill level both for data collection and value interpretation.

Glaser and Strauss (1967) and Strauss and Corbin (1990) refer to what they call the “theoretical sensitivity” of the researcher. This is a useful touchstone with which to evaluate a researcher’s skill in and readiness for qualitative inquiry:

Theoretical sensitivity refers to a personal quality of the researcher. It indicates an awareness of the subtleties of meaning of data. ...[It] refers to the attribute of having insight, the ability to give meaning to data, the capacity to understand, and capability to separate the pertinent from that which isn't (Strauss and Corbin 1990:42).

Strauss and Corbin (1990) believe that theoretical sensitivity comes from a number of sources, including professional literature, professional experience, and personal experience. The credibility of a qualitative research report relies heavily on the confidence readers have in the researcher’s ability to be sensitive to the data and to make appropriate decisions in the field (Lofland and Lofland 1984, Patton 1990).

Lincoln and Guba (1985) identify the characteristics that make humans the “instrument of choice” for field based qualitative inquiry. Humans:

- are responsive to environmental cues, and able to interact with the situation;
- have the ability to collect information at multiple levels simultaneously;
- are able to perceive situations holistically;
- are able to process data as soon as they become available;
- can provide immediate feedback and request verification of data; and
- can explore atypical or unexpected responses.

2.5 Strategies for Research Design and Data Collection

Given that emphasis is placed on the individual strengths of the researcher rather than on statistical standardisation, and the unique nature of each project, the methods of qualitative research are generally related in strategic and generic terms. There is little information available on specific techniques for differing subject matter. Interview processes and techniques receive most of the focus in the theoretical literature (Lofland and Lofland 1984).

Lincoln and Guba (1985) list the following general steps as characteristics for field based qualitative research:

1. Develop a focus to drive the inquiry. This should establish a boundary for the study, and provide inclusion/exclusion criteria for new information. Boundaries, however, can be altered, and typically are.
2. Determine the fit of the research paradigm to the research focus. The researcher must compare the characteristics of the qualitative paradigm with the goals of the research.
3. Determine where and from what, data will be collected.
4. Determine what the successive phases of the inquiry will be. Phase one, for example, might feature open-ended data collection, while successive phases will be more focused.
5. Determine what additional instrumentation may be used, beyond the researcher as the human instrument.
6. Plan data collection and recording modes. This must include how detailed and specific research questions will be, and how faithfully data will be reproduced.
7. Plan which data analysis procedures will be used.
8. Plan the logistics of data collection, including scheduling and budgeting.
9. Plan the techniques that will be used to determine trustworthiness.

This investigation uses the Lincoln and Guba model. It has already established the focus for the inquiry, and also has determined that qualitative research methods, such as face to face interviews,

are suitable to examine the environmental values of the subject group (environmental professionals and decision makers involved in Tasmanian public life). Lincoln's Points 4 to 9 are developed in the following sections.

2.6 Qualitative Research Sampling Strategies

Quantitative research generally relies on probability sampling. A random and representative sub-sample is analysed and research findings are then generalised to the larger population. In contrast, purposeful sampling is the main strategy of qualitative research, and seeks depth of information for further study (Patton 1990).

There are several main types of purposeful sampling:

- Extreme or deviant case sampling;
- Typical case sampling;
- Maximum variation sampling;
- Snowball or chain sampling;
- Confirming or disconfirming case sampling;
- Politically important case sampling; and
- Convenience sampling (Patton 1990:169–183)

Maximum variation sampling may be the most useful all round approach for value-based inquiries, as it can produce detailed descriptions of each case, and also be used to examine patterns that are similar between cases. Maximum variation sampling has been selected for this study and was practiced by selecting key individuals from across the spectrum of politics, though options were more limited when choosing from senior public service executives. The subject group of executive, middle management and officer level environmental managers was selected from as many different fields relevant to environmental management as possible to maintain the maximum variation theme. Politicians were selected according to portfolio relevance in the case of government and the shadow

ministry, and Green representatives were also included to establish maximum variation. This selection process is described in greater detail in subsequent chapters.

The potential for sampling error in purposeful sampling can be addressed in research using these methods. Three types of sampling error in qualitative research purposeful sampling need to be factored into sampling methods and subsequent research findings:

- Insufficient breadth in sampling;
- Distortions caused by changes over time; and
- Lack of depth in data collection from each subject.

These errors will be dealt with primarily by describing the focused nature of the study itself, and by limiting the findings to the particular individuals of the study group. The lack of depth in data collection was an issue that was dealt with by maximising the interview length (interviews of 40 – 50 minutes) to get as much data as possible from each participant, and pursuing points of follow up and clarification.

2.7 Study Groups and Agencies

Table 1: Study Sample Group

OCCUPATIONAL CATEGORIES		Level of Influence			Role Code
		3	2	1	
GROUP	SUB GROUP	EXECUTIVE	SENIOR	OFFICER	
Department of Primary Industries, Water and Environment	ENV. DIV.	1	1	1	2
	MARINE RES. DIV.			1	2
FORESTRY TASMANIA		1		1	3
POLITICIANS	STATE	2	2		1
	FEDERAL			1	1
PRIVATE CONSULTANTS				1	2

Note: the Code for each occupational category is as follows: Politicians – 1, Department of Primary Industries, Water and Environment and private consultancy based professionals – 2, Forestry Tasmania environmental professionals – 3.

Due to the hierarchical nature of the state's governmental apparatus, there were limited numbers of senior executives and relevant Ministers/shadow ministers from whom to choose. The significance of choosing the only available member from a small relevant group is thought to be a strength in terms of the usefulness of the data.

Adequate sampling was reached after the first 12 participants had been interviewed. Several further interviews only yielded similar responses which were discarded on the basis that these views were already suitably represented and that they generated no further categories (values) or properties (backgrounds). It was also intended to interview a small group that exhibited maximum variation to best utilise the collection of in-depth information. However, to include more participants could effectively mean less presentation of in-depth information from some of the individuals, and this was avoided by limiting the final group for analysis to 12.

2.8 Qualitative data collection methods

The two main forms of qualitative data collection are interviews and observation. These collection methods can be seen to be interrelated within the interview process itself and during the consequent contextual review. The main observer focus of this study is clearly that, as a functioning member of the broad study group, the researcher has had close observations of the situation being examined for more than 5 years. The interview techniques used are described below in detail, but some discussion is necessary here of the strategic methods used to avoid errors.

The influence of the researcher on the participants is hard to quantify. It was obvious in some cases that the researcher had influenced the participants. This is evidenced from such comments as Mr Eastley's: "I have never thought about some of these topics in this way before". Made at the end of his interview, this statement indicates that asking a series of linked questions caused some of the participants to have new feelings about their responses to the issues raised.

The personal construct psychology model of Kelly (1955) is based around a process of future anticipation, and to the extent that it is valid, it indicates that the researcher can influence participants in a study purely by asking them questions. To avoid questioner "contamination" as much as possible within the interview process, a neutral tone was assumed to avoid drawing a predetermined response. The researcher may have influenced the subject matter discussed, but attempts were made to minimise influence on the participant's thought process, only suggesting supplementary information after the participant first mentioned a particular theme.

A participant could, of course, fabricate their response. It would be very difficult to determine if this was the case, as quite a lot of psychological training is needed to detect fabrication in workmates and even more in persons previously unknown. Within the study group selected, many of the participants were known to the researcher, and as some history of acquaintance existed, the detection of fabrications may be considered easier.

It is thought that the “common discussion” approach in the question design guide would minimise a participant’s need to fabricate. The researcher conveyed his own interest in the subject, and felt each participant undertaking the interviews understood the validity and interest of this research and responded in kind by providing answers as close to their true feelings as possible.

The interviews were undertaken in a style that was completely accepting of the participant’s view, a very important strategy if an atmosphere of trust and openness was to be established. These approaches will also have contributed to the depth and strength of validation of the study.

2.9 Qualitative Interview Techniques

Patton (1990) describes three types of interview techniques – informal, conversational interviews; semi-structured interviews; and standardised open-ended interviews. A combination of Patton’s second and third interview techniques was adapted for this study.

To determine a person’s values with respect to any subject, a non-directive interviewing style, such as Patton’s third category, is a recommended technique (Boeree 1998:4.1). This technique involves the selection of a topic and then the use of a verbal interview in an unstructured way to allow the individual full freedom of expression. The interviewer only intervenes to seek detail and clarification while keeping the participant to the subject at hand. For the present project, this style of approach was adapted for the individual topics presented within a general interview guidance framework.

An interview guide should be prepared to generalise the topics that the interviewer wants to explore during the interview (Neuman 1997). The guide prepared during this study was developed to ensure that similar information was obtained from each person, but there were no predetermined responses, and within the interviews follow-up questions were used to further explore an individual’s feelings. This study was undertaken using the standardised open-ended interview approach to try to collect

information about a wide range of personal values that could be open coded to environmental values.

It was decided to use a mini-disc recorder for collection of the interview notes, because the taking of handwritten notes for 40–50 minutes would be time-wasting, and an interference with the naturalness of follow-up questioning. Some of the individuals involved in the study were at the time among the most continuously busy and hectically scheduled people in the Tasmanian community. Negotiating 40–50 minutes was often not a part of some of these individuals' standard permitted interview time, so the concept of subsequent interviews for information gap filling was considered too uncertain. The somewhat unpredictable nature of and the potential for fast change in the political scene and especially in the roles of the participants also made selection by necessity an adaptive process.

Tone of voice and body language can also be expressive of values, position and motivation, and while video was not used as it was considered too intrusive, it is also accepted that the use of a recording device may have affected some responses. The use of lapel microphones was also adopted in order to minimise feelings of intrusion.

The interview guide was constructed in order to systematise the collection of information about the values being examined in the study. The interview guide was tested and developed on a subgroup of five individuals not involved in the study group. The interview guide was further refined during the course of the interviewing of the study group as more information about the outcomes derived from the interview guide was obtained across a broader group of personality styles. The interview guide is presented in Appendix 1. A detailed explanation of the basis for the issues in the guide is presented in following chapters.

Field observation is considered to have the potential to lead to deeper understandings than can be obtained from just interviews alone. Observation may allow the researcher to provide further

context, and enable the researcher to see things of which the participants themselves are not aware, or are unwilling to discuss (Patton 1990).

As the researcher was a full participant within the study context (environmental management and decision making), and with a known identity, there was limited flexibility in the final selection of observation strategy. Watching from outside, or maintaining a passive, limited interaction with many of the participants would have been difficult, as the researcher interacts with many of the individuals on a daily basis, and the researcher's name was previously known to most of the individuals selected for interview. As the research topic involves highly personal values it is considered that personal knowledge was probably beneficial in allowing individuals to fully express their feelings. This strategy of participant observation has associated advantages, disadvantages and concerns which must be carefully examined and which must contribute some limitations to the findings (Schatzman and Strauss 1973).

Lofland and Lofland (1984:25) believe that researchers are more likely to gain successful access to research subjects if they make use of contacts who can help remove barriers to entry, and if they avoid wasting participants' time by first conducting advance research in the area, and by treating participants with courtesy. Because this form of field based qualitative research asks participants to "grant access to their lives, their minds, [and] emotions" it is important to provide a straightforward description of the research (Lofland and Lofland 1984:25). The provision of the Information Sheet (see Appendix 8) prior to the interview and associated verbal explanation of the context of the research provided the description required.

2.10 Qualitative interview data analysis

Qualitative research tends to use inductive analysis, which means that important themes are expected to emerge from the data themselves (Patton 1990). Conversely, deductive, or hypothesis-based analysis, starts with a supposition and then explores the data to see if the hypothesis is correct. Qualitative analysis presents the researcher with the challenge of placing the raw data into

logical, meaningful categories, to examine them holistically, and to communicate the findings to others (see Appendices 2, 3, 4).

Qualitative analysis starts with the identification of themes emerging from the raw data. “Open coding” (Strauss and Corbin 1990) is one of the methods for undertaking this analysis. For an inquiry into a range of participant values, conceptual categories must be developed into which the observed phenomena (values) can be grouped. The conceptual categories developed during the course of this study are listed in Table 3 in Chapter 3.

A scheme for linking data to the participant must be established. Within this study each participant is identified by a pseudonym, which will be continuously used to represent individual data and context while preserving anonymity. It is useful to use the standard qualitative reporting method of using direct quotes in the analysis as the “voice” of the participant, to demonstrate a particular theme being described (Lane 1962, 1972).

Strauss and Corbin (1990) describe the process of “axial coding”, which is used to re-examine categories for linkages. In this process the categories identified in open coding are compared and combined in new ways to provide a strategic interpretation of the data. The traditional method of open coding uses alphanumeric codes for quantitative grouping of the responses and data. The data in this study were rendered into quantitative numerical values to aid this process. It is hoped that this renders a more descriptive outcome, as a response will not be categorised by a binary “on-off” status grouping. The study involves the use of guidance questions for interview, and each of the participants was asked all the questions. A numeric code has therefore been assigned to rank an individual participant’s response, and these are presented in Appendix 2.

Kelly’s (1955) concept has been used to group and classify the data in a methodology “repertory grid” similar to that of the text label based open coding suggested by Strauss and Corbin (1990). The psychological nature of the values to be studied suggests that a psychology based methodology

should be adopted to get the best possible results in terms of an individual's personal values. This will be elaborated in following chapters.

A process of iteration is required to undertake axial coding as data categories are refined and revised, leading to re-examination of raw data. As stated above, some of the axial coding was undertaken by applying a quantitative score to a response ranked iteratively against all the other participants. Trochim (2001:12) recommends this method:

We could do much more... we could do some simple multivariate analyses. For instance, we could draw a similarity "map" of the respondents based on their intercorrelations. The map would have one [value] per respondent and respondents with more similar responses would cluster closer together.

Spreadsheet software (Microsoft Excel 97) was used to detect some of the data groupings via basic correlations. This stops short of multivariate analysis, which would imply a quantitative/statistical approach, but still provides useful information for comparison and grouping of participant responses within the study itself.

Basic sorting of the data was performed on several key questions. This produced a ranked list of individual responses to each question and the issues raised in the subsequent discussion, and helped to define the participants along a spectrum of values.

An overall picture has been gained from listening to each interview repeatedly for the purposes of further classifying participant responses relative to the other participants. Mr Long defines the person with the least green values of the group interviewed, while Mr Maxfield defines the person with the most green values (expressed in terms of ecocentrism).

In qualitative research, additional data collection can be required at any point to fill gaps. In this study the addition of the guided question, “Should animals have rights?”, was an attempt to fill a data gap. Thus, one early participant was not asked this question initially, but was asked it later by telephone to complete the data collection.

Some researchers see qualitative research analysis starting, to some extent, with the first interview (Lofland and Lofland 1984, Burgess 1993), with feedback from the interview process allowed to dictate change to any required part of the data collection or analysis process. Thus qualitative research is understandably seen as something of a moving feast by statistically minded quantitative researchers. Dropping the guidance question “hypothetical scenarios” was a part of this ongoing assessment approach, as the hypothetical scenarios were not seen to provide sufficient extra information after the first two interviews to justify their inclusion in the remaining interviews.

2.11 Presentation of Qualitative Analysis

Glaser and Strauss (1967) defined the goal of qualitative research as the generation of theory, rather than theory-testing or mere description. Their “grounded theory” takes the view that theory is not a finished product but an “ever developing entity”(Glaser and Strauss 1967:32). Grounded theory results are also thought by Glaser and Strauss (1967) to be applicable to a multitude of diverse situations.

Patton (1990), however, believes field based qualitative research is always subject to the degree to which the researcher either influences responses or imposes categories on the data, with the more descriptive based inquiry avoiding categorisation, or using categorisation sparingly, and only as a last resort.

Some researchers describe description and verification as two ends of a linear scale. Qualitative or inductive inquiry are at the descriptive end and logico or deductive inquiry are at the verification ends of the spectrum. This understanding seems to perpetuate the linear sense of

qualitative/quantitative dualities, and has not been useful to the study except as a theoretical possibility to consider when discussing possible errors or accuracy.

This is a study of a specialist and comparatively small group within the broader Tasmanian community. The study is by necessity descriptive, and whilst some trends are presented as part of the data analysis, it is important to note that it is doubtful whether this data will be directly applicable to the broader population or to any larger group of similar composition, at least at a level of certainty or statistical significance.

In this form of interview based qualitative research it is important for purposes of verification of the quality of the research to present not only the framework of the semi-structured interviews, but also the data analysis and appropriate amounts of the raw data. Somewhere between only summarising the results and writing out the interviews texts in full would seem to be the best way of presenting this data.

Results have been presented in the appendices in tabular form to verify the findings that have been taken from the data. Within the main body of the report the participants' own words and feelings are quoted to establish the substance of observed trends and to give the reader the sense of any participant's values directly. The format of this discussion is in a similar discursive style to that employed by Lane (1962; 1972). Lane uses a style of minimal context, utilising the method of "allowing the participants to speak for themselves" to create a flowing record of qualitative data to illustrate an observed trend. Results are presented in Chapter 4.

2.12 Qualitative Research –Assessment of Credibility and Quality

The lack of previous comparative studies on this specialist group made it important that the study was undertaken with a strong framework for establishing and assessing credibility.

The findings of qualitative research need to be assessed in different ways to that of quantitative research. While there are many statistical methods that can be used to explore validation of a quantitative hypothesis, there are no operationally defined truth tests that can be applied to qualitative research. Trochim (2001:1) goes further, stating that “in our post-positivist view of science, we no longer regard certainty as attainable”, whilst Boeree, in his elucidation of phenomenological methodology, states:

[Phenomenology] instructs us to allow the phenomenon to reveal itself in its fullness. You “look” at it from all perspectives, using all your senses, even attending to your thoughts and feelings. Phenomenologists say that phenomena are apodictic which means, “speak for themselves” – which means that in turn we should be prepared to listen (1998:3).

Glaser and Strauss (1967:232) also state that the researcher and reader “share a joint responsibility” for establishing the quality of the research product. In qualitative research “the perspective presented is judged by its relevance to and use by those to whom it is presented: their perspective and actions joined to the [researcher’s] perspective and actions” (Patton 1990:485).

Myers (1995) suggests the following simple assessment criteria for judging ethnographic manuscripts:

- Has the author developed or applied new concepts or theories?
- Does the author offer rich insights?
- Does the study make sense?
- Does this manuscript contradict conventional wisdom?
- Are the findings significant for researchers and/or practitioners?

Lincoln and Guba (1985) previously proposed the following alternative criteria for judging qualitative research from a traditional quantitative perspective:

Table 2: Comparison of Criteria for Assessing Quantitative and Qualitative Research

Traditional Criteria for Judging Quantitative Research	Alternative Criteria for Judging Qualitative Research
internal validity	credibility
external validity	transferability
reliability	dependability
objectivity	confirmability

These criteria have been explored by many authors, for example Trochim 2001; Myers 1995. Trochim has suggested that Lincoln and Guba’s criteria should be used to evaluate qualitative data and this was accepted. Thus results of this research were assessed against the four criteria that follow:

Credibility

The credibility criteria (sic) involves establishing that the results of qualitative research are credible or believable from the perspective of the participant in the research. Since from this perspective, the purpose of qualitative research is to describe or understand the phenomena of interest from the participant’s eyes, the participants are the only ones who can legitimately judge the credibility of the results.

Transferability

Transferability refers to the degree to which the results of qualitative research can be generalised or transferred to other contexts or settings. From a qualitative perspective transferability is primarily the responsibility of the one doing the generalising. The qualitative researcher can enhance transferability by doing a thorough job of describing the research context and the assumptions that were central to the research. The person who wishes to “transfer” the results to a

different context is then responsible for making the judgment of how sensible the transfer is.

Dependability

The traditional quantitative view of reliability is based on the assumption of replicability or repeatability. Essentially it is concerned with whether we would obtain the same results if we could observe the same thing twice. But we can't actually measure the same thing twice – by definition if we are measuring twice, we are measuring two different things. In order to estimate reliability, quantitative researchers construct various hypothetical notions (eg. True score theory) to try to get around this fact.

The idea of dependability, on the other hand, emphasises the need for the researcher to account for the ever-changing context within which research occurs. The research is responsible for describing the changes that occur in the setting and how these changes affected the way the research (sic) approached the study.

