

**VALUE REASONING ABOUT THE TSITIKA RIVER WATERSHED:
EDUCATIONAL IMPLICATIONS FOR
ENVIRONMENTAL IMPACT ASSESSMENTS**

by

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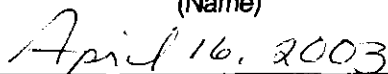
**Value Reasoning about the Tsitika River Watershed:
Educational Implications for Environmental Impact Assessments**

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Abstract

This project examined reasoning about value issues in the Tsitika River Watershed environmental impact assessment (EIA). The J-Test, a practical reasoning analysis tool, was piloted to answer three questions: What was the merit of the J-test as a diagnostic and a teaching tool for practical reasoning? What were the strengths and weaknesses of peoples' ability to reason as revealed by the J-Test? What opportunities to improve reasoning in EIA are suggested by the J-Test?

A questionnaire entitled "Logging the Lower Tsitika Valley: What do you think and why?" was developed using value reasoning theory. In a J-Test questionnaire, reasons for a value judgment are solicited, principles behind those reasons are identified and then the acceptability of those principles is examined. Forty-six stakeholders in the Tsitika EIA completed the questionnaire. These participants willingly engaged in the reasoning exercise, chose 28 reasons for and against the logging and answered 478 probes that challenged the principles implied by their reasons. No participant changed their position on the issue, but five changed their level of certainty in their position, and 26% felt the J-Test caused some reevaluation of the issue.

The J-Test successfully identified the major facts in the issue as well as the level of support for these facts. In this way the J-Test resembled a scoping tool in EIA. Participants' reasoning abilities were also examined by the J-Test, and as a teaching tool the J-Test provided the opportunity to participate in a practical reasoning exercise. The willingness and thoroughness that participants displayed in completing the J-Test, suggested there was potential not only to expect that people will use practical reasoning for determining value issues but also to involve participants in improving their practical reasoning skills. This use of the J-Test in an EIA issue, demonstrated not only the strengths and weaknesses of participants' reasoning, but also the role of good practical reasoning in successfully assessing value issues.

This study is dedicated to the memory of Dr. Michael A. Bigg.

Mike shared a vision of society resolving environmental conflicts. He inspired me to love the Tsitika Valley and encouraged me to keep my sense of humour while working to protect British Columbia's precious natural environment.

Acknowledgments

This project resulted from the participation of 84 anonymous individuals, to whom I extend my sincere appreciation. Some of these participants may have doubted the value of the project, may have been annoyed with the questionnaire and may have questioned how the results would be assessed. However, they all took time from their busy schedules to assist in making this project possible. I thank them for their time and cooperation and for the opportunity they gave me to learn the importance of practical reasoning. I hope they will find the final product acceptable.

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Chapter 1 INTRODUCTION

This project is the product of interdisciplinary studies in the former School of Resource Management (now, the School of Resource and Environmental Management) and the Department of Education, at Simon Fraser University. The context for my project is the increasing interest in involving members of the scientific community and the general public in decisions affecting the environment in which we live. People are being asked to make value choices about issues that would affect the future viability of the planet from the oceans, to the atmosphere, and everything in between. This chapter serves four purposes: frames my goal and objectives in studying value reasoning, explains how value reasoning is involved in Environmental Impact Assessment (EIA), describes the case study issue, and outlines the remaining sections of the thesis.

In undertaking this project, I sought to investigate reasoning about value choices in EIA. To do this, I selected to pilot a method of practical reasoning analysis, known as the Justificatory Test (J-Test), which is discussed further on. In using this method, I had three specific objectives. First, I wanted to examine the merits of the J-Test as a diagnostic and a teaching tool. Second, I sought to discover what the J-Test revealed about the strengths and weakness of people's ability to reason. Third, I wanted to identify opportunities to improve people's ability to reason. An underlying assumption of this study is that education about value reasoning is possible and can improve people's ability to apply reason to value decisions. In examining practical reasoning in EIA, I sought to pilot an adaptable tool, such as the J-Test, to investigate people's reasoning and if possible to suggest educational techniques to improve EIA. Another assumption of this project is that teaching value reasoning skills to present or future EIA participants could improve the EIA process.