Confirmability

Qualitative research tends to assume that each researcher brings a unique perspective to the study. Confirmability refers to the degree to which the results could be confirmed or corroborated by others. There are a number of strategies for enhancing confirmability. The researcher can document the procedures for checking and rechecking the data throughout the study. Another researcher can take a "devil's advocate" role with respect to the results, and this process can be documented. The researcher can actively search for and describe any negative instances that contradict prior observations. And, after the study, one can conduct a

data audit that examines the data collection and analysis procedures and make judgements about the potential for bias or distortion (Trochim 2001:14).

There is much debate about the validity of these alternative criteria. Trochim wants more qualitative research to be assessed using traditional quantitative methods, whilst also admitting that:

... qualitative researchers do have a point about the irrelevance of traditional quantitative criteria [for assessing qualitative data]. How could we judge the external validity of a qualitative study that does not use formalised sampling methods? And, how can we judge the reliability of qualitative data when there is no mechanism for estimating the true score? No one has adequately explained how the operational procedures used to assess validity and reliability in quantitative research can be translated into legitimate corresponding operations for qualitative research (2001:8).

This study has been framed with the four alternative criteria – credibility, transferability, dependability, confirmability – as the basis for quality assessment, but some quantitative approaches will be used for purposes of in-depth analysis.

Again, the success or merit of this study may only be assessable by individual readers on the basis of the apparent usefulness of the information to them. The value of qualitative research is in the research itself. The results of these interviews speak for themselves and should be evaluated in this context; nevertheless the four alternative criteria for judging merit are discussed further below:

2.12.1 Credibility

Patton (1990) believes credibility depends less on sample size and more on richness of data and the analytical ability of the researcher. Credibility can be enhanced by triangulating the methods used, the data collected, the theory involved, or by using multiple analysts. In this study an attempt has been made to triangulate value theory to interpret data (see Chapter 3 below), and to triangulate the

data collected by having several overlaps in information within the guidance questions. It is also argued that the researcher's insider status triangulates the methodology to some extent, as the interviews can be correlated by the observations of many (but not all) of the participants from the perspective of daily work-place involvement.

Comparisons were made in the axial coding, and it was discovered that the two participants with the most similar environmental values were, according to the quantitative data, the two Green politicians involved. This is a strong argument for the credibility of the data and findings. The Liberal politician's values differed most strongly from the two Greens, which agrees with Dunlap's (1975:435) observations, again strong evidence of the credibility of the maximum variation approach adopted in selecting participants.

2.12.2 Transferability

To make generalisable statements that apply to many contexts, only limited aspects of the studied context can be utilised. Trochim (2001) crosses the theoretical divide between qualitative and quantitative research by arguing that a qualitative generalisation becomes a quantitative hypothesis, not a conclusion. This provides for qualitative research to be the first step in new research fields by providing hypotheses (generalisations) which can then be tested in the next methodological step with quantitative methods.

The transferability of the findings from this study can only be judged if the conditions under which it was undertaken are described. Subsequent researchers can then evaluate the usefulness of this information to their situation.

2.12.3 Dependability

Lincoln and Guba (1985:317) propose an "inquiry audit" in which reviewers examine the process and the product of the research. All of the taped interviews, notes and analysis undertaken have been transferred to the appendices of the study or stored for future verification.

Trochim (2001:25) proposes that account be taken of the ever-changing context and setting within which the research occurs, and the way these changes have affected the approach of the study. Whenever possible, an attempt has been made to identify the impacts of the study technique on the results.

2.12.4 Confirmability

Objectivity is normally taken as essential to the success of quantitative researchers. But contemporary researchers (Roszak 1968:205–238; Lincoln and Guba 1985; Trochim 2001) have called into question the possibility of ever attaining a pure form of objectivity for either quantitative or qualitative research.

To overcome this problem, Lincoln and Guba (1985) propose a confirmability audit for qualitative research. This consists of demonstrating the neutrality of the interpretation of data by providing information in respect to:

- raw data;
- analysis notes;
- reconstruction and synthetic products;
- process notes;
- personal notes; and
- preliminary development information.

As this study is completely confidential, the raw data, and any personal notes, have been excluded from the thesis document, but have been inspected and retained by Dr Peter Hay, the supervisor of the project. All the other requirements for a confirmability audit have been met within the text of the thesis document. Adding further support to the use of Lincoln and Guba's four assessment criteria, the following evaluation using Myers (1995) is presented.

2.12.5 Ethnographic Framework for Judging Quality

Myers (1995:2) offers a system for judging the theory used in qualitative research projects from the perspective of ethnography (we will assume the study group to have a certain professional “ethnicity”), and the application of his system to the study has been tabulated, viz:

Table 3: Framework for Assessing Theory Quality and Response:

Myers Quality Question	Response
<i>Is this a contribution to the field?</i>	Yes, as identified earlier, there has been no work identified on this specialist Tasmanian group on the subject of personal environmental values.
<i>Has the author developed new concepts and theories?</i>	The results have been generalised to the extent possible given the data, and several new concepts and theories have been discussed
<i>Does the author offer rich insights?</i>	This is largely up to the reader to determine.
<i>Does the research contradict conventional wisdom?</i>	It is reinforced to some degree by the work of previous researchers; for example Charlton Research 1996, Milbrath 1989, Milbrath 1984.
<i>Are the findings significant for researchers or practitioners?</i>	The findings demonstrate a significant gap between the environmental values of some of the different groups involved in the study.
<i>Is this real? Has the researcher lived there for a reasonable period of time?</i>	The researcher has worked in the Tasmanian environmental management sector for 5 years.

Table 3 cont: Framework for Assessing Data Quality and Response:

Myers Quality Question	Response
<i>Does the real complexity of the [group] as a social, cultural, and political system come out?</i>	Yes. By way of an example, the large difference in values between religion-adhering politicians and precautionary environmental managers indicates the complexity of trade-offs for the environment in Tasmania
<i>Is the subject in its social and historical context?</i>	The context and limitations of the study have been clearly defined.
<i>Is there sufficient information about the research method and the research process?</i>	The study documentation satisfies this requirement.
<i>Is the researcher aware of his/her historicity?</i>	The limitations of time, and developments during the study have been discussed. The general feeling of the public towards these issues is considered to be at a "mature" point compared to 20 years ago (Charlton Research 1996).
<i>Are alternative perspectives presented?</i>	Where possible in the theory and data analysis, an alternative position has been presented for discussion. The perspective of the participant is presented along with the researcher's where points of discussion occur.
<i>Does the author adopt a critical perspective?</i>	Within the limitations of a study balanced towards the descriptive rather than the theoretical, a critical approach has been adopted.

This study has clear strengths and weakness from both a theoretical and data collection perspective which have already been outlined. The strengths and weaknesses can be used to evaluate the quality of the research. The study is a contribution to environmental management in Tasmania, an area not studied with respect to the environmental values of its participants before.

CHAPTER 3 DETERMINING THE BENCHMARK

ENVIRONMENTAL VALUES FOR BOTH THE DEVELOPMENT AND ANALYSIS OF THE STUDY DATA

It is difficult to find a holistic psychological theory that will describe the way that a person's complex environmental values give rise to decisions about "real life" issues. The breadth of the issues covered in the study, and the use of an in-depth interview approach, required answers beyond mere attitude, in many cases, but it is important to chart a proposed relationship between values, attitudes and beliefs and opinions. In a structural sense:

Psychologists think of values as high-order cognitive constructs, along with ideology, around the top of a pyramid which has specific beliefs and opinions near the bottom and attitudes somewhere in between. Values have been assessed in a number of different ways (Ball, P., pers. Comm. 8/12/2001).

Ball-Rokeach goes further:

A person may have thousands of attitudes toward specific objects and situations, but relatively few values;

Values occupy a more central position than attitudes because they are generalised internal standards that transcend specific objects or situations;

Values determine attitudes to action, so that a change in values should lead to a change in attitudes and actions;

Values are hierarchically organised by their relative importance to one another; and

A person's value system and variation in value priorities account, in large part, for variations in attitude and action (Ball-Rokeach 1973:737).

A sociological/psychological study needs terms of reference and a theoretical framework. A reviewer asking why the issues/questions presented in the interview guide were chosen can almost be answered “why not?” as using issues as the basis for determining values can be used for almost any value if questioning is thorough. In determining values, the technique of using very general questions with in-depth follow up can be compared to the way the psychologist using Rorschach inkblots or other abstract tools moves to the heart of a person's feelings and value systems – without directly confronting the person with their value systems. Generalisation, combined with the open ended interview technique (it will be revealed that a combination of open ended interview and semi-structured interview was used) and focused follow-up questioning, formed the basis of a conversation that allowed the participants to mix abstraction with “reality”, to bring into the open many value-based constructs.

A tool that has been used to model a person's identification of their own values in determining their position with respect to real world issues, is the personal construct psychology (PCP) of Kelly (1955). PCP was used as the basis for the design of the interview guide and the analysis of data, along with the phenomenological qualitative research approach already described. Shaw and Gaines (1992:6) demonstrate the geometry of Kelly's theories, discussing how it fits into the way a person assesses and builds values and, hence, makes decisions that drive actions.

Shaw and Gaines also demonstrate the use of Kelly's “repertory grid”, used in this study as one of the models to help analyse the data. The repertory grid has many similarities with the process of open coding of qualitative sociological research, and hence the two processes have been used in combination to develop the analysis of the data presented. This study has therefore used both the psychologically based repertory grid (Kelly 1955) and the sociologically based open coding systems, as complements in a phenomenological “toolbox”. These methods have been adopted in

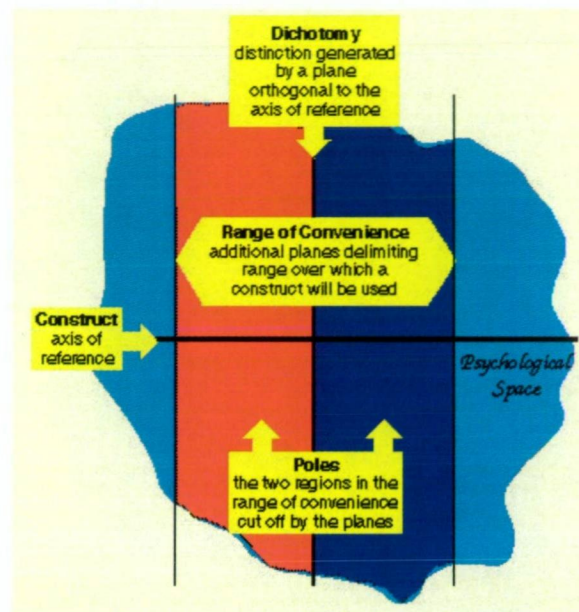
such a way that the qualitative methods provide the bulk of the framework for the sampling and data collection, while Kelly's repertory grid system is used for the bulk of the data analysis.

A repertory grid is defined by Shaw and Gaines (1992:9) as "a means for investigating a person's conceptual structure relevant to inter-personal relations by having them classify a set of people [and/or issues] significant to them in terms of elicited personal constructs." They show (1992:10) that, whilst repertory grids (see Appendix 2) have been used without computer support, the use of computers removes some of the difficulty in processes such as quantitatively rating inter-personal relations on the basis of dichotomous scales. The present study used manual methods to choose quantitative points on each scale, through comparison with the other participants, via iterative data sorting. Computer methods were used for sorting and correlating data.

Whilst this study has the somewhat common problem of the qualitative researcher choosing the quantitative value of each participant's response, its strength is that the response can be compared by the researcher to all the other responses and, most importantly, to the responses of all the other participants in the group. The choice of the values assigned by the researcher has been tested against five participants in a pilot testing of the interview guide, and also against two of the participants taking part in the study, and was found to be within acceptable margins for error, 95 per cent accuracy over 15 responses. The deviation was only plus or minus one scale point, so the result was still useful for correlation and sorting the qualitative data for trends that could be examined in depth.

3.1 Value Constructs

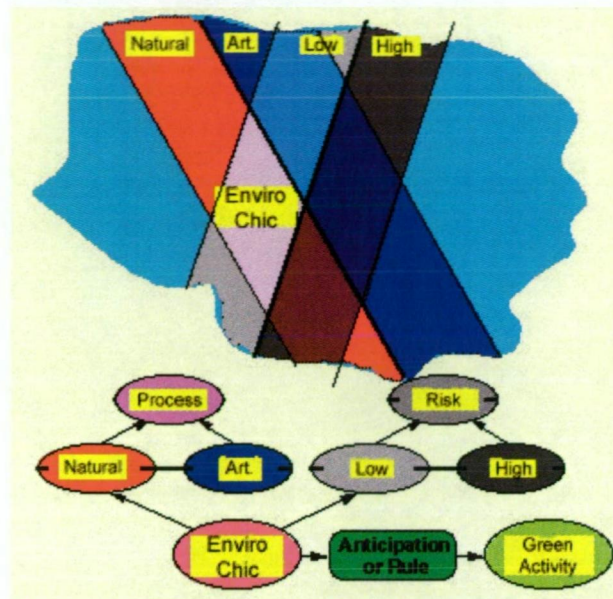
Figure 1: The Geometry of a Construct in Psychological Space



Source: Shaw and Gaines (1992:4-9)

Figure 1 graphically describes the way Kelly's PCP uses dichotomies to define thought differentiation. As values may require several constructs, which in turn may require several dichotomies, one issue may not by itself describe a value (which is most likely a group of constructs) to a certain depth. PCP assumes a person's values are engaged in a process of ongoing evolution as events are anticipated and predicted through constructs, therefore absolute values are not obtainable, all values being relative to the process of building and testing constructs.

Figure 2 Logic of Anticipation for “green activity”



Notes: Art. = artificial – dichotomy to natural

Enviro Chic = an activity of low environmental impact

Source: adapted from Shaw and Gaines (1992:4–9)

Figure 2 graphically demonstrates how the two constructs, “Risk” and “Process”, develop through interplay the logic of anticipation, or rule, as an example of “Green Activity”.

The dichotomised basis of the PCP lends itself to the use of numerical classification, such as via numerical scales to denote strength of feeling. These have been used in this study.

PCP may provide some problems also. No exposure to an issue theoretically means no experience in judging the issue. This seems to make logical sense – not counting societal values, you cannot have a personal value to apply to an issue unless you have been exposed to the issue previously.

PCP has also not been extended sufficiently to accurately model broader societal constructs and their effect on the individual (Kenny 1984:3). The personal and qualitative nature of this research,

focusing on end point values rather than the process, prevents generalisation outside this study group of these broader societal values and their precise effects.

This may mean that a person accustomed to “not considering the environment an issue”, will not have any personal environmental values or constructs. Their values may be entirely “social”. For example, Mr Long’s “strong” Christian beliefs can be said to have caused him to display the least ecocentric and most human privileging values of all of the participants. He also confidently maintained that “there is no environmental crisis” and so perhaps has never had to build a system of constructs to deal with it.

The perception that there is a general “environmental crisis” may be the reason why some ecophilosophers found that, to a large extent, our existing western values structures have not been able to “rate” the environment as a construct – thus it cannot be dealt with as an issue. (Hay 2002:26 alludes to this in his charting of the history of environmental thought.) There is, therefore, a certain “chicken and egg” problem running through PCP.

3.2 *Separation of Issues and Values*

References to environmental issues are separated where possible from references to values.

Separation is also created to a large extent by asking general questions about broad issues that surround the “environmental question”. This process allowed the nominated environmental value benchmarks to then be used in the process of analysis, to describe and confirm the results found within the data.

This separation was possible in all but the most specialist of issues, such as animal rights.

3.3 Environmental Values

There has been some work done to identify environmental values in the general population (Cotgrove and Duff 1980, Milbrath 1984, Hay and Haward 1988, Charlton Research 1996, Thompson 2000). Much of the work of identifying and promoting specific environmental values has been carried out by ecophilosophers, for example Bookchin 1982, Devall and Sessions 1985, Fox 1990, Warren 1990. Milbrath (1984) has presented some information with respect to "elected officials" in the USA which can form a tentative benchmark to the findings of this study.

On the work of ecophilosophy with respect to creating a benchmark set of environmental values, Hay (2002:35) lists the following taxonomy of "[western] environmental thought generated to date":

- *animal rights*
- *anthropocentric ethics*
- *axiological ("intrinsic value") theory I: "deep green theory"*
- *axiological ("intrinsic value") theory II: the Gaia hypothesis*
- *axiological ("intrinsic value") theory III: "holistic integrity" / "land ethic" approaches*
- *axiological ("intrinsic value") theory IV: life-based ethics*
- *Christian ecology*
- *deep ecology*
- *ethics derived from power theory I: bioregionalism*
- *ethics derived from power theory II: "doomsday" ethics*
- *ethics derived from power theory III: ecofeminism*
- *ethics derived from power theory IV: ecoMarxism*
- *ethics derived from power theory V: social ecology*
- *"new science" –based ethics*
- *place-based ethics*

- *postmodern ethics*
- *spiritualist ethics*
- *sustainability ethics (Hay 2002:35–36).*

3.4 Environmental Issues

It has been necessary for the analysis of the participants involved in the study to use some frameworks to help classify the values an individual displays. Value frameworks, such as those provided by deep ecology, social ecology, ecoMarxism, and ecofeminism, help to group the participants by their responses to questions and hence render coherent their values.

The basis for the issues used to form the interview guide are found in the cited references in Table 4 below. The study sought to examine the environmental values of decision makers and environmental professionals by using the following common environmental issues (gathered from the references listed) to guide the discussion:

Table 4: Environmental Values Domains Used

	Environmental Value Domain	Relevant Guidance Question
1	Personal background and history of personal relationship to the Environment (Devall and Sessions 1985) ;	Q1, Q9, Q15
2	Perceived health of the environment (past, present and future) (Myers 1985);	Q2,Q3,Q4,Q5,Q10,Q17,Q21,Q22
3	The nature of environmental change (Flannery 1994);	Q8, Q11, Q12
4	Wilderness relationship – gymnasium, church, laboratory, silo, intrinsic (Hay 2002);	Q15, Q1
5	Anthropocentrism – primarily human based viewpoint (Devall and Sessions 1985);	Q6, Q14, Q10
6	Ecocentrism – primarily ecologically based viewpoint (Devall and Sessions 1985);	Q6, Q14, Q7, Q13, Q16
7	Personal impact;	Q13
8	Social and environmental equity (Bookchin 1982);	Q5, Q6
9	The intrinsic right to exist (Devall and Sessions 1985);	Q14, Q10, Q16
10	Sense of place (Hay 1988);	Q1, Q2–5, Q8, Q10
11	Human population growth and resource usage (Weisacker 1997)	Q11, Q12
12	Economic growth (Schumacher 1974)	Q11, Q6, Q7, Q12
13	The role of science (Devall and Sessions 1985); and	Q9, Q10
14	Personal optimism (future and current technological) (Schumacher 1977)	Q21, Q22, Q9, Q17

These themes permeate environmental thought and values. Not all the themes listed by Hay (2002) that constitute an orientation within environmental values are captured within this list. Some values derived in ecophilosophy are considered too specialist to form a basis for discussion outside philosophical circles. From his perspective as an “insider”, the researcher endeavoured to use issues that had particular relevance to Tasmanians and were seen to inform discussion by some of the participants over a period of time before the interviews took place.

It can also clearly be seen that some of these issues may be values themselves, such as “sense of place”. The interrelationship of environmental values as reported by commentators on green or environmental values is a complex issue (Hay 2002:35) and is the subject of some discussion within this study. Issues which shade into values have been approached through questions that have been worded to allow for a discussion of a related issue rather than the value itself. For example, issue 10 “Sense of Place” and information with respect to a participant’s values in relation to it were discovered through the following guidance questions:

- 1 What experiences contributed to your current understanding of nature?
- 2–5 How do you think the (urban, rural, natural, social) environment is going today?
- 8 What are the key changes to the environment you have noticed during your life?
- 10 Should previous human activity be actively remediated or left to nature to heal
 itself?

As a measure of the ongoing and iterative nature of qualitative research using a semi-structured interview approach, it was predicted that the values a participant displayed about sense of place would be revealed in the ensuing conversation surrounding questions 1 – 5, 8. Follow up questions were asked about this value when it was displayed, but in some cases participants discussed their sense of place relationship in question 10, which was unpredicted.

These issues/values and the corresponding values that have come from the interview data will be compared to the following benchmark environmental values, taken from the literature of environmental thought.

3.5 *The General Population and Environmental Values*

Thompson (2000) puts the values of various social transactions into four categories; as four opposing compass points in a semi-organisational psychology model:

Individualists who think Nature can take anything we throw at her. ...want to regulate the environment as little as possible. For individualists, nature is benign and resilient – able to recover from any exploitation – and man is inherently self-seeking and atomistic. Trial-and-error in self-organizing, ego-focused networks (markets) is the way to go, with Adam Smith's invisible hand ensuring that people only do well when others also benefit. Individualists trust others until they give them reason not to and then retaliate in kind, and see it as only fair that those who put the most in get the most out (as in the joint stock company). Managing institutions that work "with the grain of the market" (getting rid of environmentally harmful subsidies, for instance) are what are needed.

Egalitarians who believe our ecosystem is exceedingly fragile. ...favour a concerted grass roots effort. Nature, for egalitarians, is almost the exact opposite – fragile, intricately interconnected and ephemeral – and man is essentially caring and sharing (until corrupted by coercive and non-egalitarian institutions such as markets and hierarchies). We must all tread lightly on the earth, and it is not enough that people start off equal; they must end up equal as well. Trust and leveling go hand in hand, and institutions that distribute unequally are distrusted. Voluntary simplicity is the only solution to our environmental problems, with the "precautionary principle" being strictly enforced on those who are tempted not to share the simple life.

Hierarchists who think that nature is stable within certain discoverable limits. ...want to regulate the environment from the top down. The hierarchist's world is controllable. Nature is stable until pushed beyond discoverable limits, and man is malleable: deeply flawed, but redeemable by firm, long-lasting, and trustworthy institutions. Fair distribution is by rank and station or, in the modern context, by need (with the level of need being determined by expert and dispassionate authority).

Environmental management requires certified experts to determine the precise locations of nature's limits and statutory regulation to ensure that all economic activity is then kept within those limits.

Fatalists who think nature is capricious and has no clear principles. ...want to defect first. Fatalists find neither rhyme nor reason in nature and know that man is fickle and untrustworthy. Fairness, in consequence, is not to be found in this life, and there is no possibility of effecting change for the better. "Defect first" – the winning strategy in the one-off Prisoner's Dilemma – makes sense here, given the unreliability of communication and the permanent absence of prior acts of good faith. With no way of ever becoming in sync with nature or of building trust with others, the fatalist's world (unlike those of the other three solidarities) is one in which learning is impossible (Thompson 2000:5).

Thompson's personality categories are useful for determining the spread of general values across the study group. His "Individualists" are optimistic while the "Egalitarians" are more pessimistic. In the guidance questions degrees of optimism were investigated through questions in which participants were asked to reflect on their belief in science and technology (Q9) and the future for the Tasmanian (Q21) and world environments (Q22). Thompson's work also confirms the strongly negative relationship between a participant's optimism concerning the resilience of the environment, and their relative ecocentrism, as displayed in Appendix 6.

Charlton Research (1996:1) discuss public opinion generally toward the environment. In the 1970s and 1980s when pollution stories dominated the media, the majority of people believed the environment was the single most important issue. But Charlton Research found that only 2 per cent of the American public thought the environment to be the most important issue in the mid 1990s. They suggest that the issue of the environment has become mature – still very important, but no longer the most important. It is part of peoples' every day consciousness, and as there is confidence that the problem is being solved, it is not as high on their list of problems. If they are right this may be one of the important factors within the setting in which this current study was undertaken. In the study group all participants commented that environmental education was much more widespread now than when they were children. The effect that this "maturity" has on an individual's

environmental values may be a reduction in the felt need for direct action. However, the study also shows that the least ecocentric participants were also least likely to try to minimise their environmental impacts. Mr Eastley and Mr Long, for example, both declared that they did not need to minimise their personal impact beyond recycling, because the broader society had dealt with, or was dealing with, all environmental issues.

3.6 *Environmental Professionals' Risk Management Styles*

The values a professional has may dictate the decision-making framework used to make environmental management decisions, or conversely, the decision-making framework, if it is well “set” and embodies a tenacious framework of operational values, may have a large impact upon the professional’s personal values. Cohen (2001:3) shows that there are three main approaches to risk management used by environmental professionals:

- Decision Theory (or cost benefit analysis)
- The Precautionary Principle (the prevention in advance of unnecessary risks)
- Cognitive Risk Perception (the attributes of risk that influence the public)

These approaches also came out in conversation during the interview process.

3.7 *Environmental Values Derived from Ecophilosophy and Political Theory*

Ecophilosophers (for example Bookchin 1982, Devall and Sessions 1985, Warren 1990) have generated and/or identified value positions that people may take towards the environment. For the purposes of this study the following definitions of positions with respect to environmental values will be used (these positions have been generated by comparing the data, and reading ecophilosophy texts).

3.7.1 Deep Ecology

Deep Ecology has several interrelated aspects which are useful for the present value study. The Deep Ecology value set is the most comprehensively ecocentric value system identified within this study group. It sees the key axis of exploitation to be that of our species over all others, rather than power differences between people. Its key value orientations are:

- the understanding that we are part of a larger system, ecology, universe;
- a critique of anthropocentrism (human centred thinking); and
- intrinsic value (all things have an equal right to exist, including ecosystems taken as a whole).

3.7.2 Left Group

Left thought and values start from an analysis of political power. Political/economic systems are analysed by ecoMarxists, social ecologists, and “green” democratic socialists for their environmental consequences. The main tenets of the left value set are:

- Relations of production (the distribution of wealth is seen as the primary reason for environmental destruction)
- Belief in utilitarianism (the need to use technology to realise human potential)

3.7.3 Animal Rights

The work of various animal rights philosophers such as Peter Singer (1975), has influenced and been influenced by ecophilosophy, and has informed the work of advocacy organisations, such as the Humane Society. The rights of the non-human world here consist of the rights a person may assign to an animal, usually on the basis of the animal’s possession of one or other ‘valued’ human attributes. The guidance questions were amended to include animal issues to elicit personal values on this variable, from participants who may not have been used to thinking about the “environment” as a concept. The relevant positions are:

- Protection from cruelty (RSPCA-style minimum standards)

- Animal liberation (equal consideration for the higher animals and humans in accordance with the pleasure/pain principle)
- Animal rights (animals with beliefs and desires, perception, and a sense of the future have interests that mandate respect)

3.7.4 Summary

The issues discussed within the interview process allowed for the individual's environmental values to be examined directly and comparatively across the study group in the process of open coding, utilising these groupings through comparison of the numerical value assigned by the researcher as an indication of the participant's strength of feeling towards the issue.

The range of values found in the study group was broad, as a maximum variation sampling strategy was employed, with the most extreme variation within the group of politicians.

CHAPTER 4 ANALYSIS OF INTERVIEW DATA

The range in values displayed varied greatly and no two participants displayed identical values. Thus, the values a particular individual holds can be cross-referenced with the other participants, and to known philosophical values that have been identified in the literature.

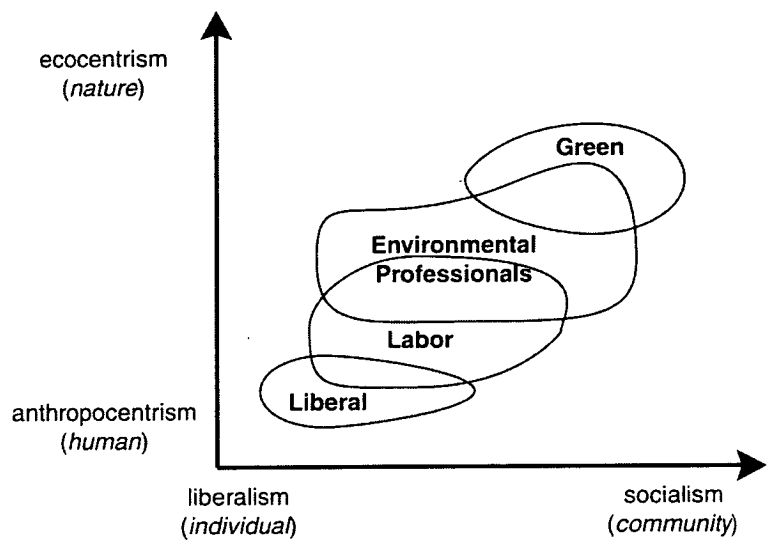
Though an interview guide was used, follow up questions yielded deeper insights when the interviewer was uncertain of the participant's real response to the issue, and when the complexity of the values used to make judgements about the issue warranted further exploration.

Some responses seem to have been influenced by the professional background of the individual, and by the level of influence of the individual over environmental decisions. The senior environmental professionals, for instance, demonstrated less personal commitment to ecocentric values, although they displayed a high level theoretical understanding of many ecocentric values. A clear trend in correlation between role identity and value orientation was also evident (see Figure 3 below), with green politicians and officer level professionals displaying more ecocentric values than senior professionals and Major Party politicians.

4.1 Summary of Research Findings

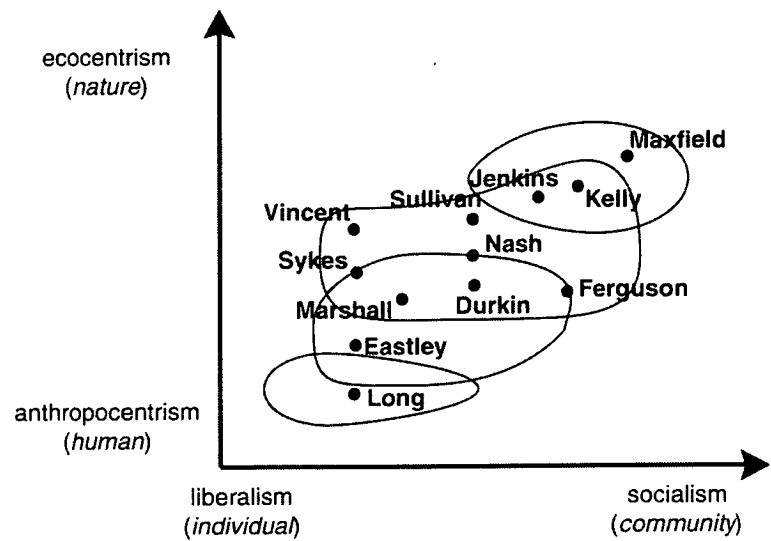
The data groupings found through the repertory grid correlations are shown in text form in Appendix 3 and 4. The individual responses have also been scatter plotted against the individuals' coded responses to guidance questions 5, 6, and 13 (see Appendix 1). The shapes of the scatters have been generalised somewhat to better reflect the position each participant took to the questions pertaining to the relationship between ecocentric environmental values and preferred social mode (liberal or collectivist).

Figure 3 Spatial Representation of Environmental Values by Role



The exact placement of the participants within this spatial representation of environmental values is shown below in Figure 4, and will be used to discuss individual political perspectives in the discussion of trends in the data that follows.

Figure 4 Scatter Plot of Participants' Quantified Responses



This visual representation of a subset of the data helps the reader more clearly understand the differences and the interrelationships between the various decision-maker and environmental professional groups found within the constraints of this qualitative study. Appendix 5 contains the data used for this scatter plot as a negative scale (-8 represents individualist views; 0 represents inclusivist views).

Figures 3 and 4 clearly depict the way in which participants with strong ecocentric values have moved past traditional Labor concepts of human collectives to a broader vision of ecological community.

Some further value groupings and clumped data sets within the broad groupings depicted above are suggested when the study data set is coded holistically. These have been grouped according to the label that most closely describes the nature of the interrelationship, and are presented below:

Table 5: Evident Data groupings

Group Label	Participant	Role
Deep Ecology Group	Mr Maxfield	Green Politician
	Mr Kelly	Forestry Manager
	Mrs Jenkins	Green Politician
	Ms Nash	Environmental Consultant
	Mrs Vincent	Environmental Regulator
	Mr Sykes	Environmental Regulator
Left Group	Mr Ferguson	Environmental Manager
	Ms Sullivan	Environmental Regulator
	Mr Durkin	Labor Politician
	Mr Maxfield	Green Politician
	Mr Kelly	Forestry Manager
"Major Party" Group	Mr Long	Liberal Politician
	Mr Eastley	Labor Politician
	Mr Durkin	Labor Politician
Animal Rights Group	Ms Vincent	Environmental Regulator
	Ms Sullivan	Environmental Regulator
Ungroupable	Mr Marshall	Forestry Manager

Note: For more information about the results used in correlating these groups, see Appendix 4: Correlation.

The participants who were least alike when all of their results were compared holistically were:

Mr Long and Mr Kelly followed by

Mr Long and Mr Maxfield followed by

Mr Long and Mrs Jenkins followed by

Mr Eastley and Mr Maxfield.

These overall results, and especially the "least alike" results, confirm the scatter plot data shown in Figures 3 and 4.

4.2 Possible Trends within the Study Group

The trends observed by open coding in the study group will now be summarised. Each of these trends will be discussed in greater depth for each relevant individual, with the use of illustrative quotes. The trends discussed in this study are not the only trends that may be observable within the study data, but they are the main and most important trends that were observed by the researcher during the course of the study, as indicated by the process of open coding and correlation.

Trend 1: Environmental Values in Environmental Professionals

The environmental professionals occupied the middle ground. The range of values was greatest between politicians. The professionals tended to be generally more ecocentric than the Labor/Liberal politicians, but less ecocentric than the Green politicians, and exhibited less of a range.

Trend 2: Politician's Values

As a group, the Labor and Liberal Politicians participants displayed the least ecocentric values within the study. Green Politicians were highly ecocentric whilst the Liberal Politician was highly anthropocentric. They defined the extremes of the value spectrum.

Trend 3: Animal Rights and Environmental Values

The more rights an individual thought animals should have, the more ecocentric their general environmental value set was. Nevertheless, the more an interviewee valued animal rights, the more likely they were to subscribe to individualist rather than collectivist social values.

Trend 4: Concern for the Environment in Every Day Life

The more influence an individual had, the less ecocentrism characterised the conduct of their own daily lives.

Trend 5: Personal Pessimism

The more generally pessimistic an individual was in terms of technology and our future, the more ecocentric their value set.

Trend 6: Senior Professional Managers were Less Ecocentric than other Professionals.

Trend 7: Tasmania as Island Ecology

While not all participants had extensive experience of other cultures or environments, it was almost unanimously the case that regardless of how healthy a participant believed the Tasmanian environment to be, the same participant perceived that the environment in most other parts of the world was substantially less healthy. By contrast there was a large variation in personal perceptions of the health of the Tasmanian environment. The trend generally was for participants with more ecocentric values to perceive the Tasmanian environment as being in a less healthy state than participants with more anthropocentric values.

Trend 8: Ecological Crises

A personal perception of looming environmental crises (especially global) was felt by Green politicians and environmental professionals, but not Labor and Liberal politicians.

4.3 Discussion of Findings with Support from the Data

This part of the study will use data gathered from the participants to demonstrate identified trend patterns. This is therefore the single largest section of the study as it is concerned with the participants "speaking for themselves", and must satisfy the criteria for quality mentioned in "Qualitative Research –Assessment of Credibility and Quality" (Section 2.12.1–5).

The style in which this is undertaken has been adapted from other qualitative field work inquiring into personal values and using similar numbers of participants, such as that of Lane (1962; 1972).

4.4 Trend 1: Environmental Values in Environmental Professionals

Across the study group, the individuals working within the environmental management and forestry sectors had strongly ecocentric environmental values (though the Green politicians had the most strongly ecocentric environmental values within the study group).

Mr Kelly and Ms Nash expressed a deep empathy for the green movement and what they perceived as “more extreme activist perspectives” – actions which they valued as helping drag the middle ground towards a more ecocentric perspective. Both stated that they could not get involved in the more radical environmental actions, as their own beliefs were not sufficiently strong. Mr Kelly will “vote for the Greens at times...there are extreme views as in any political party that I don’t support personally...[but] the world would be pretty dull if we didn’t have them”. Mr Kelly also felt quite constrained by the demands of his busy family life, and to some extent his role in the forestry industry, with respect to his ability to be involved in environmental protests. Kelly and Nash may represent the “nature conservationist” group that Milbrath (1984:25) identifies: “...people who think of themselves as environmentalists although they do not share the strong desire for social change...”.

Nash and Kelly also typify the overall trend of “ecocentric is pessimistic”. Using a sardonic humour to make a serious point, Nash observed: “We’ll muddle our way along and [humans will] survive for at least the next 500 years”.

At the other end of the spectrum, Mrs Vincent and Mr Marshall had less empathy with the green movement generally. Mr Marshall felt that:

The notion of having a greater weighting to understanding the natural world I am quite comfortable with...I am not comfortable at all with a deeper green theological position that ranks the environment higher than humanity...I know there’s an argument for it...but for me personally I’m completely anthropocentric...

This interviewee had clearly spent some time thinking about environmental values and philosophy, as his mention of intrinsic values and anthropocentrism makes clear. The colloquial link between “jobs and environment” appears to be one of the reasons Mr Marshall separates himself from green politics. It seems likely that Mr Marshall was once much closer to a conventionally green position than is now the case, perhaps having shifted his position according to the imperatives of his employment:

Social reform is ultimately more important....If I had to choose between employing my siblings and I had to make a judgement it would minimise the environmental impact...[placing] a very high weighting to social employment...I've grown up in an environment that really values work.

Mr Marshall, not surprisingly given this utilitarian position, displayed a lower than average general ecocentrism compared to the rest of the environmental managers interviewed. However, his pessimism concerning the present health of the environment placed him above the middle ground in the group and he forms one of the exceptions to trend 5 in the study, that belief in the reality of an environmental crisis leads to more ecocentric values. Though believing in the reality and severity of environmental crises, he nevertheless felt that the ecocentric concern that humans have brought the planet to a point of no-return is misplaced:

I don't see humanity from that perspective...I don't have a lot of time for modeling the end of the world.... I see nothing in the human condition that suggests to me that there will be a failure to work out strategy, I'm innately optimistic about the humanity of people to work through issues and resolve them...

Mr Marshall was also the most technologically optimistic individual interviewed in the study, above even the traditional productivist positions of Mr Eastley, Mr Durkin and Mr Long, the Labor and Liberal politicians of the group. In Marshall's view the green movement devalues humanity and has

insufficient faith in the problem solving capacity of science. Thus, he could not see his way clear to support the philosophies behind the movement.

On the other hand, Mrs Vincent, at once extremely ecocentric and socially liberal, was very concerned about the health of the environment, and also believed that the environment was more important than the economy or social reform. She stated: "I would place the environment above all else because without the environment the other two [social reform and economy] cease to be relevant."

Vincent's role as a Department of Primary Industries, Water and Environment environmental regulator had clearly given her sufficient information to believe in an environmental crisis, for "...biodiversity loss would probably be one of the biggest concerns I have...". Vincent was also very sceptical about science, another value position correlated to ecocentrism:

..[Science is] certainly going to assist with environmental issues, new technologies and everything else, but I think there has to be a fairly radical emotional and spiritual shift to address our environmental issues... I don't think the scientific world is going to be at the cutting edge of that... I think the change is going to come perhaps through some critical mass...I'm going to put it in the terms of a spiritual awakening. One of the issues I guess that I grappled with personally was the ethics of unleashing something that we can't control but knowing that if we could control it [science] and if we could trust ourselves and others to manage it [science] responsibly, then it would solve a lot of the world's problems...I don't know that we're mature enough as a race to actually deal with that...

Vincent identifies spiritual awakening as the path to change, and she seems to be an instinctive ecocentrist who has reached this position through a love of animals and a support for animal liberation philosophy, which will be discussed later. Her use of a form of "ethical extension" as proposed by Singer (1990), that of assigning rights to animals insofar as the same rights are held to

inhere within humans, did not, however lead her to believe in green politics. Vincent was especially scathing of green activism, as indicated by her statement that: “Extremism in any form is a dangerous thing... I think it [activism] is actually counterproductive to achieving the outcome” she qualified this position in the following way: “...I certainly see there is a role for activism if not only to prick the public conscience...” But the researcher is in Vincent’s work-based friendship group, and the second part of this statement was considered skewed towards mollifying this researcher’s well known support for radical action against injustice.

4.5 Trend 2: Politicians’ Values

The Labor and Liberal politician participants displayed the least ecocentric values within the study group. In stark contrast the Green politicians, Mr Maxfield and Mrs Jenkins, displayed the most consistently ecocentric values of all of the participants. The repertory grid in Appendix 4 correlates the two strongly, along with the most ecocentric environmental professional, Mr Kelly, which again suggests the results are confirmable. It is worth comparing some statements from this group of politicians to the comments made by other interviewees to further delineate the anthropocentric–ecocentric spectrum within the study group.

Jenkins recalled one of her earliest childhood protests on behalf of the non–human world, a situation that occurred when her father decided to cut down a bush in her front yard: “It was as if he was murdering the cat!”. From an early age then, Jenkins was aware of a sense of identification with a form of botanical life and its right to exist.