EIA "refers to an assessment by government agencies or the proponent of the potential impacts of a proposal on the natural environment" (Andrews & Higham, 1986, p. 2). EIA is a planning tool whereby the environmental impacts of a project are identified and assessed before commitments or irrevocable decisions are made (Rees, 1980, 1988). The EIA process encompasses the

physical and biological aspects of environmental effects as well as the directly related social effects of a development proposal. EIA is increasingly seen as essential "for ensuring effective integration between economic and environmental imperatives" (Robinson, 1992, p. 1).

EIA is also a process of value reasoning about potential biophysical and social impacts. EIA has been termed a socio-political phenomenon, "based as much on subjective judgments about values, feelings, beliefs and prejudices, as on the results of scientific studies" (Beanlands & Duinker, 1983, p. 37). Major questions exist regarding EIA value judgments: "Who determines what impacts are relevant or valuable?" "How relevant are they?" "How is their value measured and stated?" "On what basis is the final decision made?" (Gardiner, 1980, p. 83). There is also the issue of how to evaluate those intangible quality-of-life considerations that are not normally expressed in measurable terms.

EIA "recognizes a role for the public (as distinct from experts and bureaucrats) in assessing the kind of environmental quality that is to be observed or enhanced" (Whitney & Maclaren, 1985, p. 1). Whether the participants in EIA are experts, bureaucrats or the public, all are engaged in evaluating and judging impacts of proposals on the social and biophysical environments. Hopefully, their judgments are based on sound reasoning, grounded in critically assessing and justifying positions and possible courses of actions.

In EIA deliberations, societal goals and objectives should provide the criteria for judging impacts and the scientist's role is to provide the facts to apply to these criteria (Whitney & Maclaren, 1985; Beanlands & Duinker, 1983). However, there is also debate as to whether scientific research is in itself value-free (Howe, 1985). The disputes surrounding EIA deliberations are as likely, if not more likely, to be about conflicting value judgments as about incompatible scientific facts.

To be defensible, EIA must deal in a demonstrable way with the process of justifying and weighing value positions. The EIA process often becomes controversial because the values presented are diverse, incompatible or poorly articulated and the value judgments are unclear or unsound. Even identifying or interpreting the values of a diverse array of stakeholders is a daunting task.

White (1966) noted this difficulty "there is no single expert opinion about attitudes toward the quality of environment: there are the opinions each person holds, the opinion he [she] thinks others hold, and the opinions he [she] thinks they should hold" (p.109).

If the EIA process is to be understood and used to its full potential then practical reasoning about value choices must be well developed and widespread among organizers and stakeholders. As the ability to exercise good practical reasoning is acquired, then "enhancing practical reasoning is a very significant educational concern, ..[and] a complex and demanding educational task" (Coombs, 1986, p. 1) that is important to the success of EIA.

To examine value reasoning in EIA, I chose a case study that involved a complex resource management issue in southwestern British Columbia: The Tsitika River Watershed. This issue involved an EIA and people in conflict trying to reason through value choices. The conflict over the Tsitika River Watershed was the first major debate about a forestry issue in BC that included the formal analytical process of a Federal environmental impact assessment. The EIA was triggered because of public interest in the watershed. Public involvement was part of a continuing conflict over commercial logging practices in British Columbia that began with Meares Island, and progressed through Haida Gwai, the Stein Valley, Carmanah Creek, and others, including the highly publicized example of Clayoquot Sound. The history and background of the Tsitika River Watershed issue is presented in Appendix A.

Three features made this case study suitable for examining how participants reasoned through conflict:

- the existence of conflict due to major environmental impacts on multiple user groups;
- significant public involvement including international attention;
- the availability of ample existing information about the issue.