Jenkins also described an ecocentric sense of being “just another species”:

humans should not always start from the starting point that what they want is the most important thing, and that it should frame the parameters of decision making. I think the needs of the natural world and of other entities are equally as, or often more important than the needs of human. Humans are basically a cancer on the world – a big problem...the world will be a better place when humans have done themselves in.

Maxfield displayed a similarly deep commitment to ecological relationships and individual forms of life.

Two of the liberal politicians who tended to source their environmental values to a Christian commitment, ironically described the green movement in religious terms. Mr Long (who exhibited the most overtly Christian perspective expressed within the study group) stated:

I think a lot of people in the green movement...value the lives of inanimate objects like trees as highly as human life to the degree [that] they believe that a forest ...has the right to exist, without any human interference for its own sake. I think that is ridiculous. In fact I think it is a religious position where they assign an equal value to all of those things (animal rights and forests) to human life...

Mr Durkin merely refers to environmentalism as a "...means to itself, some people perpetuated their involvement on the basis they must go further to the left in order to justify their existence, and they lose sight of the actual reason for being."

The Green politician, Maxfield, has clearly thought long and hard about the possible effects that Christian religious beliefs have had on western values towards the environment. When asked about his attitudes towards economic growth, he replied:

it's death...we are a huge mammal currently marauding the resources of the planet with the brains to stop it but can't see it...we stopped being animist and became monotheists...a metaphor for ourselves...Christianity says God made man in his likeness. What they really mean is God is like us ...God is an excuse for the evil things we do because God can forgive those things, so someone outside can forgive us and we go on lording ourselves with the so called good things...it's a stuffed system... We have a stark choice here. We can be optimistic...or pessimistic or fatalistic about the status quo...

This quote shows one of the most interesting possibilities demonstrated by the investigation. Some Christians may perceive environmentalism as a new religion and therefore reject it on that account; just as many environmentalists in turn reject Christianity as a dangerous fundamentalism.

While this study did not seek to inquire into religious beliefs *per se*, it is clear that religious commitment is a significant determinant of environmental values within the data set. Both environmentalists and Christians describe deep environmental values in religious terms. It is recommended within the Conclusion of this study that this axis of division be examined further.

Consistently throughout this study, the Labor and Liberal politicians held the least ecocentric values within the study group. The Labor politician, Eastley, summarised his position at the beginning of his interview by stating “I don’t have any environmental values” (see Appendix 3, Table 3.3, and Appendix 4 “Least Alike” Group, and Appendix 5 Scatter Plot). Labor politician Durkin, while indicating an intense dislike for the Greens, was the most ecocentric of the politicians, and this is reflected in the scatter plot in Figure 4 above.

4.6 Trend 3: Animal Rights and Environmental Values

The more rights an individual thought animals should have, the more ecocentric their general environmental value set was, as borne out by the sorted results in Appendix 3, Table 3.1. In order of least support for animal rights to most, the ranking was the Major Party group of Eastley, Long and Durkin, followed by Ferguson, Marshall, and further elements of the Left Group, Sykes, Kelly, and Nash. The two Green politicians followed, but for the nature of this issue only, did not define the radical ground. The strongest claim for animal rights came from the liberal Vincent and even more so from the slightly more left leaning Sullivan.

Vincent did not see inability to communicate between the species as a problem:

..I don't make any distinction between animals and humans. I think we're just different species. I think it's arrogant to look at it from our [human] point of view as

to what we understand rational thinking to be and how that manifests in our [human] society...I view the natural world as one of the key stakeholders in our decision-making... I think (an animal vote) is an issue that should be increasingly included into cost benefit analysis... ”

Sullivan believed that humans and animals should be deemed to possess identical rights and noted recent research which indicates that vegetables may be able to feel pain, to further posit more intrinsic value for the vegetable world, too. This position seemed consistent with Sullivan's less individualist political stance.

Vincent was the most ecocentrically inclined liberal in the study group, but her "ethical extension" (Singer 1990) from individual liberal rights did not extend to the broader environment the sense of inclusiveness of the more moderate animal liberationists, the Green politicians. Maxfield believed animals had a right "to live without pain and [to live] with optimism in the future". Jenkins believed humans should not consider themselves most important, and should accord rights to individual animals in decision-making.

Most other participants agreed with an RSPCA-style of protection from cruelty as the best way to look after animals rights.

To define the opposite extreme with respect to animal rights we again turn to the words of Mr Long:

I have a religious conviction. I believe man was a created being created with a body, soul and spirit. I believe animals were created with a body, not with a soul and spirit...I've been a person whose been involved with hunting... if you thought of an animal the same way as you did a human you wouldn't do it.

When asked if he felt his views were in accordance with the conservative land stewardship ethic, Long replied "Yes – very", but it is clear that he is a long way from Attfield's (1983) concept of Christian stewardship, which accepts that intrinsic value is to be found in the non-human world.

Attfield's interpretation of biblical "dominion over nature" is that humankind is to be a "steward" over creation "charged by God with responsibility for its care" (1991:27).

Attfield's concept allows for a more responsible kind of stewardship:

most adherents to the stewardship view have implicitly accepted that intrinsic value is to be found among non-humans as well as humans; this granted stewards of the earth should be seen not only as managers of resources but equally as curators of treasures or as trustees of the biosphere... on the stewardship view nature has characteristically also been regarded as of value in itself (1983:216–217).

Marshall occupied the middle ground on animal rights (see Table 3.1), commenting that animals deserved:

the right to be treated humanely and fairly...I'm happy for animals to be harvested for food...but it would be wrong to say that I ascribe the same values that I hold for humanity to beef cattle for example...I'm not supportive of animals being induced with pain. However, if animals are used for testing in a project that may save a [human] life, that is okay. [But] dolphins for lipstick is just not on.

In an increasingly liberal western world, animal rights are likely to be the subject of more ethical extension. This could lead in a radical direction, but only Vincent and Sullivan displayed values sufficiently strong to be considered a radical perspective. Most of the participants who considered animal rights important resolved their needs to protect animals from unethical human use through product selection while shopping.

4.7 Trend 4: Concern for the Environment in Every Day Life

The more influential an individual was, the less ecocentrism was brought to bear in their own daily life. The study group evidenced extremes of personal commitment, from a great deal of effort taken, to none.

The Liberal politician, Long, maintained that the system had now dealt with the environmental problem, stating, "We don't deliberately go out and cause damage.. we're much more aware now of the damage that can be caused. [Overuse of packaging and] that sort of thing doesn't worry me. We're not going to fill our quota of landfill..."

No personal effort is needed then, apart from not causing wanton destruction (one assumes Mr Long is not aware that each person's quota of landfill is reducing daily). Long never takes the environment into account in his daily life. He does not need to as he believes the experts are dealing with it, effectively and appropriately.

Common levels of commitment expressed were walking or cycling instead of car use, separating waste streams for composting and recycling, and performing on-the-spot life cycle analysis on products when shopping. Some participants hated shopping as the amount of required reading of contents of the various products was deemed onerous. A few participants reported vegetarianism of varying degrees.

Mrs Jenkins, one of the Green politicians, summarised an important green "personal is political" philosophy while nevertheless describing the pressure on professionals to compromise:

a degree of self sufficiency is a very convenient and easy to comprehend way of taking responsibility....although we can't always do that....at the same time if all I did was worry about walking the lightest on the earth I possibly can, I wouldn't be able to do all the other work that I do, which is directed to making sure that an awful lot of other people's impacts don't hurt the earth as well.

When asked: "does a concern for the natural world affect the way you live your life", Maxfield again demonstrated the underlying spiritual nature of his ecocentrism by saying: "Yes...it powers the way I live my life...It fires my burners". Maxfield was one of the busiest participants in the study, with several flights each month for work related reasons, and spending much time in

government cars, attending rallies and other political functions. However, his personal response to his impact was detected in every aspect of his life apart from transport. From not consuming electricity, through to wearing clothes a little longer before washing, through to the food and products he consumed, there was not one aspect of his life that was not considered, and a mode of behaviour that best served the environment, delivered.

The perceived power of consumer purchasing power, through positive product selection, a contemporary market response to environmental issues, was clearly evidenced in all but the least environmentally concerned participants, Eastley and Long. Is this misplaced effort? Consumerism critic, Timothy Luke, argues that “green consumerism, rather than leading to the elimination of massive consumption and material waste, instead revalorizes the basic premises of material consumption and massive waste” (1993:170). John Dryzek also argues against consumer based approaches, observing that “markets have no mechanisms for dealing with the common property and public goods problems they generate” (1992:21). Establishing the level of personal endeavour to minimise environmental harm that the general community can realistically be expected to adopt, is a recommended follow-up research subject (see Conclusion).

4.8 *Trend 5: Personal Pessimism Towards the Environment*

The more generally pessimistic an individual in terms of the liberatory potential of technology and in terms of the likely future for the environment, the more ecocentric the value set. This is demonstrated graphically in Appendix 6 as a strongly correlated negative relationship between ecocentric values and environmental optimism. Thus, personal pessimism with respect to environmental futures seems to be an important factor in determining a person’s level of ecocentrism.

The participants showed a variety of responses to questions intended to elucidate their views of science and the future. The trend for science was, surprisingly, for the science professionals to be more sceptical than the largely non-scientifically trained politicians. Jenkins, the Green politician,

diverged from the other Green politician Maxfield on this issue, she and her family having much faith in ecological science.

Overall, optimism for science was lukewarm at best. Even the forest manager, Marshall, the most scientifically optimistic of the group studied, observed: "Science will not solve but will contribute to solutions...we need science for knowledge".

Many of the participants saw science as a fairly primitive tool, and not in itself a means of averting environmental problems. Eastley, the liberal Labor politician, was more optimistic than the group's middle ground, about science:

..It would be very unwise to say that science would never be able to solve any particular problem. On the other hand, I think it is...unlikely that science alone is going to solve the world's environmental problems [however] it is...a matter of economic possibility in some countries [with the] political will. I've got great faith in science coming up with answers to problems, but it's not to say there are not going to be other problems created by science...I do think that in most issues science is capable or will be capable of resolving [the environmental problem].

Not exactly unbridled optimism on the part of Eastley, who nevertheless held traditional Labor utilitarian views about human endeavour. Eastley (like Marx before him) was confident in the capacities of science, more so than the scientists themselves. The ecoMarxist, Jean-Paul Deleage, is one of a very few leftist environmentalists who is critical of this socialist faith in science:

By elevating the ignorance of nature and life to new heights and adopting the mechanistic view of the world, "official Marxism" has endorsed the most absurd choices in the field of development...the dismal ecological record of "existing socialism" is equally disappointing as that of capitalism...[and] a Marxism capable

of understanding ecological economics and an ecologically sound socialist policy must take this truth into account (1994:46).

Could pessimism towards science, then, be one of the keys to a person's environmental values? It seems unlikely from the data. Consider Table 3.6 in Appendix 3, where there is a difference between liberal politicians, private consultants and forestry managers, but not a strong difference. For example, Kelly, easily the most ecocentric of the group outside the Green politicians, on the science scale takes up the middle ground for the first time. Jenkins, one of the Green politicians, makes up the middle ground also. As seen above, Eastley one of the least ecocentric of the study group, while more optimistic about science than Kelly, was still cautious.

Does optimism towards science reflect career choice? This is more supportable from the data, with Liberal, Labor, private consultant, and forestry managers distributed at the optimistic end of the spectrum and the environmental managers at the other end and very doubtful about the credibility of science.

By way of possible explanation, this researcher has noticed that private environmental consulting groups and the forestry industry produce large amounts of "science can save the world" and "wise use" propaganda within the Tasmanian environmental science marketplace. Beder's (1997:24) "greenwash" theory supports this observation. She suggests corporations and conservative think tanks finished dealing with Labor unions in the US and UK in the 1980s and "turned their attention to environmental issues and the defeat of environmental regulations". This resulted in aggressive (and very expensive) anti-environmentalist and pro-corporate science public relations and lobbying campaigns: "They have sought to cast doubt on the very features of the environmental crisis that heightened public concerns at the end of the 1980s, including ozone depletion, greenhouse warming, and industrial pollution" (Beder 1997:24) with targeted and expensive advertising.

Science is still perceived by most of the participants as the only tool we have to fix the environmental problem, an interesting perspective, given that western science has attracted much green criticism on the basis of its inherently rationalist, dualistic and reductionist approach. Hay (2002:120) summarises it thus:

It comes as no surprise, then, to find that there is, within the environment movement, a full range of assessments of science as a way of knowing the world, and of its capacity to generate resolutions to chronic ecological and social crisis. At one extreme are those people, prominent within 'problem solving' government bureaucracies and academic departments of environmental science and sub departments of environmental economics for whom the privileged status of science is not problematic. For such people environmental problems are technical in nature and to be resolved by appropriate applications of environmental science – and they will be resolved, for there is no holding back the boundless problem solving might of science.

This position was given some support by Eastley, the utilitarian Major Party group in general, and Nash, the only private sector environmental professional involved in the survey. As mentioned previously, there was then somewhat of a divide to the next most optimistic person about science, Mr Kelly, the forest manager who, on most other matters, took one of the most consistently ecocentric approaches to all issues presented. Mr Kelly was quite damning about the ability of science to solve problems: "...given that it creates a lot of them...I think it will get a bit of a handle on some of it...people need to care [about the environment] more...Getting politicians ...and multinationals to listen is another issue, so I don't think science is really going to be capable of solving the major issues."

Kelly has identified here the emergence of two themes that were reasonably consistent throughout the study, the need for better science communication and education and the need for science to become ethical.

More pessimistic still was Maxfield who saw science to be:

...in many ways the big threat. What science means is the uncovering the powers that are inherent in the universe, in nature if you like, and the entrapment of those powers...at the service of the human will. Materialism's taken over which is very expedient...we have not got an ethic to replace it ..the ethic to replace it must be a long term view of how humanity stays with this great joy ride of the universe unfolding its ability to change itself and be aware of itself through us...instinctively we have in our brain a death denial [and that drives science] ...

Again, science is identified as a key environmental problem in itself, and by way of solution, Maxfield calls for an ethic of care to be applied to science.

Vincent, an environmental chemist, approached one of the positions noted by Hay (2002:120) in which personal values toward science take “the form of a project aimed at ending the centuries-long divorce between science and religion”:

..It's certainly going to assist with environmental issues, new technologies and everything else, but I think there has to be a fairly radical emotional and spiritual shift to address our environmental issues....I don't think the scientific world is going to be at the cutting edge of that...I think the change is going to come perhaps through some critical mass...I'm going to put it in the terms of a spiritual awakening...one of the issues, I guess, that I grappled with personally was the ethics of unleashing something that we can't control but knowing that if we could control it, and if we could trust ourselves and others to manage it responsibly, then it would solve a lot of the world's problems...I don't know that we're mature enough as a race to actually deal with that...

Vincent and Maxfield scored the same on the dichotomy scale for this issue, but Maxfield better defined the extreme of the values displayed (though Microsoft Excel sorted them alphabetically as they had the same low score – see Appendix 3 Table 3.6).

Optimism towards the future of the environment is graphically displayed in Appendix 7 and Figure 7.1. This graph confirms the finding that personal environmental optimism is related to personal environmental value, and perhaps not optimism towards science, to be further discussed in Trend 7, following. Pessimism for the future of the environment may therefore be a driver for a person's adoption of ecocentric values. Attitudes towards science alone do not offer a strong trend within this study.

4.9 Trend 6: Senior Professional Managers were Less Ecocentric than other Professionals

As shown in Figure 4 above, the two senior managers interviewed in the environmental professionals category displayed a similar level of value towards ecocentrism and organisation as the Labor politicians. While environmental senior manager Sykes was clearly more ecocentric than forest senior manager Marshall, and closely resembled Labor politician Durkin, both senior manager participants were less ecocentric than the rest of the environmental professionals (bar the aquaculture based environmental professional Ferguson).

Marshall's views have been discussed fairly extensively. Sykes' middle ground position with respect to ecocentric values can be illustrated by his concept of ecologically sustainable development:

the environment is very important to me...I wouldn't give it dominance...[economy and social reform] are certainly important. There is clearly a link between our economic and social well being and our capacity to protect the environment...it's

certainly not the only consideration. [Environment, economy and social reform] are linked and you can't look at one dogmatically and say that it prevails above all else...it's a matter of finding the right balance....some things have social and economic benefits sufficiently large and environmental costs sufficiently low (but not negligible) to be tolerable.

The concept of balance between ecocentric values and anthropocentric values was very popular for the middle ground of the study group which was comprised of the Labor politicians, and the senior environmental professionals, Nash and Ferguson. Sykes' version of balance in the above statement reflects his precautionary approach to ecological sustainable development. He was clearly more ecocentric than Marshall who was more interested in job creation than the environment, as a bottom line.

Guidance question 20 asked, "has your work changed the value you place on the environment?", to which Sykes replied initially "probably not", but when asked if knowledge gained through work has changed attitudes with respect to forestry, replied further:

I have looked at whole lot of different perspectives[on forestry]...I think [my work] changed my views...I was more towards the dark green view [in the forestry debate] when I started. I have a more balanced view now...Most opposition to forestry is more emotional than factual...When I look at the impacts of agriculture versus forestry and I look at the regulatory system that's in place for forest practices and is applied versus what happens in agriculture, the two are streets apart, yet people go around beating up the forestry industry and don't beat up agriculture...its not logical...which is not to say the forestry industry does not have further to go and there aren't problems in that area.

Marshall responded to question 20 by saying "Yes, enormously...I have seen things a lot more directly and personally...[in 30 years of work in forestry]", more evidence that Marshall may once

have had a more ecocentric viewpoint. When looking at Sykes' statement above and Marshall's more direct acceptance of his personal change, it is clear there is a socialising influence, probably employment related, that has rendered senior manager environmental professionals less ecocentric. Why has this values shift occurred?

The senior manager environmental professionals are the main sources of communication with the politicians who form the government of the day, and are responsible for the development and implementation of government policy. The highest ranking environmental and forestry managers in the Tasmanian Public Service are employed under the terms and conditions of the Senior Executive Service (SES), which offers five year fixed term contracts rather than the permanent contracts offered more junior environmental professionals. The selection process involves senior staff in the relevant agency as a selection panel whose recommendations are put to Cabinet for final approval. An element of politics is therefore directly present in SES appointments.

In Tasmania, high level executive positions are few. To maintain their somewhat tenuous positions, SES managers may feel more conservative in terms of policy-making and negotiation. Srebrnik and Bartmann have examined some of the negative features of small island states that could put pressure on senior managers:

their relatively small population base, coupled with large scale immigration, has left many states with a paucity of seasoned public servants and forced them to depend on external intellectual resources. As well, the lack of anonymity on small islands can foster nepotism, cronyism, patronage and political clientism (Srebrnik and Bartmann 2002).

Similarly, Russ and Tanner (1978) relate the case of Dr Alan Gilpin, who became the Victoria Environment Protection Agency's (EPA) Chairperson for two years from 1972. Gilpin was very concerned to make the EPA independent both in a legislative sense and in terms of funding.

According to Russ and Tanner's (1978:8) account: "...Gilpin was sacked by the state government. This event, more than any other, signified the government's desire to restrain the EPA: Gilpin tried to do his job, and lost it as a result". We can conclude that the real political pressures on SES managers are substantial, and it is easy to build a picture of the pressure they are under. Cabinet is directly in control of the employment contracts, and the small island jurisdiction that is Tasmania makes incompatibility with government policy a potentially life altering problem, as employment outside the public service may be impossible.

Other factors may also be part of the mix. For instance, public choice theorists do not believe in the Weberian ideal-type of bureaucratic of efficiency and accountability. On the contrary, public choice theorists believe that "rational bureaucrats" acting under the tenets of rational self-interest, would adopt strategies to give their agencies high status and agreeable work tasks (Ham and Hill 1993:55). This model of behaviour would cause the SES managers to behave pragmatically within the framework allowed by the government of the day. Tasmania, within the last three decades at least, has only experienced government under the major parties of Labor and Liberal, and the environmental programs of the state have mirrored the values of these parties. Thus, the finding that the values of the SES managers are reasonably matched to the values of the Major Party politicians is consistent with public choice theory.

What of the more direct pressure of the client group in daily contact with the SES managers? Could industry also exert a pressure that helps shape the values of SES managers?

Bernstein (1955:74-95) formulated the pioneering agency capture theory. He asserted that initial public interest leads to the creation of regulatory commissions, but after public interest dissipates, the regulated industry tends to capture its regulators. Mank (1993:1) argues that agency capture does not have to mean that a regulated industry controls an entire agency. It may be sufficient to influence a key operation. He cites (1993:3) the case of the US EPA's decision to allow industry to self-regulate by awarding long term contaminated site clean-up work to private environment

industry contractors, as there were insufficient US EPA staff to assess each site on its merit. Work overload subjected the agency to capture. Has similar agency capture occurred in Australia? Is there evidence of direct attempts by industry to capture environmental regulators and influence decision making and corporate values?

Economic rationalism, public choice theory and industry initiatives such as “best practice environmental regulation” (Australian Manufacturing Council 1993) combine to require much higher levels of consultation by environmental regulators with industry and the community than ever before. The resultant negotiation processes affect an individual’s values over time, as important policy objectives, such as “an end to old growth logging” are endlessly deferred in order to allow industry to “reform itself”. In addition, contemporary management developments such as ISO 14001, the international standard for Environmental Management Systems developed in 1995, present an adaptive management framework that focuses on future outcomes rather than present standards. These systems direct attention to managing community opinion towards industry by co-opting community environmental interests, and can be used to generate large volumes of evidence of the work being done to demonstrate environmental compliance.

In summary, senior environmental managers in Tasmania have been subject to competing pressures due to:

- increasing needs to consult the community and regulated industry;
- decreasing budgets and increasing application of efficiency measures;
- lack of anonymity due to Tasmania’s small island status;
- no permanence of employment; and
- increasing political accountability.

Additionally, Tasmania’s Department of Environment was formed in 1973 in similar circumstances and with a similar mandate to that of the US EPA. If Charlton Research’s (1996) position that the

environment is now viewed as a mature issue by the public is correct, this would mean that environmental agencies and their managers are becoming more susceptible to possible capture.

This combination of pressures may be driving the adoption of the “middle ground” of environmental values on the part of the senior managers involved in this study.

4.10 Trend 7: Tasmania as Island Ecology

While not all participants had extensive experience of other cultures or environments, it was almost unanimously held that, regardless of how healthy a participant believed the Tasmanian environment to be, the same participant perceived the environment in most other parts of the world to be substantially less healthy. But there was a large variation in personal perceptions of the health of the Tasmanian environment. The trend was for participants with more ecocentric values to perceive the Tasmanian environment as being in a less healthy state than did the participants with more anthropocentric values. Appendix 7 gives the quantified values range.

Responses to the question, “What is the future for the Tasmanian and world environment?”, included, at one extreme, the highly optimistic, anthropocentric, Christian Liberal politician, Mr Long, who said, “I think the future...is very bright as far as our environment here in Tasmania is concerned,..I think we’ve got the balance pretty right in the areas of forestry...people are a lot more aware of the environment around them...”. And with respect to the larger global situation, Mr Long believed:

...there are still some concern areas, some of the ..economically backward countries like Russia, where economically they are not able to comply with some of the standards that are now being adhered to round other parts of the world...sometimes I think we’re a just a little bit arrogant in thinking we can cause all this damage to the earth. I think it does have a system which tends to be able to recover...

Mr Long shows evidence here of a development described by Beder (1997:213). She notes that reporting on environmental issues declined from a peak in 1989 and that large corporations that sponsored newscasts and ran green advertising campaigns were increasingly not examined for their environmental record. However "coverage of former communist countries at this time concentrated on the pollution and environmental degradation in these countries, implying it was far worse than anything in the West and 'an inevitable by-product of a centralised, totalitarian system'" (Beder 1997:213). Perhaps Mr Long's religious beliefs have enabled him to more easily fall victim to greenwash? We will return to this in trend 7.

Mr Long also gave an interesting account of some of the more prominent global environmental problems: "I think some of those issues (ozone hole and greenhouse effect) sometimes are overrated. I think we're in danger of causing panic...we've only recently been able to measure both of those things. It may have been something that has been going on for years and years..."

Jenkins, the Green politician, exemplified the strong pessimism of the Deep Ecology Group (Appendix 4). Concerning the future for Tasmania, she stated: "I fear that we are going to continue having incremental degradation... until there's some sort of cataclysmic event that will cause people to become more focused".

Jenkins was thinking in terms of the next 500 years when making this statement, and her viewpoint can be compared to that of Vincent, the highly informed environmental professional manager:

[The] Tasmanian environment is in a fair state, but with that comes a sense of complacency and I think without taking heed of lessons learnt elsewhere and the sorts of changes that we need to be thinking about and putting into practice, ...maybe a generation or two down the track things might be quite dire.

The group members, taken as a whole, can be summarised as holding various versions of “Tasmania is damaged, but not severely, and because the rest of the world is quite badly off we can feel lucky.”

4.11 Trend 8: Ecological Crises, and the Circular Argument Revealed

A perception of looming environmental crises (especially global) was strongly articulated by environmental professionals and green politicians. Given the responses previously outlined for the Major Party group, it is consistent that that they saw no crisis in Tasmania, though maybe crisis or crises looming elsewhere in the world. What level of confidence can we have that our politicians and environmental managers will ensure that Tasmania retains its current level of environmental health into the future?

As we have seen already, the study participants from the major parties believe that the environmental professionals, “the system”, has the Tasmanian environmental problem largely under control. The environmental professionals themselves see the outcome to be less rosy (especially over the often-used 500 year time frame) and by their comments indicate that politicians, also a component of “the system”, are not dealing effectively with it. Thus we have an interesting circular argument emerging from the data on the two groups jointly responsible for protecting Tasmania’s environment.

4.11.1 The Circular Argument

Within the study group “the circular argument” exists as follows: environmental professionals believe they have insufficient funds to completely fix environmental crises, while politicians do not completely trust the crisis messages they are receiving from scientists who are perceived as being overly self-interested. Completing the circle, politicians do not mobilise sufficient funds to help avert the crisis, which then leads to the first part of problem again.

Two of the politicians from the major political parties alleged that environmental scientists exaggerate environmental problems, in line with Gouldner's (1979:7) "professional self interest and power seeking" category, and within the behavioural paradigm of public choice theory (Ham and Hill 1993:55). Requests for funding to fix environmental problems are perceived to come from selfishly motivated environmental professionals and not to be taken seriously. Mr Durkin displayed evidence of relating to environmental professionals in this way, believing that in relation to an environmental crisis:

There's a concern about biodiversity loss, but in context the speeding up [of extinctions] can be compared with other times in our history...I don't agree with it being classified as a crisis. [Self interested] scientists pushing a crisis message...a conflict of interest in a sense.

This can be contrasted with Myers (1985:154):

In its scale and compressed time span, this [current, human created] process of extinction will represent a greater biological debacle than anything experienced since life began. It will massively exceed the 'great dying' of the dinosaurs and their kin, together with associated organisms, 65 million years ago, when a sizable share of Earth's species disappeared.

Thus, Durkin sees scientists like Myers to be exaggerating the facts about the current high rate of extinctions, at least by comparison with other times in history. There is no actual crisis, in Durkin's view, as funding for biodiversity preservation hinges on decisions made in a Cabinet within which Durkin and Eastley have arguably the most important say in decisions over the portion of the state budget allocated to environmental matters. Durkin and Eastley would not want to feather the nest of "self-interested" scientists.

Table 3.4 in Appendix 3 gives a small picture of the values trending presented in Figure 3 above.

Table 3.4 has a field highlighted in pink, which shows the data clumping by role, with

environmental professionals clearly inhabiting the middle ground, and with the Green and Major Party politicians at opposite ends of the spectrum.

Mr Long again defines the edge of the spectrum, and provides more fuel for the circular argument with his comments about an environmental crisis:

...it depends ...on whether.. you look at these issues as to whether there is value in the very existence of particular species or if it is valuable to human existence, if I had to make a choice between those I would say I would look at things through its value to human existence...

Long's field of care is here only extended to the species that are useful to him. The logical extension of this position seems to be a spaceship earth concept, where, so long as we can grow our food, we will be fine, and the rest of the living world is dispensable.

In stark contrast, Jenkins, the Green politician, believes that, with respect to an environmental crisis:

...there isn't any doubt about this [crisis]...greenhouse effect is understood to be occurring and very few with understanding of the issues will quibble with this...the ozone hole quite heavily impacted public attitudes when it was found to be coming over us...the extinction of species is very well documented and should be worrying everyone...I worry because I don't think we have the right to extinguish species...from a pure survivalist's viewpoint big mammals like humans at the top of food chains are reliant on biodiversity remaining intact.

Jenkins tries to extend the logic of the major parties' own "self interest" by pointing out the short-sighted nature of a narrow human survivalist viewpoint.

Mr Sykes, a senior manager within the Department of Primary Industries, Water and Environment, exhibits a conservative but representative middle ground for the environmental professionals with his comments about environmental crisis: "I would say there probably is at a global level...land degradation is the issue which springs to mind most easily [as evidence of this]...erosion, salinity, loss of productivity [are the main problems]...biodiversity loss is an issue as well."

His comments exemplify most of the environmental professionals, which is typified by a utilitarian approach tempered with a good knowledge of the science behind environmental crisis. The Circular Argument will be discussed further in the conclusion below.

CHAPTER 5 VALIDATING THE RESULTS – CONFIRMABILITY

By examining the individual responses and correlating the qualitatively ranked responses to the guidance questions a triangulated idea of the trustworthiness of the results can be gained. This section will be a brief summary of the quality of the findings.

Firstly, the results do not produce conclusions that seem illogical or random. Many confirmatory references have been presented through the text. The trends that have been developed are plausible and reasonable, and it is easy to imagine causal reasons for these trends. Other quantitative studies quoted in the study have found similar trends in other populations.

This study has not attempted to identify general causality, as the information gathered has been to facilitate initial examination of the study group for descriptive purposes. Inquiries into causality that could be generalised to the whole population of environmental professional and politicians would require quantitative examination for each trend.

By comparing the correlation scores of the matching groups, we see that the two Green politicians have similar values in relation to the issues raised in the interview guide. Jenkins' and Maxfield's responses correlated highly at 0.83. The "Major Party" group, representing the Labor and Liberal members who took part in the study, is also well correlated. This is evidence that the study methods have yielded reproducible results between participants within the study group. Getting a result indicates that the maximum variation strategy in sampling was effective. Getting a result also indicates that the depth of data collection was sufficient.

CHAPTER 6 CONCLUSION

This study has collected in-depth qualitative interview data from the study group of 12 environmental professionals and decision-makers in Tasmania. Grounded research methods have been combined with personal construct psychology to develop a system for analysis and comparison of the values data. Several trends have been established and examined within the text using the participants' own words. The quality of the research has been evaluated as far as possible by this researcher.

Eight main trends were identified from the data. These trends were illustrated and analysed critically for their significance to the environmental values of the study group. The trends identified were:

Trend 1: Environmental Values in Environmental Professionals

The environmental professionals occupied the middle ground. The range of values was greatest between politicians. The professionals tended to be generally more ecocentric than the Labor/Liberal politicians, but less ecocentric than the Green politicians, and exhibited less of a range.

Trend 2: Politicians' Values

As a group, the Labor and Liberal Politicians participants displayed the least ecocentric values within the study. Green Politicians were highly ecocentric whilst the Liberal Politician was highly anthropocentric. They defined the extremes of the value spectrum.

Trend 3: Animal Rights and Environmental Values

The more rights an individual thought animals should have, the more ecocentric their general environmental value set was. In addition, the more an interviewee valued animal rights, the more likely they were to subscribe to individualist rather than collectivist social values.

Trend 4: Concern for the Environment in Every Day Life

The more influence an individual had, the less ecocentrism characterised the conduct of their own daily lives.

Trend 5: Personal Pessimism

The more generally pessimistic an individual was in terms of technology and our future, the more ecocentric their value set.

Trend 6: Senior Professional Managers were Less Ecocentric than other Professionals

Trend 7: Tasmania as Island Ecology

While not all participants had extensive experience of other cultures or environments, it was almost unanimously the case that regardless of how healthy a participant believed the Tasmanian environment to be, the same participant would perceive that the environment in most other parts of the world was substantially less healthy. By contrast there was a large variation in the personal perception of the health of the Tasmanian environment. The trend generally was for participants with more ecocentric values to perceive the Tasmanian environment as being in a less healthy state than participants with more anthropocentric values.

Trend 8: Ecological Crises

The personal perception of looming environmental crises (especially global) was felt by Green politicians and environmental professionals, but not Labor and Liberal politicians.

The environmental professionals and decision-makers were subject to a variety of competing pressures when forming personal environmental values. These pressures included:

- Increasing political accountability;
- Increasing needs to consult with community and industry groups;
- Increased numbers of programs and methods of program delivery with which to deal;
- Decreasing budgets;
- Decreasing contract stability for senior environmental managers;
- Lack of independence;

- Pressure from outsourcing; and
- Capture due to work overload.

There is evidence that the environment has reached its maturity as an issue for the electorate, and is no longer considered a first priority by the major political parties. The rise of economic rationalism and associated public choice theory combined with lower perceived importance of the environment as an issue has caused the independence of the State Government's environmental regulatory agencies to be subject to:

- Restructuring to make environmental agencies compete within larger natural resource management super-ministries;
- Budget allocations as part of larger natural resource management agencies;
- Increasing industry self-regulation; and
- Changes from precautionary approaches to risk management approaches.

A circular argument has developed between the environmental professionals and both the Labor and Liberal party politicians. This has been driven by the public choice theory that is associated with and derived from free market values, theoretical economics and economic globalism.

Environmental professionals have a responsibility to inform the public of what they know.

Professional public servants have power over knowledge, while politicians have power over money (Gouldner 1979:95). Interaction between these groups can swing from Chomsky and Herman's (1988:1) "professional propagandised feigned dissent" through Gouldner's (1979:7) "professional self interest and power seeking" to Galbraith's (Gouldner 1979:95) "professional guiding brains of society". Let us ponder further aspects of separating money and knowledge.

While it was unanimous amongst the study group that environmental concern had penetrated society on nearly every level, it was of interest that the more liberal of the mainstream politicians were of two positions:

- (ii) either they did not consider the environment to be an issue, or

(ii) they were happy that, in Eastley's words, "cabinet considered the environment [balanced against economic and social gain] in every decision".

Here is Tasmanian evidence of Charlton Research's (1996) "maturity theory" with respect to the saliency of the environment as an issue.

6.1 Some ramifications

Future quantitative research should be focussed on the following areas to test the extent to which the trends found within this small but influential group can be applied more widely in Tasmanian public life:

- What effect does religious belief have on environmental values?
- What style of relationship do Tasmanian environmental professionals have with political decision makers?
- What is the true economic value of the Tasmanian environment as an ecological system in the long term?
- To what extent can environmental value correlate with economic value?
- What level of environmental impact is acceptable in personal consumption, and to what lengths are individuals prepared to go to minimise personal impact?

The major parties have used public choice theory to explain the values expressed by the environmental professionals as self-interested exaggeration. As a result, the environment as an issue has been demoted by the major parties to the status of secondary consideration, not the essential precondition to the future development of Tasmania that many environmental professionals see it to be.

Nevertheless, a general belief in a global environmental crisis was highly evident in this study group, even if Tasmania was considered to be better off than the rest of the world at present.

Maxfield, perhaps the most ecocentric person who participated in this investigation, when asked about the general environmental crises, replied simply: "...we're in the middle of a cataclysm". But, whilst the view that the environmental crisis is worsening was supported by all environmental professionals and Green politicians, it was not supported by the major political parties. The major parties believe that the right balance of funds is being directed to government programs to protect the environment, based on an assumption of competition for funds between social and economic benefit and the natural world.

The conflict between the two pivotal groups responsible for protecting the Tasmanian human and non-human community (environmental professionals and major party decision makers) is an important problem for the future ecological sustainability for Tasmania. If the environment issue in Tasmania has reached maturity, then government agencies in Tasmania charged with protecting the environment face dwindling support and potential capture by industry or political groups that do not value the environment highly.

CHAPTER 7 REFERENCES:

Australian Manufacturing Council, 1993, *The Environmental Challenge: Best Practice Environmental Regulation*, Commonwealth of Australia, Canberra (ACT).

Attfield, R., 1983, "Western Traditions and Environmental Ethics", R. Elliot and A. Gare (eds), *Environmental Philosophy*, University of Queensland Press, St Lucia, (Qld.).

Attfield, R., 1991, *The Ethics of Environmental Concern*, 2nd edn, University of Georgia Press, Athens, (Ga.).

Ball-Rokeach, S.J., 1973, "Values and Violence: A Test of the Subculture of Violence Thesis", *American Sociological Review*, 38, 736-749.

Beder, S., 1997, *Global Spin : The Corporate Assault on Environmentalism*, Scribe Publications, Melbourne.

Benn, S., 1999, "The Environmental Challenge to the Overloaded State: the Politics of Toxic Chemicals in NSW since the Late 1970's", unpublished Phd Thesis, University of NSW, Sydney.

Bernstein, M., 1955, *Regulating Business by Independent Commission*, Greenwood, New York.

Boeree, C. G., 1998, "Qualitative Methods", Shippensburg University,
<http://www.ship.edu/~cgboeree/>

Bookchin, M., 1982, *The Ecology of Freedom*, Cheshire Books, Palo Alto, (Ca.).

Burgess, R. G., 1993, *In the Field: An Introduction to Field Research*, Routledge, London.

Charlton Research Company, 1996, "The Environmental Values Study –A Public Opinion Study Commissioned by the Congressional Institute", Survey published by the Congressional Institute, USA, <http://conginst.org/pulse/environment>

Chomsky, N., and Herman, E.S., 1988, *Manufacturing Consent – The Political Economy of the Mass Media*, Pantheon, New York.

Cohen, J., 2001, "Acceptable Risk in the Context of Managing Environmental Hazards", Harvard Center for Risk Analysis, Harvard School of Public Health, Boston, (Mass), on National Rural Water Association website, <http://www.nrwa.org/whitepapers/>

Cornford, F. M., 1941, *Plato's Republic*, Oxford University Press, Oxford.

Cotgrove, S., 1976, "Environmentalism and Utopia", *Sociological Review*, 24, 23–42.

Cotgrove, S., and Duff A., 1980, "Environmentalism, Middle–Class Radicalism and Politics", *Sociological Review*, 28, 333–351.

Cotgrove, S., 1982, *Catastrophe or Cornucopia: The Environment, Politics and the Future*, Wiley and Sons, Chichester, (UK).

Daly, M., 1978, *Gyn/Ecology: The Metaethics of Radical Feminism*, Women's Press, London.

Deleage, J–P., 1994, "Eco–Marxist Critique of Political Economy", in M. O'Connor (Environment

Division.), *Is Capitalism Sustainable? Political Economy and the Politics of Ecology*, Guildford, New York, 37–52.

Devall, B., and Sessions, G., 1985, *Deep Ecology: Living as if Nature Mattered*, Peregrine Smith Books, Salt Lake City.

Dryzek, J.S., 1992, "Ecology and Discursive Democracy: Beyond Liberal Capitalism and the Administrative State", *Capitalism, Nature, Socialism*, 3(2), 18–42.

Dunlap, R.E., Gale, R.P. and Rutherford, B.M., 1973, "Concern for Environmental Rights Among College Students", *American Journal of Economics and Sociology*, 32, 45–60.

Dunlap, R.E., 1975, "The Impact of Political Orientation on Environmental Attitudes and Actions", *Environment and Behaviour*, 7, 428–454.

Dunlap, R.E., Grieneeks, J.K., and Rokeach, M., 1983, "Human Values and Pro-Environmental Behaviour", in *Energy and Material Resources –Attitudes, Values, and Public Policy*, AAAS Selected Symposium 75, American Association for the Advancement of Science, Boulder, (Col).

Flannery, T. F., 1994, *The Future Eaters*, Reed, Melbourne.

Flew, A., 1971, *An Introduction to Western Philosophy: Ideas and Argument from Plato to Sartre*, Thames and Hudson, London.

Fox, W., 1990, *Towards a Transpersonal Ecology: New Foundations for Environmentalism*, Shambhala, Boston, (Mass).

Glaser, B. G., and Strauss, A. L. 1967, *The Discovery of Grounded Theory*, Aldine, Chicago, (Ill).

Gouldner, A. W., 1979, *The Future of Intellectuals and the Rise of the New Class: A Frame of Reference, Theses, Conjectures, Arguments, and an Historical Perspective on the Role of Intellectuals and Intelligentsia in the International Class Contest of the Modern Era*, Continuum, New York.