The first feature, the conflict, involved a major industrial activity -- commercial logging -- which was in conflict with other uses by the environmental community and by other industrial interests. The commercial logging value of the Tsitika Watershed was considerable both to the local economy and to the logging corporations with licenses there. The

environmental significance of the Tsitika was also high. The lower Tsitika was an intact old-growth forest and the Tsitika had been the last unlogged watershed on the east side of Vancouver Island. In addition, other resource user groups, such as tourism companies and fishers felt that the logging negatively affected their commercial interests. Thus many conflicts among identifiable stakeholders had arisen over the years.

Second, public involvement in the Tsitika issue had been significant for many years. The Tsitika River Watershed had a high environmental profile, because of previous efforts to preserve it, the coastal area was historically significant to First Nations' bands, and estuary was internationally renowned for Killer whale (*Orcinus orca*) research and viewing (Appendix A). Thus, during the study, public awareness of and commitment to resolve the long-standing conflict was considerable.

Third, considerable information about the Tsitika River Watershed and the conflicts was available at the time of the study. Two government-appointed multi-agency committees existed, whose diverse membership had been discussing issues concerning the Tsitika River Watershed beginning in 1977 (Tsitika Follow-up Committee (TFC) and Johnstone Strait Killer Whale Committee (JSKWC)). Since the interest and knowledge was reasonably focused and accessible, the Tsitika River Watershed provided a good model to investigate value decisions and value reasoning among stakeholders.

As mentioned, the Tsitika River Watershed was the focus of a formal EIA. This EIA issue was whether or not logging should be allowed to occur in the lower reaches of the Tsitika River Watershed. As in all EIAs, public participation and practical reasoning about the values and value decisions were integral parts of the process. Therefore, I chose to use the Tsitika issue as the background for this project, and I set out to explore the practical reasoning of a variety of stakeholders from loggers to academic researchers and from corporate executives to environmentalists chained to blockades.

Value judgments are often highly emotionally charged, so I reviewed the literature in search of ways to technically explore a value issue. In Chapter 2, I include a discussion of the meaning of the term 'value' or 'value judgment' and I also summarize two main theories of how values develop. While recognizing

values education is significant, I found little agreement in the literature about methods. Also, in Chapter 2, I describe four prominent values education techniques including values inculcation, values clarification, dilemma discussion and value justification. I also explore the theory behind values justification in detail as it most closely addressed the requirements of my inquiry.

In Chapter 3, I describe the methods used in this case study. The J-Test technique (Case, 1988), which I selected to use in this case study, is based on the value justification approach of teaching values (Coombs, 1971). My decision to use this technique was based on two major points. First, the values justification approach is based on improving reasoning and reducing conflict between individuals who make differing value judgments, and, second, a relatively simple test format existed.

The study was conducted from October 1990 to May 1991 and I set out to investigate the practical reasoning employed by a broad spectrum of participants in this EIA. The case study involved the development and implementation of a "critical analysis questionnaire" (Appendix C) about the Tsitika Watershed issue. Thirty-one people assisted in the initial stages of the questionnaire, the questionnaire was piloted with seven people and then 46 participants completed the questionnaire.

In the questionnaire, participants were asked to state whether they felt logging should continue in the lower Tsitika and why. Their concluding value judgment was then challenged by a process of first reconstructing the participants' reasoning in terms of a syllogism¹, and then applying principle tests as outlined in the value justification approach to teaching values. For example, if participants concluded that logging in the lower Tsitika should proceed, they were asked to select reasons for this judgment. One of the reasons was that logging should proceed because it would provide local jobs. The implied principle behind the reason, 'we ought to do things that provide jobs', was then challenged by a variety of tests. Tests included applying new

¹ Deductive argument with value judgment as conclusion, value principle as major premise and factual reason as minor premise.

circumstances to the principle, or asking participants to take the role of those likely to be negatively affected by the application of the principle. As an additional challenge, participants were also asked if they supported any reasons from the opposite position. These challenges were used to explore the participants' position on the issue, as well as to assess the reasoning abilities of participants.