Ham, C. and Hill, M., 1993, *The Policy Process in the Modern Capitalist State*, 2nd Edn, Harvester Wheatsheaf, New York.

Hay, P. R., and Haward, M.G., 1988, "Comparative Green Politics: Beyond the European Context?", *Political Studies*, 36, 433–448.

Hay, P.R., 2002, *Main Currents in Western Environmental Thought*, University of New South Wales Press, Sydney.

Hay, R. B., 1988, "Toward a Theory of Sense of Place", *The Trumpeter: Journal of Ecosophy*, 9, 98–105.

Kelly, G.A., 1955, *The Psychology of Personal Constructs. Volume 1: A Theory of Personality; Volume 2: Clinical Diagnosis and Psychotherapy*, Norton, New York.

Kenny, V., 1984, "An Introduction to the Personal Construct Psychology of George A. Kelly", *Irish Journal of Psychotherapy*, 3, 1, <http://www.oikos.org/vincpcp.htm>

Lane, R. E., 1962, *Political Ideology: Why the American Common Man Believes What He Does*, The Free Press, New York.

Lane, R. E., 1972, *Political Man*, The Free Press, New York.

Lincoln, Y. S., and Guba, E. G., 1985, *Naturalistic Inquiry*, Sage, Beverly Hills, (Ca).

Lofland, J., and Lofland, L. H., 1984, *Analyzing Social Settings*, Wadsworth, Belmont, (Ca).

Luke, T.W., 1993, "Green Consumerism: Ecology and the Ruse of Recycling" in J. Bennett and W. Chaloupka (eds), *In the Nature of Things: Language, Politics and the Environment*, University of Minnesota Press, Minneapolis, (Minn).

Mank, B. C., 1993, "Superfund Contractors and Agency Capture", *New York University Environmental Law Journal*, 2, 1, 1–20,
<http://www.nyu.edu/pages/elj/issueArchive/vol2/1/2nyuelj34t.html>

Milbrath, L. W., 1984, *Environmentalists: Vanguard for a New Society*, State University of New York Press, Albany, (NY).

Milbrath, L. W., 1989, *Envisaging a Sustainable Society – Learning Our Way Out*, State University of New York Press, Albany, (NY).

Miles, M.B. and Huberman, A.M., 1994, *Qualitative Data Analysis: An Expanded Sourcebook* (2nd Ed.), Sage Publications, Thousand Oaks, (Ca).

Myers, M. D., 1995, "ICIS Panel 1995: Judging Qualitative Research In Information Systems: Criteria For Accepting And Rejecting Manuscripts – Criteria and Conventions used for judging manuscripts in the area of ethnography", *MISQ Discovery*, <http://www.misq.org/misqd961/isworld/iciseth.htm>

Myers, N. (ed.), 1985, *The Gaia Atlas of Planet Management: for Today's Caretakers of Tomorrow's World*, Pan London.

Neuman, W. C., 1997, *Social Research Methods Qualitative and Quantitative Approaches*, 3rd Edition, Allyn & Bacon, Boston, (Mass).

O'Faircheallaigh, C., Wanna, J. and Weller, P., 1999, *Public Sector Management in Australia*, 2nd Edition, Centre for Australian Public Sector Management, Brisbane.

Patton, M. Q., 1990, *Qualitative Evaluation and Research Methods*, 2nd Edition, Sage, Newbury Park, (Ca).

Rose, G., 1992, *Deciphering Sociological Research*, Macmillan, London.

Roszak, T., 1968, *The Making of a Counter Culture: Reflections on a Technocratic Society and its Youthful Opposition*, Faber and Faber, London.

Russ, P and Tanner, L, 1978, *The Politics of Pollution*, Widescope, Camberwell, (Vic).

Schatzman, L., and Strauss, A. L., 1973, *Field Research*, Prentice-Hall, Englewood Cliffs, (NJ).

Schumacher, E. F., 1974, *Small Is Beautiful: A Study of Economics as if People Mattered*, Sphere, London.

Schumacher, E. F., 1977, *A Guide for the Perplexed*, Sphere, London.

Shaw, M. L. G., and Gaines, B.R., 1992, "Kelly's 'Geometry of Psychological Space' and its Significance for Cognitive Modeling" *The New Psychologist*, October, 23–31.

Singer , P., 1993, “Animal Liberation”, *Island*, 54, 62–66.

Singer , P., 1993, *Animal Liberation*, 2nd edn, Jonathan Cape, London.

Srebnik, H., and Bartmann, B., 2002, Abstract for “Islands of the World VII” Conference, Charlettetown, Canada, <http://www.upei.ca/islandstudies/islandsvii/speakers.htm>

Steckler, A., 2002, “Qualitative Evaluation and Research Methods”, University of North Carolina, <http://www.unc.edu/~steckler/hbhe253/>

Strauss, A., and Corbin, J., 1990, *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Sage, Newbury Park, (Ca).

Tasmania 1974, *Environment Protection Act 1974*, Tasmanian State Government Printer, Hobart, (Tas).

Tasmania 1996, *Environmental Management and Pollution Control Act 1996*, Tasmanian State Government Printer, Hobart, (Tas).

Tasmania 1997, *State Policy on Water Quality Management*, Tasmanian State Government Printer, Hobart, (Tas).

Tasmania 1999, *Tasmanian Industry Audits: A Shared Vision Overview*, Department of State Development, Tasmanian State Government, Hobart, (Tas).

Tasmania 2000, *Tasmania Together*, Tasmania Together Progress Board, Tasmanian State Government, <http://www.tasmaniattogether.tas.gov.au/goals.html>

Thompson, M., 2000, "Understanding Environmental Values: A Cultural Theory Approach", Carnegie Council on Ethics and International Affairs, <http://www.cceia.org/>

Trochim, W. M. K., 2001, *Research Methods Knowledge Base*, Cornell University, <http://trochim.human.cornell.edu/kb>

Warren, K., 1990, "The Power and Promise of Ecological Feminism", *Environmental Ethics*, 12, 125–146.

Weizsacker, E, Lovins, A.B., and Lovins, L.H., 1997, *Factor Four Doubling Wealth – Halving Resource Use: A New Report to the Club of Rome*, Allen & Unwin, St Leonards, (NSW).

Appendix 1: The Interview Guide and Associated Dichotomy Scales

Value Mapping

Q	Interview Guide	Summary	Dichotomised Response range to issue	
1	What experiences contributed to your current understanding of nature?	personal relation I	1 natural only	10 urban only
2	How do you think the environment (urban) is going today?	urban env	1 very degraded	10 very healthy
3	(ii) rural	rural env	1 very degraded	10 very healthy
4	(iii) natural	natural env	1 very degraded	10 very healthy
5	(iv) social	social env	1 very degraded	10 very healthy
6	Compared to the economy, and social reform, how important is the environment as an issue?	relative importance	1 not very	10 most importance
7	Are we funding our environmental efforts appropriately?	economic investment	1 definitely not	10 yes definitely
8	What are the key changes to the environment you have noticed during your life?	change to env	1 lots of change	10 no change
9	Is science going to solve the world's environmental problems?	science technology	1 not tech optim	10 very tech optimistic
10	Should previous human activity be actively remediated or left to nature to heal itself?	management	1 human	10 nature
11	How do you feel about unlimited growth (economically and population)?	size of development	1 small	10 big
12	Explain what ecologically sustainable development means to you.	development	1 human	10 nature
13	Does a concern for the natural world affect the way you live your life?	personal effort	1 no effort	10 max effort
14	Should animals have the same rights as humans? (<i>question developed during sampling pro</i>)	anthropocentrism	1 no rights	10 equal rights
15	What is your idea of a good holiday?	personal relation II	1 urban	10 natural
16	What are your feelings about the "green value set"?	env values	1 no sympathy	10 high level sympathy
17	Is there a general environmental crisis?	env crisis	1 no	10 big crisis
18	Should environmental damage result in fines, jail sentences and other court actions?	legal control	1 no fines	10 big fines
19	Is our criminal justice system an effective deterrent/solution?	utilitarian justice	1 not effective	10 very effective
20	Has your work changed the value you place on the environment?	knowledge change	1 not at all	10 changed a lot
not used	Hypothetical #1: On a pacific island lives an indigenous tribe...	anthropocentrism		
not used	Hypothetical #2: An isolated colony of the endemic common cuddly hopping mouse...	management		
21	What is the future for the (i) Tasmanian Environment?	optimism local	1 not optimist	10 very optimistic
22	(ii) World Environment?	optimism global	1 not optimist	10 very optimistic

Appendix 2: Quantitative Assignment of Individuals' Qualitative Value -Repertory Grid
Open Coding: Iteration 1 Raw data

Participants												
	Mr Eastley	Mr Durkin	Mr Long	Mrs Jenkins	Mr Maxfield	Mrs Vincent	Mr Sykes	Ms Sullivan	Mr Ferguson	Mr Kelly	Mr Marshall	Ms Nash
Question number	1	2	3	4	5	6	7	8	9	10	11	12
1	10	3	5	4	1	10	10	4	10	2	2	2
2	7	7	7	3	3	3	3	5	7	3	2	7
3	7	7	7	2	1	2	4	5	3	2	7	4
4	7	8	7	3	2	6	4	5	3	3	4	8
5	7	5	7	3	1	7	7	5	2	2	6	5
6	5	5	3	10	10	10	8	9	5	9	4	5
7	4	5	10	2	3	4	9	3	9	2	3	3
8	3	7	6	2	3	3	8	3	3	1	2	3
9	6	6	4	3	1	1	2	2	2	4	8	7
10	5	4	7	3	8	3	2	7	7	3	3	2
11	8	5	8	6	1	2	2	2	4	1	4	4
12	3	6	3	9	10	7	6	9	8	7	5	5
13	2	7	1	7	10	7	7	8	7	9	7	9
14	2	5	2	9	8	10	6	10	5	7	5	7
15	2	7	5	10	8	3	5	10	10	9	2	9
16	2	6	2	9	10	7	7	8	9	8	6	8
17	1	1	1	9	10	3	8	8	4	9	8	7
18	6	5	7	10	10	7	5	10	8	7	7	6
19	8	4	9	7	6	4	7	1	3	3	3	5
20	6	3	1	3	4	8	4	7	2	6	8	7
21	9	7	10	2	5	5	8	8	9	7	8	5
22	2	5	10	2	2	5	2	8	9	2	4	5
Influence Level	3	3	2	2	1	2	3	1	1	1	3	1
Role	1	1	1	1	1	2	2	2	2	3	3	2

Appendix 3 Data Sorting by Response - Variation by Issue

Table 3.1 Sort by animal rights (Mrs Vincent, Ms Sullivan value most)

[illegible]

Table 3.2 Sort by future for Tasmania (Optimism)

[illegible]

Table 3.3 Sort by personal empathy/identification with "green value set"

[illegible]

Table 3.4 Sort by personal belief in "the general environmental crisis"

[illegible]

Table 3.5 Sort by Personal change to values through time

[illegible]

Table 3.6 Sort by attitude to Science (Optimism)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525
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Table 3.7 Relative Value of Environment Compared to Economy

[illegible]

Table 3.8 Personal Effort to Minimise Environmental Impact

[illegible]

Appendix 4: Correlation -Individual Responses Compared to Each Other and Some Basic Groupings/Clumping

Table 4.1 Total Correlations on Total Data

	Mr Eastley	Mr Durkin	Mr Long	Mrs Jenkins	Mr Maxfield	Mrs Vincent	Mr Sykes	Ms Sullivan	Mr Ferguson	Mr Kelly	Mr Marshall	Ms Nash
Mr Eastley	1											
Mr Durkin	0.19939783	1										
Mr Long	0.54153253	0.38103131	1									
Mrs Jenkins	-0.26698947	0.02777702	-0.34385075	1								
Mr Maxfield	-0.40633257	0.04370672	-0.34609955	0.83095164	1							
Mrs Vincent	0.09342289	0.01583819	-0.23081325	0.43141927	0.40490949	1						
Mr Sykes	0.08589395	0.02956911	-0.01031188	0.30955441	0.34168247	0.52679867	1					
Ms Sullivan	-0.30665469	0.21545102	-0.19382137	0.6229917	0.75193151	0.5510611	0.19532379	1				
Mr Ferguson	-0.03216091	0.26826947	0.28494421	0.31805958	0.41605665	0.30839643	0.33384451	0.548507	1			
Mr Kelly	-0.39318222	0.03735146	-0.51395082	0.7501514	0.84424609	0.41143739	0.30078137	0.77557593	0.33292865	1		
Mr Marshall	0.00125167	-0.02774264	-0.26588333	0.11971711	0.22119717	0.10318097	0.00699617	0.31519812	-0.18523944	0.45004841	1	
Ms Nash	-0.17461467	0.44445403	-0.22489232	0.52023613	0.46523674	0.23469876	0.04275824	0.54692859	0.1691469	0.65716486	0.40595335	1

These correlations are with each other compared to the whole group...

Green Values and Change Q

Q	Mr Eastley	Mr Durkin	Mr Long	Mrs Jenkins	Mr Maxfield	Mrs Vincent	Mr Sykes	Ms Sullivan	Mr Ferguson	Mr Kelly	Mr Marshall	Ms Nash
16	2	6	2	9	10	7	7	8	9	8	6	8
20	6	3	1	3	4	8	4	7	2	6	8	7

Evident Grouping with Background

Left Group			Least Like			Weirdest links		
Ms Sullivan	Mr Ferguson	0.548507	Mr Eastley	Mr Maxfield	-0.40633257	Mr Long	Mr Ferguson	0.28494421
Mr Durkin	Mr Ferguson	0.26826947	Mr Eastley	Mr Kelly	-0.39318222	Mr Long	Mr Eastley	0.54153253
Mr Maxfield	Mr Ferguson	0.41605665	Mr Eastley	Mrs Jenkins	-0.26698947	Mr Long	Mr Durkin	0.38103131
Mr Kelly	Mr Ferguson	0.33292865	Mr Long	Mr Kelly	-0.51395082			
			Mr Long	Mr Maxfield	-0.34609955			
			Mr Long	Mrs Jenkins	-0.34385075			
Deep Ecology Group			Env managers			Forest managers		
Mr Kelly	Mr Maxfield	0.84424609	Mrs Vincent	Mr Sykes	0.52679867	Mr Marshall	Mr Kelly	0.45004841
Mrs Jenkins	Mr Maxfield	0.83095164	Mrs Vincent	Ms Sullivan	0.5510611			
Ms Sullivan	Mr Maxfield	0.75193151	Mrs Vincent	Mr Ferguson	0.30839643			
Ms Nash	Mr Maxfield	0.46523674	Mrs Vincent	Mr Kelly	0.41143739			
Major Party Group								
Mr Eastley	Mr Long	0.54153253						
Mr Eastley	Mr Durkin	0.19939783						

Table 4.2 Correlations on issues only

	Mr Eastley	Mr Durkin	Mr Long	Mrs Jenkins	Mr Maxfield	Mrs Vincent	Mr Sykes	Ms Sullivan	Mr Ferguson	Mr Kelly	Mr Marshall	Ms Nash
Mr Eastley	1											
Mr Durkin	0.17861481	1										
Mr Long	0.54408359	0.23949712	1									
Mrs Jenkins	-0.43131222	-0.22798393	-0.54285222	1								
Mr Maxfield	-0.53279719	-0.25350936	-0.56026198	0.81824978	1							
Mrs Vincent	-0.2070541	-0.08176307	-0.42074203	0.42990393	0.48266819	1						
Mr Sykes	-0.23961357	-0.08246045	-0.15939694	0.27630639	0.40569238	0.37078851	1					
Ms Sullivan	-0.50679816	-0.05696192	-0.43737346	0.56046831	0.70710959	0.59737299	0.13426784	1				
Mr Ferguson	-0.3704053	0.21305764	0.18514513	0.2588595	0.45088303	0.08739747	0.11545035	0.54097513	1			
Mr Kelly	-0.45850626	-0.14012895	-0.68233433	0.75310307	0.83950732	0.50015258	0.37941145	0.76787889	0.36272166	1		
Mr Marshall	0.07628725	-0.2484307	-0.39235591	0.03958229	0.10453876	0.17715835	0.06524269	0.22362674	-0.22240273	0.38461635	1	
Ms Nash	-0.29402667	0.17682797	-0.56401625	0.43595608	0.30248972	0.26728527	-0.0093012	0.3857721	0.08507893	0.62363108	0.28500459	1

Evident Grouping Issues Only

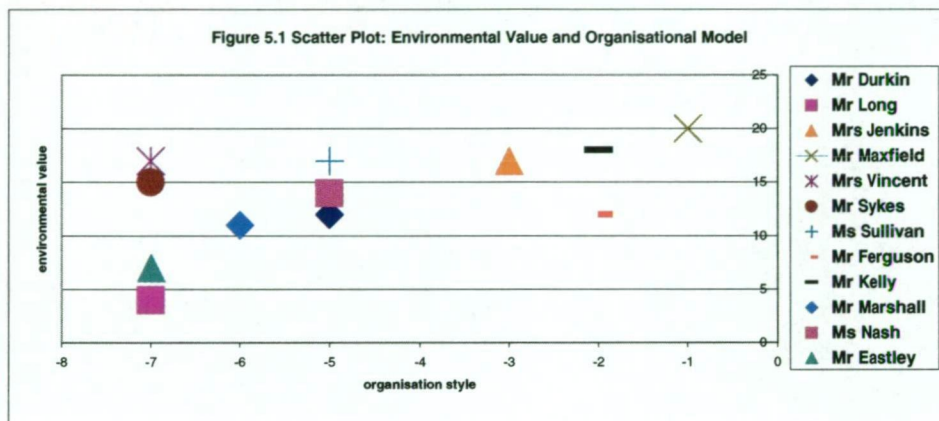
Left Group			Least Like			Major Party check		
Ms Sullivan	Mr Ferguson	0.54097513	Mr Eastley	Mr Maxfield	-0.53279719	Mr Long	Mr Eastley	0.54408359
Mr Durkin	Mr Ferguson	0.21305764	Mr Eastley	Mr Kelly	-0.45850626	Mr Long	Mr Durkin	0.23949712
Mr Maxfield	Mr Ferguson	0.45088303	Mr Eastley	Mrs Jenkins	-0.43131222	Mr Long	Mr Ferguson	0.18514513
Mr Kelly	Mr Ferguson	0.36272166	Mr Long	Mr Kelly	-0.68233433			
			Mr Long	Mr Maxfield	-0.56026198			
			Mr Long	Mrs Jenkins	-0.54285222			
Deep Ecology Group			Env managers			Forest managers		
Mr Kelly	Mr Maxfield	0.83950732	Mrs Vincent	Mr Sykes	0.37078851	Mr Marshall	Mr Kelly	0.38461635
Mrs Jenkins	Mr Maxfield	0.81824978	Mrs Vincent	Ms Sullivan	0.59737299	highest correlation of Mr Marshall		
Ms Sullivan	Mr Maxfield	0.70710959	Mrs Vincent	Mr Kelly	0.41143739			
Mrs Vincent	Mr Maxfield	0.48266819	Mrs Vincent	Mr Ferguson	0.08739747			
Mr Sykes	Mr Maxfield	0.40569238						
Ms Nash	Mr Maxfield	0.30248972						
Major Party Group								
Mr Eastley	Mr Long	0.54408359						
Mr Eastley	Mr Durkin	0.17861481						

Appendix 5: Scatter Plot of Data - Environmental Value and Organisational Model

	Mr Eastley	Mr Durkin	Mr Long	Mrs Jenkins	Mr Maxfield	Mrs Vincent	Mr Sykes	Ms Sullivan	Mr Ferguson	Mr Kelly	Mr Marshall	Ms Nash
5	7	5	7	3	1	7	7	5	2	2	6	5
6	5	5	3	10	10	10	8	9	5	9	4	5
13	2	7	1	7	10	7	7	8	7	9	7	9
16	2	6	2	9	10	7	7	8	9	8	6	8
influence Level	3	3	2	2	1	2	3	1	2	1	3	1
Role	1	1	1	1	1	2	2	2	2	3	3	2