The results of the case study are presented in Chapter 4 and they follow the same order as the questionnaire. The results are then examined in light of the objectives of the study. In Chapter 5, I investigate the merits of the J-Test as a diagnostic and a teaching tool. A review of the technical issues involved in the administration of the questionnaire is presented, then the J-Test is evaluated as a framework for examining the practical reasoning ability of participants. Finally, the educational value of participating in the J-Test is assessed.

In Chapter 6, the actual strengths and weakness of participants' reasoning is examined. Participants' responses reveal their ability to choose reasons, to consider relevant information, to test the acceptability of the principles implied by their reasons, to evaluate moral judgments, to adjudicate among complex bodies of facts and to arrive at a decision of greatest benefit.

Chapter 7 discusses how the J-Test could be improved and what curricular opportunities would benefit practical reasoning in EIA. The study concludes with my assessment of what the study taught me about values and value analysis.

Chapter 2 VALUES AND VALUE REASONING

A discussion of the reasoning behind value decisions leads to questions about the nature of values, morality and how we develop our value systems. In this chapter, I introduce the subject of value reasoning. Value reasoning covers an immense subject area. Topics covered in this review include ideas about the meaning of values, the relationship between morality and values, how values develop, how values are taught, and the theory behind practical reasoning.

2.1 VALUES AND VALUE JUDGEMENTS

The following statements were used by Raths, Harmin and Simon (1966, 1978) to try to explain the term 'values':

- "Values represent something important in human existence" (Raths, Harmin & Simon, 1978, p. 8).
- "Values show what we tend to do with our limited time and energy" (Raths, Harmin & Simon, 1966, p. 27).
- Values "operate in very complex circumstances and usually involve more than simple extremes of right and wrong" (Raths, Harmin & Simon, 1978, p. 26).
- "True values are ultimately reflected in the outcome of life as it is finally lived" (Raths, Harmin & Simon, 1978, p. 26).
- "Certain things are treated as right, desirable, or worthy. These become our values" (Raths, Harmin & Simon, 1978, p. 26).
- "Out of experiences may come certain general guides to behaviour. These guides tend to give direction to life and may be called values" (Raths, Harmin & Simon, 1978, p. 26).
- Values are not "a matter of proof or consensus, but a matter of experience" (Raths, Harmin & Simon, 1978, p. 34).
- Values are not for most of us philosophical issues but are imbedded in the complex choices of everyday life. Values must be seen in that context and in terms of the lives of the people who have them (Raths, Harmin & Simon, 1978).

Coombs (1986) on the other hand, tried to identify the features, which define the term values. He noted that "a want represents a genuine value when it persists in light of full knowledge and experience of the state of affairs and the causes of the want" (p. 4).

Raths, Harmin and Simon (1966, 1978) came closer to providing a clear account of the concept of a value when they claimed that something had to satisfy seven criteria to qualify as a value. Otherwise it would be a belief, attitude, purpose, interest, worry, feeling or something else. According to these authors, a value was more than a feeling, belief or attitude. Their criteria for a value were:

1. Be chosen freely without coercion.
2. Be chosen from alternatives where choices were available.
3. Be chosen after thoughtful consideration of the consequences of each alternative.
4. Be a choice that is prized or cherished.
5. Be something that was affirmed publicly, that was gladly associated with, and that might be championed.
6. Show up in behaviour, and be acted upon.
7. Show up repeatedly in life and persist as a pattern.

Coombs (1971) and Taylor (1961) also used the term "value judgment" because they realized that the term "value" was ambiguous and could be used for a thing of worth or a standard to judge the worth of things. Taylor (1961, p. 3) referred to this as arising from "process-product ambiguity". Coombs (1971, p. 2) defined value judgments as "those judgments which rate things with respect to their worth".