	5	6	13	16	Q5	Q6+Q13
Mr Eastley	7	5	2	2	7	7
Mr Durkin	5	5	7	6	5	12
Mr Long	7	3	1	2	7	4
Mrs Jenkins	3	10	7	9	3	17
Mr Maxfield	1	10	10	10	1	20
Mrs Vincent	7	10	7	7	7	17
Mr Sykes	7	8	7	7	7	15
Ms Sullivan	5	9	8	8	5	17
Mr Ferguson	2	5	7	9	2	12
Mr Kelly	2	9	9	8	2	18
Mr Marshall	6	4	7	6	6	11
Ms Nash	5	5	9	8	5	14

	org (x)	eco (y)	6	13	eco	influence Level	Role
Mr Eastley	-7	7	3	1	4	2	1
Mr Durkin	-5	12	5	2	7	3	1
Mr Long	-7	4	4	7	11	3	3
Mrs Jenkins	-3	17	5	7	12	3	1
Mr Maxfield	-1	20	5	7	12	1	2
Mrs Vincent	-7	17	8	7	15	3	2
Mr Sykes	-7	15	10	7	17	2	1
Ms Sullivan	-5	17	10	7	17	2	2
Mr Ferguson	-2	12	9	8	17	1	2
Mr Kelly	-2	18	5	9	14	1	2
Mr Marshall	-6	11	9	9	18	1	3
Ms Nash	-5	14	10	10	20	1	1



Appendix 6: Scatter Plot - Environmental Optimism and Environmental Value

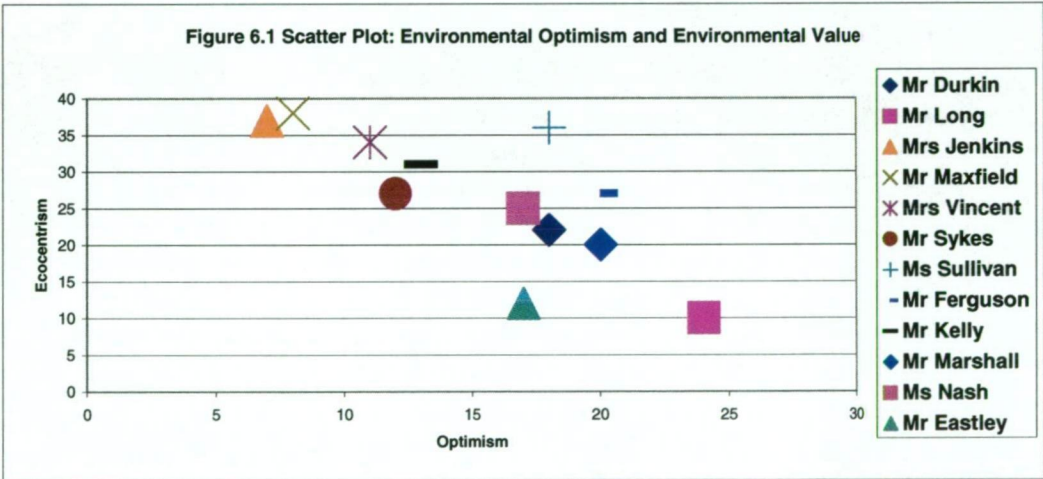
	Mr Eastley	Mr Durkin	Mr Long	Mrs Jenkins	Mr Maxfield	Mrs Vincent	Mr Sykes	Ms Sullivan	Mr Ferguson	Mr Kelly	Mr Marshall	Ms Nash
Question numr	1	2	3	4	5	6	7	8	9	10	11	12
6	5	5	3	10	10	10	8	9	5	9	4	5
9	6	6	4	3	1	1	2	2	2	4	8	7
12	3	6	3	9	10	7	6	9	8	7	5	5
14	2	5	2	9	8	10	6	10	5	7	5	7
16	2	6	2	9	10	7	7	8	9	8	6	8
21	9	7	10	2	5	5	8	8	9	7	8	5
22	2	5	10	2	2	5	2	8	9	2	4	5

Optimism=9+17+21+22

Ecocentrism = 6+7+12+16+14

Question numr	6	9	12	14	16	21	22	Optimism	Ecocentrism
Mr Eastley	5	6	3	2	2	9	2	17	12
Mr Durkin	5	6	6	5	6	7	5	18	22
Mr Long	3	4	3	2	2	10	10	24	10
Mrs Jenkins	10	3	9	9	9	2	2	7	37
Mr Maxfield	10	1	10	8	10	5	2	8	38
Mrs Vincent	10	1	7	10	7	5	5	11	34
Mr Sykes	8	2	6	6	7	8	2	12	27
Ms Sullivan	9	2	9	10	8	8	8	18	36
Mr Ferguson	5	2	8	5	9	9	9	20	27
Mr Kelly	9	4	7	7	8	7	2	13	31
Mr Marshall	4	8	5	5	6	8	4	20	20
Ms Nash	5	7	5	7	8	5	5	17	25

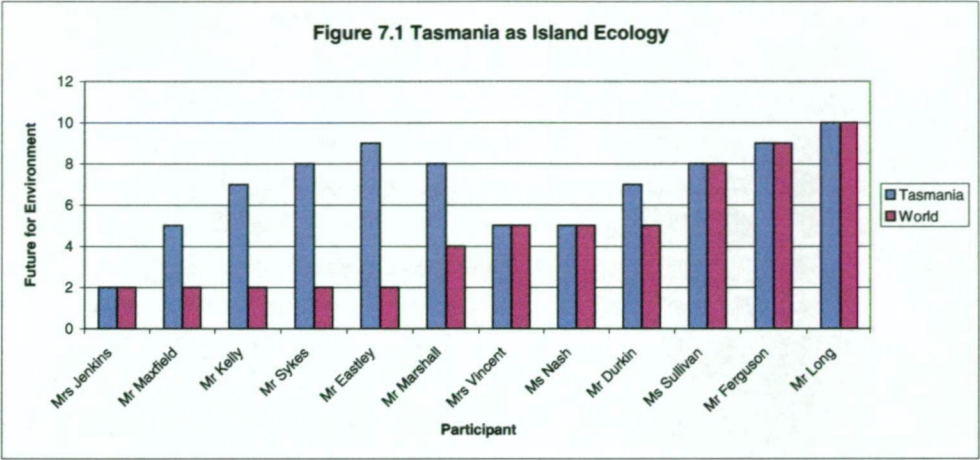
	Optimism	Ecocentrism
Mr Eastley	17	12
Mr Durkin	18	22
Mr Long	24	10
Mrs Jenkins	7	37
Mr Maxfield	8	38
Mrs Vincent	11	34
Mr Sykes	12	27
Ms Sullivan	18	36
Mr Ferguson	20	27
Mr Kelly	13	31
Mr Marshall	20	20
Ms Nash	17	25



Appendix 7: Tasmania as an Island Ecology

	Mr Eastley	Mr Durkin	Mr Long	Mrs Jenkins	Mr Maxfield	Mrs Vincent	Mr Sykes	Ms Sullivan	Mr Ferguson	Mr Kelly	Mr Marshall	Ms Nash
Question num	1	2	3	4	5	6	7	8	9	10	11	12
21	9	7	10	2	5	5	8	8	9	7	8	5
22	2	5	10	2	2	5	2	8	9	2	4	5
Role	1	1	1	1	1	2	2	2	2	3	3	2

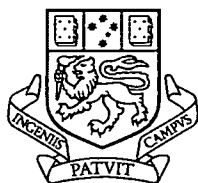
	Tasmania	World	Role
Mrs Jenkins	2	2	1
Mr Maxfield	5	2	1
Mr Kelly	7	2	3
Mr Sykes	8	2	2
Mr Eastley	9	2	1
Mr Marshall	8	4	3
Mrs Vincent	5	5	2
Ms Nash	5	5	2
Mr Durkin	7	5	1
Ms Sullivan	8	8	2
Mr Ferguson	9	9	2
Mr Long	10	10	1



Appendix 8

Ethics Committee Submission

- Application for Investigation of Human Subjects
- Information Sheet for Participants
- Statement of Informed Consent



UNIVERSITY OF TASMANIA

Office for Research
GPO Box 252-01
Hobart, Tasmania 7001 Australia
Tel: 03 62262763 Fax: 03 62267497
Email: Human.Ethics@utas.edu.au

ETHICS COMMITTEE (HUMAN EXPERIMENTATION)

APPLICATION: INVESTIGATION USING HUMAN SUBJECTS

INVESTIGATION NUMBER (Office use)		
TITLE of proposed investigation ¹		
ENVIRONMENTAL VALUES OF ENVIRONMENTAL PROFESSIONALS AND DECISION-MAKERS		
A. OUTLINE OF PROPOSAL		
Applicants ²		
Title/Name	Position	School or Discipline
Dr Peter Hay	Reader	Geography and Environmental Studies
Mr David Dettrick	MSc (Env Std) Student	Geography and Environmental Studies
Contact details for chief investigator		
Phone	x2836	Fax x2989 Email peter.hay@utas.edu.au
Purpose ³ Research project using human subjects		
Aims ⁴		
A qualitative determination of trends in environmental values of key players in the management of Tasmania's environments from governmental and private sectors. The general question of "what effect do personal values have on a person's ability to enact environmental policy?" will be a focus point of the project.		
Justification ⁵		
In Tasmania, government, industry and the community inter-relate within the Resource Management and Planning System to achieve the principles of ecologically sustainable development, as set out in the United Nations Rio Convention of 1992. This project seeks to explore the environmental values of a range of these key players in a qualitative, or trend based way, and to determine individual and personal perspectives on what sustainable development represents.		
By studying trend based results to the series of interview questions, an analysis may be made of the contributions that the whole, the group, and the individuals would make towards sustainable development in Tasmania.		
It is proposed that value bases of policy actors are a key determining component of the policy process and that a knowledge of the relevant values held by environmentally significant elites will provide useful insight into the practice of environmental management in Tasmania.		

Period of investigation ⁶			
Commencement date	Sept 2000	Completion date	Dec 2000
Funding			
(a) Do you intend to apply for a grant to fund this project?			NO
(b) If 'YES'			
Which funding bodies are you applying to?			
Will you undertake the project if your grant application is unsuccessful?			
Review of ethical considerations ⁷			
Has this protocol previously been submitted to the University Ethics Committee?			NO
Does this project need the approval of any other Ethics Committee?			NO
If 'YES', what is its current status?			

B. PROCEDURES

Detailed procedures ⁸

Overall Summary:

Qualitative research begins with a loosely formulated idea after which a group is selected for study (Neuman 1997:33). The approach is inductive rather than deductive. Detailed observations are the beginning for the study and a move is then made toward abstract generalisations and ideas (Neuman 1997:46). As one observes one builds theory from the ground up. In this study a subject group will provide the information from which trends will be generalised.

The loosely formulated idea that guides this research is discussed in the project aims and justifications above.

A selection of individuals will be interviewed from the Department of Primary Industries, Water and Environment (DPIWE), private environmental consultants, and Tasmanian State and Federal Politicians.

A list of potential questions is presented below that will form the basis for a discussion about the participants personal values toward the environment.

The interview data will be collected and reviewed on the basis of grounded theory and the successive approximation method. When trends emerge from the data, these will be discussed and an attempt will be made to generalise results into theory.

Interview Process –Participant selection

As the interview series is based on qualitative techniques, participants will be restricted to a total of 10 regulators, 5 consultants, and 5 politicians. For more on selection processes see selection and recruitment of subjects below.

Interview Process –Draft Interview Schedule

GROUP	SUB GROUP	EXECUTIVE	SENIOR MAN.	OFFICER LEVEL
DPIWE	EPSS	2	2	2
	P&WS	1	1	1
	FAF	1	1	1
	MARINE FARM		1	
FORESTRY TASMANIA		1	1	1
POLITICIANS	STATE	2	n/a	2
	FEDERAL	1	n/a	
CONSULTANTS	ENGINEERING	1	1	1
	LIFE SCIENCE			2

Interview Process -Initial Approach

Each potential participant in the interview process will be approached in a manner which will allow them to decline the interview without prejudice if they so desire. An information sheet will be provided to participants which summarises the project and their involvement in it. Please see below selection and recruitment for more detail on this.

The interview will be taped to minimise interference in the interview process by the taking of notes. The interviewee will be made aware before commencement of the purpose of the interview, of the use of tapes, and informed of the methods used to maintain confidentiality of the content of responses. A private and sound proof room will be selected for the interview. Data will be kept secure, all transcripts will be encrypted and password protected

The opening part of the interview will be used to establish a relaxed atmosphere for the discussion to take place, which will be guided by the questions presented below. This will encourage participants to open up and relate their personal feelings about the issues raised in the discussion.

The aims of the project, qualitative nature of the research, and the trend based nature of the findings, will be described for the purposes of informing the participant about the nature of the research and its outcomes.

The participant will be asked if s/he has any questions about any aspect of the project. Questions will be answered immediately. People will be advised they can withdraw at anytime.

The participant will then be asked to sign the statement of informed consent for the project. Please find this document attached to this application.

Interview Process –Guidance Questions

The interview will be based on a series of set questions.

Proposed questions for guiding the discussion:

1. What experiences contributed to your current understanding of nature?
2. How do you think the environment (urban, rural, natural & social) is going today?
3. Compared to the economy, and social reform, how important is the environment as an issue? –Are we funding our environmental efforts appropriately?
4. What are the key changes to the environment you have noticed as you where growing up?
5. Is science going to solve the world's environmental problems or create more?
6. Should previous human activity be remediated or left to nature to do the work?
7. How do you feel about unlimited growth (economically and population)?
8. Explain what ecologically sustainable development means to you.
9. Does a concern for the natural world affect the way you live your life?
10. What is your idea of a good holiday?
 - (i) Movieworld
 - (ii) Surfers Paradise
 - (iii) 4WD
 - (iv) Bushwalking
 - (v) Hunting
 - (vi) Suggest own holiday....
11. What are your feelings about the “green value set”?
12. If there is a general environmental crisis what is the solution?
13. Should environmental damage result in fines, jail sentences and other court actions? –Is our criminal justice system an effective deterrent/solution?
14. Has your work changed the value you place on the environment?

15. Hypothetical #1: On a pacific island lives an indigenous tribe in a relatively traditional lifestyle. One of the quaint cultural traditions of the island is that leaving the island is the equivalent of a death sentence as the island's hilltop gods must be honoured every day to ensure a successful hunt. Records date the tribe's presence to more than 150,000 years B.C. After a visit by the US Navy an AIDS epidemic has swept through the relatively small group, affecting 90% of the population. The provision of modern medical technology to both prevent further disease spread and to provide care for those afflicted requires the construction of a hospital on the island. Environmental consultants have determined that on this high rainfall, low wind speed island, hydroelectric electricity is the only reliable energy source. The dam and small power station requires the flooding of the only valley with many ancient endemic species that exist no where else. What is the best course of action?
16. Hypothetical #2: An isolated colony of the endemic common cuddly hopping mouse of Tasmania is found within a remnant area of old growth rainforest of immense ecological importance due to its pristine nature and unique vegetative community mix. Botanical studies have determined that this is also the last patch of a very rare plant species which is being threatened as it one of the small handful of staple foods the cuddly hopping mouse has in this area. What course of action is best taken?
17. What is the future for the
 - (i) Tasmanian Environment?
 - (ii) World Environment?

At the conclusion of the interview the participants will be asked if they are happy with the results.

Trends in the subject group's individual value set will be summarised after the interview into the text of the thesis document. The individuals will be given pseudonyms to protect their identity when direct quotations are used in the text of the thesis, or any computer records. Any material not kept will be destroyed.

Interpreting Results and Developing a General Theory

Grounded theory will be used to establish qualitative trends that (such as correlating management responsibility with personal values) that are based on similarities between the personal beliefs. In this area the utmost care must be taken to preserve the anonymity of the participant. Trends that become evident when reviewing the interviews will be presented in the thesis.

It is important within this form of qualitative research to let the trends in value systems to establish themselves, and yet be aware enough to detect the presence of a trend, and allow the participants to tell their own story about themselves independently to the trend.

Grounded theory is a widely used approach to qualitative research. "The purpose of grounded research is to build a theory that is faithful to the evidence (Neuman 1997:334)". Field research will also have a part to play in the method as I have been working in the Tasmanian Environmental management field for 4 years before beginning this project. "In field research the individual researcher directly talks with and observes the people being studied (Neuman 1997:344)" –in this case my fellow environmental officers, environmental consultants and state politicians I have worked with. This will have implications for the *conditions* under which any generalised theories are presented, as a result of my personal knowledge of, and familiarity with the key players, along with effects on selection of participants due to this prior knowledge (Rose 1992:57). This method is commonly used by sociologists and anthropologists alike and is referred to as the "going native" method, where the researcher learns to become one of the group being studied, an inside approach (Burgess 1992:20).

The analysis of the collected interview material will be undertaken using the process of successive approximation to help the theory move towards the results. The concepts will become better fitted to the evidence with each successive approach (Neuman 1997:427).

The final thesis will be published with a clear definition of the conditions under which the study was undertaken so that the relevance, reproducibility and applicability of the generalised theories is better understood.

Social Research References:

Neuman, W. C., 1997; *Social Research Methods Qualitative and Quantitative Approaches 3rd Edition*; Allyn & Bacon, USA, ISBN 0-205-19356-0

Rose, G., 1992; *Deciphering Sociological Research*; Macmillan Press, UK, ISBN 0-333-28558-1

Burgess, R. G., 1993; *In the Field –An Introduction to Field Research*; Routledge, UK, ISBN 0-415-07867-9

Where is this project to be conducted?

In and around the offices of Environment Protection, Planning and Analytical Services Division of DPIWE, 7th floor, 134 Macquarie Street, Hobart, Tasmania, and in any other secure sound proof private offices convenient for the participants.

Selection and recruitment of subjects ⁹

Environmental regulators will be selected from the staff of the Department of Primary Industries, Water and Environment (DPIWE). Consultants will be selected from several large environmental engineering consulting companies in Hobart, including Gutteridge, Haskins and Davey, Sinclair Knight Mertz, Stephenson's EMF, Pitt and Sherry, and perhaps others. Politicians will be selected from the Lower House of State Parliament and perhaps the Federal Senate.

Field research methods are appropriate to guiding the selection of participants. Experienced insiders working in the environmental management field have helped to identify the most pivotal key players in this specialised technical and social community (Burgess 1991:19). The low number of key players in environmental management executive managerial roles make selection limited by social-practical reasons such as the need for collaboration, and convenience (Rose 1982:57). Participants in larger numbers from lower parts of the state government hierarchy will be chosen by selecting a variety of people with different backgrounds to attempt to gain as broad a representation of personal values as possible.

Due to the specialised nature of the group to be researched, there are limited numbers of individuals who could be involved, and so most concepts of representative selection within large populations are inappropriate. For example within the Environment, Planning and Scientific Services Division of DPIWE, the primary state government environmental regulatory agency, there is only 1 director, 2 executive managers, and 5 senior managers –total staff around 70. Only 4 of these individuals are management level environmental regulators, the remainder are administrative, policy, or environmental science focused. Similarly, within the sphere of politics, there is one Minister for Environment, and the newly shrunken Tasmanian Premier and Cabinet consists of this Ministry plus 7 others –a limited population to interview.

The private environmental consultants group is closest to a traditional large population concept, but again given the limited market in Tasmania, is probably around 200-1000 members, depending on the definition of what work defines an environmental consultant. This group could be argued to be pivotal to achieving the requirements of environmental policy, as they are the engineers and designers directly in control of land management, areas of habitat, or polluting or pollution abatement. Given the intensive scrutiny and influential nature of the environmental impact assessment process, it could be argued that this group is really just addressing the more direct requirements of the regulator group, quite usually to achieve minimum acceptable standards of environmental management (lowest direct economic cost to consultant's client). Therefore, this group is of interest as environmental management practitioners and as the client group for the regulators. It will be interesting to see any value differences between the three major groups.

The recruitment process and numbers interviewed are important to define as the *conditions* in which any generalised findings/theories apply. The conditions of the research will be included in the opening chapters of the thesis document. Qualitative research methods do not produce statistically valid results. Even though the target population is small the findings and generalised theory would have to be tested more thoroughly to develop statistically valid results. Qualitative research usually creates opportunities for further quantitative research and this project will hopefully be of some use to possible future quantitative researchers interested in environmental values.

All participants will initially be approached informally during business hours, and asked if they would be prepared to be interviewed about their environmental values as part of the research project. An information sheet will be provided describing the overall thesis project, the methods and possible outcomes of the research. A second approach will be made within a few days to either confirm the interview if the person decides that they do want to be part of the research process, and to arrange a time.

No pressure will be applied. The potential participant will be advised of the confidential nature of the interview, of the use of pseudonyms to protect identity in the thesis text and in any records, and of the use of a tape recorder to record the conversation.