Taylor (1961, p. 3) used the expression "normative discourse" to describe discussions involving value judgments. He observed that "when we judge an object to be good or an act to be right, when we tell someone what he ought or ought not to do and when we try to justify such judgments and prescriptions we are carrying on normative discourse" (Taylor 1961, p. vii). Taylor claimed that in his account of normative discourse, he was not looking for the foundations of values, but rather trying to "find out what makes a reason a good reason for or against a value judgment" (p. xi.). Also, he was not examining the place of

values in a bevy of facts, but rather investigating "the logical relations between normative assertions and empirical assertions" (p. xi). Taylor called this goal of discovering the links between facts and value judgments the "general theory of value" (p. x).

The relationship between the terms "moral" and "value" is important in evaluating the significance of value judgments. Coombs (1971) stated that value judgments could be made from a variety of perspectives including a "moral" perspective. He noted different points of view are often inter-related but judgments from a moral point of view take precedence over judgments from all other perspectives (Coombs, 1971). Coombs (1987, p. 5) also remarked "what is to count as adequate reason for a moral judgment is a contentious issue among moral philosophers" and he defined morality as "a set of beliefs about how persons ought in general to conduct their lives". Acceptable moral "value judgments" are defined as being "impartial, universalizable and consistent with one's other considered beliefs" (Coombs, 1987, p. 8). Thus, in choosing one's course in life, value judgments should have a strong over-riding moral component. For this reason, value judgments and the development of values are central to moral development and moral education.

2.2 DEVELOPMENT OF VALUES

The literature on values and moral education encompasses many differing camps with various names ending in "ist". Scriven (1975) described moral education from the point of view of affectivists, developmentalists, cognitivists, religionists, inactivists and behaviourists. These groups and their hybrids (e.g., affectivist-cognitivists) have disparate views about how values develop and how values should be taught. With respect to the development of values, one can recognize at least two basic views. One, promoted by Raths, Harmin and Simon (1978), is that values are accrued as one goes through life, another, as outlined by Kohlberg (1981), is that there are definite stages of development for levels of moral consciousness.

In support of the first view of acquiring values, Raths, Harmin and Simon (1978, p. 35) considered that values evolve and mature as part of a "personal and life-long process". They saw values as "growing from a person's

experiences" and they indicated that "values would be modified as those experiences accumulate and change" (Raths, Harmin & Simon, 1978, p. 26). These authors felt that people modify their values if their awareness or their pattern of experiences changes.

Raths, Harmin and Simon (1978) also claimed that the difficulties in understanding how children's values develop and are modified may stem from the confusion and inconsistencies that exist in the lives of young people and the fact that little attention is given to allowing children to clarify their values. They argue that part of the confusion may be that adults expect children to have the 'right' values which often happen to be the values of the particular adult in charge at the time (Raths, Harmin & Simon, 1978). In addition, they felt that "emotional needs must be satisfied before much progress can be made with the development of clear values" (p. 293). These authors also noted that "many people believe values develop in and around the family" (p. 16) and yet they observed many problems with family units in modern society.

Overall, Raths, Harmin and Simon considered that a person's values worked "as effectively as possible to relate that person to his or her inner and outer worlds in a satisfying and intelligent way" (p. 26). They did not object to the second view that value development occurred in stages, they just felt a "higher" stage might not be better in terms of the person's well being. Raths, Harmin and Simon saw values as needing development in a "horizontal" plane as well as possibly in Kohlberg's "vertical" plane.

Kohlberg (1981), on the other hand, supported the second view and described three distinct levels in the development of moral thinking, each level having two related steps, for a total of six stages. Kohlberg based his ideas on Piaget's notion of stages and of the child as philosopher. These six stages of moral development were derived from Kohlberg's studies with 75 American boys in the 1950's and 60's (Kohlberg, 1981). This research examined the boys' responses to hypothetical dilemmas involving conflicting rights. Kohlberg's methods have subsequently been tested in long-term and cross-cultural studies (Blatt & Kohlberg, 1975).

Kohlberg (1981) concluded that moral development passes through this series of stages and that exposure to the next or "higher" stage could lead to its

acquisition. He also felt that the stages always occur in the same order and that no stage can be skipped (Kohlberg, 1981). Research, using Kohlberg's methods, suggests that students prefer the highest stage of reasoning that they can understand but that they cannot comprehend more than one stage above their current level of moral development. Kohlberg (1981, p. 22) considered that progression from stages 1 to 6 represents an improvement in the "morality of value judgment". Similarly, Coombs and Meux (1971) discussed the development of students' ability to perform value analysis in terms of the students' stage of ego development. These authors considered that the "development of the capability for rational evaluation is a complex and lengthy process, closely associated with a person's ego development" (p. 30).

Kohlberg's work has been not been without criticism. For example, researchers have said Kohlberg's use of students' judgment of what is right as the basis for moral development assessment is incomplete because judging whether or not an action is right is only one part of the issue of morality (Schlaefli, Rest & Thoma, 1985, Self et al., 1991). These critics felt that other components of morality, overlooked by Kohlberg's theory, include recognizing a problem as a moral issue, deciding to take the moral course of action, and having the ego-strength to implement one's moral intentions (Schlaefli, Rest & Thoma, 1985). The means by which these other components develop are also considered important to the development of moral behaviour.

Kohlberg (1981) also considered an understanding of the principle of justice as fundamental to moral development. This concept was also criticized due to the apparent failure of women to perform in a justice-based manner during dilemma discussions. Researchers such as Piaget and Kohlberg noted that the moral judgment of women presented problems for their developmental theories based on the justice principle (Gilligan, 1977). For example, Piaget found girls less interested in the rules of games and more interested in the continuation of relationships, and Kohlberg found a strong inter-personal bias in the moral judgment of women, putting them in stage three of his model (Gilligan, 1977). To Kohlberg, women, in general, seemed to embody and were encouraged to embody qualities such as caring and sensitivity towards the needs of others, qualities which are in opposition to the capacity for

autonomous thinking, which Kohlberg considered the mark of high moral development (Gilligan, 1977).

Gilligan (1977), in her early work, felt that Kohlberg's theory of moral development did not give "adequate expression to the concerns and experience of women" (p. 481). Gilligan argued for a view that women went through three stages in their development of a caring morality, and that a conflict existed in the dilemma discussions between caring and hurting. On the other hand, she noted that the males in Kohlberg's study struggled with the conflict between the rights of others and self-fulfillment. Gilligan felt that moral development of men and women involved the "integration of rights and responsibilities through discovery of the complementarity of these disparate views" (p. 511). Gilligan also noted that "the connection between self and other, the universality of the need for compassion and care" was of central importance in the adult life of both sexes (p. 509). She concluded that the "concept of the separate self and of the moral principle uncompromised by the constraints of reality is an adolescent ideal" (509).

Combining both justice and caring perspectives constituted "mature moral thinking" according to Gilligan and Attanucci (1988, p. 232). These authors explained the distinction between justice and caring by saying a "justice perspective draws attention to problems of inequality and oppression and holds up an ideal of reciprocal rights and equal respect for individuals" (p. 224). On the other hand, a "care perspective draws attention to problems of detachment or abandonment and holds up an ideal of attention and response to need" (p. 224).

Gilligan and Attanucci (1988) noted that the tensions between these perspectives is suggested by the fact that detachment, which is the mark of mature moral judgment in the justice perspective, becomes the moral problem in the care perspective, that is the failure to need. Conversely attention to the particular needs and circumstances of individuals, the mark of mature moral judgment in the care perspective, becomes the moral problem in the justice perspective, that is failure to treat others fairly, as equals. (p. 232)

While, Kohlberg conceded that "his emphasis on 'justice structures' has sometimes obscured the elements of care, responsibility and special obligation on which Carol Gilligan has focused her recent work" (Rest, 1987, p. 442),

Gilligan's findings have also been disputed. Blum (1988) felt that if the concept of single moral perspective was discounted then any number of other perspectives could be added. For example, Blum suggested the perspectives of community, honesty, courage or prudence could also be added. Thus, there is no overall agreement about the principles that form the basis of moral development.