Selection will be initially determined from a subjective idea of the participant's background, and with the aim of selecting from a broad spectrum of political, spiritual and social beliefs. My involvement and knowledge as an insider in environmental industry will help determine the best list of representative individuals. An attempt will be made to interview equal numbers of both sex, though this may be difficult due to the high numbers of male consultants, regulators, and especially politicians.

Personal information ¹⁰

The only demographic information collected by the interviewer will be the name, sex and occupation of the participants.. No additional personal information will be collected

Potential risks ¹¹

The biggest potential risk is that the participant may be incompatible with the guidance questions. This considered very low risk. This risk will further reduced by choosing participants who have been judged to be able to talk about personal values without stress, and has also been alleviated by making the questions general, asking for purely personal responses, avoiding the idea of a correct answer and letting people know they can withdraw at any time, which will be emphasised.

Personal judgement will be the main guide to what constitutes "psychological stress" and if this stress seems uncomfortable for the participant or interviewer then the interview will be ended as quickly as diplomatically possible.

I have four years experience as a radio journalist interviewer on environmentally based programs on community radio, and I have interviewed hundreds of individuals from many different social and cultural backgrounds, sometimes in fairly stressful circumstances. I see the interview process as one in which both participants may be empowered through the ability to speak about issues which deserve attention, but which may be overlooked during the routines of the day.

Post contact ¹²

All participants will be advised that they may read the thesis drafts for their information, and to see how the trends were developed from the interview process. If participants wish to discuss any aspect of the thesis or interview process then a time will be arranged to discuss their interest or concern.

Remuneration ¹³

No remuneration is envisaged for participants in the project.

Confidentiality and anonymity ¹⁴

Confidentiality and anonymity will be maintained through these mechanisms:

Pre-interview

- by not referring to other individuals taking part in the project
- establishing contact in private.

During the interview process

- use of a secure sound proof room
- arranging to use rooms not in direct public use

Post interview

<ul style="list-style-type: none"> • by only allowing Dr Hay and Mr Dettrick access to the taped interviews • using pseudonyms to reference direct quotes where necessary. • analysing value trends only only at the level of general management groups • using generalities rather than specifics to describe trends <p>At the end of the project all of the tapes containing interviews will be scrubbed or destroyed. Any written transcripts will be identified by pseudonyms so these may be kept until the thesis is accepted.</p>
Administration of substances/agents ¹⁵ N/a
Human tissue or body fluid sampling ¹⁶ N/a

Other ethical issues ¹⁷ N/a
Information sheet ¹⁸ Please see attached
Consent form ¹⁹ Please see attached

C. DECLARATIONS
Statement of scientific merit ²⁰ The <i>Head of School</i> * is required to sign the following statement: This proposal has been considered and is sound with regard to its merit and methodology. <div style="display: flex; justify-content: space-between;"> (Name of Head of School) (Signature) (Date) </div> <p>* In some schools the signature of the Head of Discipline may be more appropriate. * The certification of scientific merit may not be given by an investigator on the project.</p>
Conformity with NHMRC guidelines ²¹ The <i>chief investigator</i> is required to sign the following statement: I have read and understood the NHMRC <i>Statement on Human Experimentation and Supplementary Note</i>

1992. I accept that I, as chief investigator, am responsible for ensuring that the investigation proposed in this form is conducted fully within the conditions laid down in the NHMRC Statement and any other conditions specified by the University Ethics Committee (Human Experimentation).

(Name of chief investigator)

(Signature)

(Date)

Conformity with code of practice: human tissue and body fluid sampling

The *chief investigator* is required to sign the following statement in relation to relevant research projects/teaching exercises:

I have read the Ethics Committee (Human Experimentation) *Code of Practice: Human Tissue and Body Fluid Sampling* and confirm that this Code will be followed.

(Name of chief investigator)

(Signature)

(Date)

Signatures of other investigators ²²

(Name)

(Signature)

(Date)

CHECKLIST

1. Please ensure that the following documents are included with your application:

- Draft information sheet
- Draft consent form, if applicable
- Draft questionnaire*, if available
- Draft interview schedule*, if available

* These must be enclosed if your project deals with a controversial topic.

3. Has the 'Statement of Scientific Merit' been signed?

4. Have all investigators signed the form?

INFORMATION SHEET

Potential subjects must be given sufficient information to be able to make an informed decision whether or not to participate.

For most projects this information will be provided as an information sheet. An alternative, which is more appropriate for some projects, is to include the information in an introductory letter to potential subjects.

The level of detail necessary to inform the potential participant adequately will vary with the nature of the participation of the subject and particularly with the degree of risk or harm involved. The information should be sufficient and comprehensible for the particular subjects, so the investigator should consider the background and circumstances of the subjects and what information they would like to have. It is necessary to use everyday language to ensure subjects' understanding.

A useful technique in writing an information sheet is to put oneself in the shoes of a proposed subject. Think about what a person would want to know about the project so that he/she could decide whether or not to participate if asked.

Investigators need to identify the information that will be of most concern to subjects and make sure that this is brought to their attention; eg by placing it near the beginning of the information sheet. For example, for some projects confidentiality - the fact that all information will be treated as confidential - might be particularly important.

An outline of the information which normally needs to be covered is given below. This outline is written in point form simply to assist investigators. An information sheet written in paragraphs usually has a more user-friendly style.

The information sheet should be on University letterhead.

Title of investigation

This should come first in the information sheet.

Name of chief investigator

Give the name of the chief investigator and also the name of the person who will have direct involvement with research subjects if this is not the chief investigator.

Purpose of the study

Explain fully but in simple language the purpose of the investigation.

If this is a student project explain that the project is being undertaken as part of (or to fulfil) the requirements for a degree (honours/masters/PhD) in a particular discipline.

Criteria for inclusion or exclusion

In some studies the inclusion of people with certain characteristics (eg elderly people; people with pre-existing health conditions) might be inappropriate or potentially harmful. Criteria for inclusion/exclusion from the study must be specified.

Study procedures

The procedures must be fully explained. Describe in detail what the subject will be asked to do.

If human tissue or body fluid sampling is involved specify that sterile procedures will be followed in accordance with the University's Code of Practice. Also give precise details of the volume of the sample to be taken, eg 5 mls; two teaspoons.

Payment to subjects

Details of any payment to subjects must be given. Subjects may be paid for inconvenience and time spent but such payment must not be so large as to be an inducement to participate.

Possible risks or discomforts

All risks which might affect a person's willingness to participate in the study must be stated. "Risks" will depend on the nature of the investigation and might include physical effects (eg the risk of pain), psychological effects (eg the risk of emotional distress or embarrassment) or social or legal effects (eg

the risk of social harm if information was disclosed). Describe risks carefully and accurately. Quantify the nature of the risk if possible.

Confidentiality

Explain the steps that will be taken to maintain the confidentiality of research data.

Freedom to refuse or withdraw

Make it clear that participation is entirely voluntary. It must be clear that subjects who decide to take part in the study can withdraw at any time without prejudice.

Contact persons

Include names and telephone numbers of people that the subject can contact for more information. The contact person for questions relating to the study will normally be the chief investigator.

Concerns or complaints

Inform subjects that, if they have any concerns of an ethical nature or complaints about the manner in which the project is conducted, they may contact the Chair or Executive Officer of the University Ethics Committee (Human Experimentation). (In 1998 the Chair is Dr Margaret Otlowski, phone (03) 62 267569 and the Executive Officer is Ms Chris Hooper, phone (03) 62 262763.)

If University of Tasmania students are proposed as subjects inform them that, if they have any ethical or personal concerns related to the study, they may choose to discuss these concerns confidentially with a University Student Counsellor.

Statement regarding approval

Include a statement that the project has received ethical approval from the University Ethics Committee (Human Experimentation).

If the study has been approved by another body or group, eg the Royal Australian College of General Practitioners or the Department of Education and the Arts, include this information.

If the project uses school children as subjects the parents should be informed that the project has the permission and support of the school.

Results of investigation

Subjects should be told whether they will be informed of the overall results of the study or personal data at its conclusion, or of significant findings during the course of the study which might affect subjects. Any provision for debriefing participants who withdraw should be explained.

If relevant, include a statement that the results will be passed on to appropriate people (eg subject's GP; school principal).

Information sheet and consent form

Include a note that the subject will be given copies of the information sheet and statement of informed consent to keep.

THE STATEMENT OF INFORMED CONSENT

The 'statement of informed consent' and the information sheets are normally separate documents. However, in some cases the investigator might wish to combine information and consent in a single document, for example, if the project is straightforward and requires little explanation. In such cases it is important that the information and consent sections of the form are separated clearly.

For further information about informed consent see Section 6.1 'The principle of informed consent' in the *Handbook*.

Information to be included in the 'Statement of informed consent'

Title of project

A statement by the subject, in the following terms:

1. I have read and understood the 'Information Sheet' for this study.
2. The nature and possible effects of the study have been explained to me.
3. I understand that the study involves the following procedures:
.....
4. I understand that (describe any risks or possible discomfort)
.....
5. I understand that all research data will be treated as confidential.
6. Any questions that I have asked have been answered to my satisfaction.
- 7.* I agree to participate in this investigation and understand that I may withdraw at any time without prejudice.

I agree that research data gathered for the study may be published provided that I cannot be identified as a subject.

Name of subject

Signature of subject Date

7.* *A statement by the investigator* in the following terms:

I have explained this project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

Name of investigator

Signature of investigator Date

*Item 6:

The phrase "without prejudice" must be put into context depending on the project. For example:

- For medical research it must be specified that withdrawal from a study will not affect the subject's right to ongoing medical care.
- In studies involving University students, the subjects must be informed that withdrawal will not prejudice their academic standing.

*Item 7:

A "statement by the investigator" is inapplicable for a research project in which there is no direct contact between the investigator and the subjects.

ENDNOTES

¹ Title: Please be concise but specific. Titles should be consistent with those used on any external funding application(s). For teaching practicals please give code and title of course.

² Applicants:

The term 'investigator' is used to cover staff and students in their roles as researchers or educators. Show chief investigator first. The chief investigator is responsible ultimately for the conduct of the project.

Student researchers may not be named as chief investigators. Supervisors will therefore normally be the chief investigators for projects undertaken by students. The student's academic level (eg 3rd year; Honours; PhD) must be shown.

All applicants must sign the form (Section C: Declarations)

³ Purpose: State whether this is a research project or a teaching exercise. Using students as experimental subjects in a class practical is an example of a teaching exercise using human subjects.

⁴ Aims: Please give a concise description of the main objectives and/or hypothesis of the study.

⁵ Justification: Explain why this particular study is worth doing; and the main advantages to be gained from it.

⁶ Period of investigation: Give expected commencement and completion dates of the investigation.

⁷ Review of ethical considerations: If this project has been approved by any other Ethics Committee provide evidence of this approval.

⁸ Research procedures: The experimental plan and procedures must be described in detail. Please use language which will be understood by the non-specialist. Be specific about what each subject will be asked to do.

If a questionnaire or interview will be included, outline the kinds of questions that will be asked. If you have prepared a draft questionnaire or interview schedule, include these with your application. This will prevent delay in the event that the Committee wishes to see them.

⁹ Selection and recruitment of subjects:

- Clearly describe the experimental and, where relevant, control groups. Include details of number of subjects, sex, age range, special characteristics. Give a justification for your choice of subject group/s.

Explain in detail how subjects will be selected and approached. Investigators frequently provide insufficient information on how subjects will be approached. Committee members need this information so that they can check, for example, that individuals' privacy is not infringed; that there is no coercion to participate; and that subjects are given adequate time to decide whether or not they wish to participate.

¹⁰ Personal information: This is information which could be used to identify subjects, eg. name, age, sex, employment history. It is formally defined as "information or an opinion (including information or an opinion forming part of a database), whether true or not, and whether recorded in a material form or not, about an individual whose identity is apparent, or can reasonably be ascertained, from the information or opinion" - Privacy Act, 1988 (Commonwealth).

If personal information will be collected in this study

- Give details of the information that will be collected.

If you wish to obtain data containing personal information from any Commonwealth Government agency state the names of these agencies, describe the nature of this data and explain the justification for obtaining this information. The NHMRC requires the Ethics Committee to provide information on the cases in which it has approved access to, and use of, data held by Commonwealth Government agencies.

¹¹ Potential risks: Any significant physiological, psychological, social or legal risks associated with this investigation must be disclosed. The investigator must include any possible risks or effects that might affect a person's willingness to participate in the study, eg:

- the possibility of physical harm, pain or discomfort above the everyday norm;
- the possibility of emotional distress, anxiety or embarrassment above the everyday norm in the subjects or others;

- obtaining information which may be prejudicial to participants (eg there would be a risk of social harm or legal implications if information was disclosed).

Explain the precautions to be taken to prevent or minimise risks.

¹² Post contact: Explain the procedures to be followed to establish the well-being of the subjects when the study has been completed (if post-contact is appropriate).

¹³ Remuneration: Volunteers may be paid for inconvenience and time spent, but such payment must not be so large as to be an inducement to participate. If payment is to be made include the reasons for payment and the timing of payment(s).

¹⁴ *Confidentiality:*

Confidentiality of information is protected when it is not disclosed or revealed to other persons by the investigators. How will data security be maintained during the project? How will data be stored after the project has finished? How will it be disposed of?

Anonymity:

Anonymity means that individual subjects are not identifiable. In some studies, eg many surveys and questionnaire-based studies, individual subjects' names are not recorded. In other studies identifying information is collected and measures must be taken to maximise the security of this information. How will anonymity of subjects be assured?

¹⁵ Administration of substances/agents: If any chemical compounds, drugs or biological agents will be administered specify name of substance, dose and frequency of administration, total amounts to be administered and anticipated effects.

¹⁶ Human tissue or body fluid sampling: If the project involves human tissue/body fluid sampling full details must be provided. Specify what will be sampled and how; frequency and volume; how samples will be stored and disposed of; who will take the samples and their qualifications for this; potential risks.

The chief investigator must follow the Ethics Committee's 'Code of Practice: Human Tissue and Body Fluid Sampling' (see Section C: Declarations). This Code is included in the handbook *Research Projects and Teaching Exercises using Human Subjects: Ethical Guidelines*.

¹⁷ Other ethical issues: If, in your opinion, this project raises any other ethical issues please give details.

¹⁸ Information sheet: With few exceptions, it is essential that subjects are provided with an information sheet. The Committee will pay close attention to the information that is given. An outline of the information that normally needs to be covered follows the application form. A copy of the proposed information sheet must be included with your application form.

¹⁹ Consent form: Written evidence of consent is usually required for research involving human subjects. In most cases it is required that subjects sign a consent form prior to their participation in the research. Information in the consent form and the information sheet must be consistent.

A sample consent form follows the application form. The format of the sample form is appropriate for most projects. If written consent is to be obtained a copy of the actual consent form that you propose to use must be included with your application form.

The investigator is expected to go through the consent form with subjects to ensure their comprehension of the project, to reiterate any risks or side effects and important ethical principles such as voluntary participation and to answer any questions that subjects may have. The investigator may wish to bring in a third party to confirm a subject's understanding and consent in circumstances where the capacity of the subject to give voluntary and informed consent is in doubt.

There are several kinds of studies for which written consent is not required:

- *Questionnaire studies:* Written consent is **not** required for questionnaire studies in which subjects are anonymous provided that there is a covering information sheet which includes statements regarding the confidentiality of data and the anonymity of subjects. Questionnaires should include the statement 'Do not put your name on this questionnaire' at the beginning.
- *Studies using minors as subjects:*

Consent of parents: Parental consent is normally required for studies which involve children under eighteen years of age. However, when the proposed subjects are mature teenagers and the research is of a non-controversial nature the investigator can apply to the Ethics Committee to dispense with written parental consent.

Consent of subjects: This is required provided that the subjects are of an age where their willingness to participate can be ascertained.

- *Qualitative research:* Written consent is not an inflexible requirement for qualitative research. In some cases obtaining written consent might jeopardise the validity of the research. Examples are studies based on interviews where obtaining written consent could interfere with building rapport; and studies with subjects for whom protection of identity is essential.

If you consider that written consent is inappropriate for this project please give your reasons on the application form. If you are unsure whether written consent will be necessary please contact the Chair or Executive Officer for advice.

In special circumstances the Ethics Committee may give approval for consent to be waived. For information see the handbook *Research Projects and Teaching Exercises using Human Subjects*.

²⁰ Statement of scientific merit: The Head of School's (or Head of Discipline's) signature on the application form indicates that he/she has read the application and confirms that it is sound with regard to (i) educational and/or scientific merit and (ii) research design and methodology. If the Head of School/Discipline is one of the investigators this statement must be signed by an appropriate person. This will normally be the Head of School/Discipline in a related area.

²¹ Conformity with guidelines and codes of practice: The chief investigator is asked to sign to accept the conditions listed in these sections.

²² Signatures of other investigators: The other investigators should sign to acknowledge their involvement in the project and to accept the role of the chief investigator.



UNIVERSITY OF TASMANIA

Information Sheet

Environmental Values of Environmental Professionals and Decision Makers

Research Undertaken by: Dr Peter Hay, Department of Geography and Environmental Studies, University of Tasmania, Sandy Bay Campus.

Purpose of the Study:

The study will examine environmental values of environmental Professionals and Decision Makers and attempt to generalise trends in these values.

Criteria for Inclusion:

The study group is to be composed of Environmental Regulators, Environmental Consultants and State Parliament level Politicians. The final group will be a representative mix of both sexes.

Study Procedures

The procedure for the project involves three distinct phases. (i) the recruitment phase in which the representative individuals of the study group are identified and asked to participate, (ii) the interview phase, where you as a participant will be interviewed, and (iii) the analysis phase, where the taped transcripts are analysed and categorised for trends and similarities and these results are described in the thesis.

The criteria for inclusion is described above.

The interview will be based on a series of set questions designed to help aid the discussion of personal feelings, beliefs and values about various aspects of the environment and natural world.

At the conclusion of the interview you will be asked if they are happy with the results. If further discussion is necessary in some areas then that will be pursued. If you are not happy at any stage, you may withdraw from the process, and any material collected in interview will be destroyed and not included in the final thesis.

As the interview series is based on qualitative techniques, participants will be restricted to a total of 15 – 20 individuals. Trends in an individual's value set will be summarised after the interview into the text of the thesis document. You will be given pseudonyms to protect your identity when direct quotations are used in the text of the thesis, or any

computer records. All computer records will be encrypted, and password protected. Any material not kept will be destroyed.

Grounded theory will be used to establish qualitative trends in the data based on similarities between personal beliefs. Trends that become evident when reviewing the interviews will be presented in the thesis.

It is important within this form of qualitative research to let the trends in value systems establish themselves, and yet be aware enough to detect the presence of a trend for further examination in the interview.

Possible Risks or Discomforts

As in any interview of a personal nature, there is a small potential risk of personal embarrassment. I will attempt at all stages to keep the mood of the interview as mutually agreeable as possible. However, if you at any stage feel uncomfortable about the interview process, please indicate this and the interview can be stopped if necessary with no problems.

Social risks will be minimised by keeping the entire process confidential.

Confidentiality

Confidentiality will be maintained by only allowing myself and my research assistant Mr David Dettrick to have access to the information. Private rooms will be used for the interview. Pseudonyms shall be used at all stages and all records and transcripts of interviews shall be destroyed upon the completion of the project.

Further Information

If any further information is required about the research project you can contact Dr Hay by telephone on 6226 2836 or Mr Dettrick on 6233 3601. Further questions about the project may also be asked at any stage of the interview or selection process if required.

Statement of informed consent

Project: Environmental Values of Environmental Professionals and Decision Makers

Statement by participant:

- 1. I understand the aims and methods used for the purpose of this study.
- 2. The nature and possible effects of the study have been explained to me.
- 3. I understand that the study involves a personal interview which will be taped.
- 4. I understand that my own personal values in relation to the environment will be discussed. I understand that I may terminate the interview at any time or decide that I do not wish to be involved with the research at any time prior to publishing the thesis.
- 5. I understand that all research data will be treated as confidential.
- 6. Any questions that I have asked have been answered to my satisfaction.
- 7.* I agree to participate in this investigation and understand that I may withdraw at any time without prejudice. There is no obligation to be involved in the project if I so decide.
- 8 I agree that research data gathered for the study may be published provided that I cannot be identified as a participant.

Name _____ of _____ participant
Signature of participant _____ Date _____

7.* *A statement by the **investigator** in the following terms:*

I have explained this project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

Name of investigator _____
Signature of investigator _____ Date _____