Kohlberg was also criticized for the 'hard' stages of development and for his assumptions about their progression. Reed (1987) presented a philosophical critique of the existence and nature of Kohlberg's Stage 6 as well as a discussion of whether certain stages or sub-stages were really more advanced than the previous ones. Reed suggested that instead of seeking 'hard' stages of moral development, a more moderate objective of gathering "types of considerations to which subjects are sensitive, with no assumptions as to moral adequacy" (p. 456) might provide more philosophical interest.

2.3 TEACHING VALUES

In the following sections, I briefly cover the following schools of thought on values education:

- values inculcation,
- values clarification,
- dilemma discussion,
- value justification.

Values education is complicated by the disparate approaches to the topic of teaching values expressed by researchers from "developmentalists" to "behaviourists". The difficulty arises from the overlapping movements, and the variety of general fields of study dealing with this subject. For example, Daniels and Oliver (1977) point out that there are a number of philosophical branches involved in values education (philosophy of ethics, mind and action) as well as several psychological branches (behaviourism - hard and soft, cognitive development and social learning).

Further complications arise from the fact that some people question whether values should be "taught", particularly in schools. Publicly raised concerns are that the primary responsibility for values development is at home

and that teaching values in schools could result in indoctrination or propaganda. Many believe that we do not know enough about how values develop and until we do, teaching values should not be attempted. Others believe that teachers have no business inquiring about the values of their students, and that values are a private and personal matter, beyond the realm of teaching.

I shared this doubt about teaching values in schools on first encountering the subject, but I came to recognize the validity in Kohlberg's (1981) statement that "like it or not teachers are moral educators" (p. 1). If teachers "do not critically examine the values that govern life and discipline in the classroom or simply opt for enforcing existing conventions, they cop out from really dealing with the values issue, and they engage in subtle or blatant forms of indoctrination". (Kohlberg, 1981, p. 1). In agreement with Kohlberg, Daniels and Oliver (1977) argued that because education is itself a normative term, that is, that being educated is worthwhile, teaching could only be education if it is defensibly moral. Various researchers have built upon the original approaches to "a moral education" and in the following section four approaches to values education are discussed.

2.3.1 VALUES INCULCATION

Traditional approaches to teaching values focused on "values inculcation" or deciding what were good values (i.e. be honest, tell the truth) and instilling these values in children through reward and punishment systems. This conception of values education is also referred to as the cultural transmission ideology and the underlying philosophy is that values are determined by each particular society (Kohlberg, 1981). In this early approach to values education, moral values were seen as a 'bag of virtues', meaning a set of personality traits generally considered to be positive or those traits which are subject to the moral sanctions of society. Teaching moral values was considered character-building education. In this way teachers were agents of the state, and in many cases, with this approach, teachers were thought to impose, directly and indirectly, their own personal standards on students. Children were viewed as passive learners to receive values through teaching.

Moral education of children was seen as a socializing process in which, by conforming to the teachers' and schools' rules, children would learn the norms and standards of society. Kohlberg (1981) thought this form of "character education" or teaching values (generally a list of virtues, for example, honesty, charity) was "indoctrination of conventional or social consensus morality" (p. 2). His criticism stemmed from a critique of any indoctrination strategy of teaching, yet Kohlberg described a model of a "just school" where the teachers were to advocate justice and community (Kohlberg, 1981). Kohlberg felt that in a democratically run school, the "danger of indoctrination through advocacy" (p. 3) could be checked.

Daniels and Oliver (1977) saw another problem with values inculcation. These authors felt that although imposing values upon children may be an effective method, these children might hold these values tenaciously and might be unable to thoughtfully consider their choices and adapt to a changing world.

Hamm (1975) disputed Kohlberg's comments about the values inculcation approach to moral education. In Hamm's (1975) opinion, thoughtful and reasonable people could come up with a body of rules, which were acceptable on moral grounds. Values inculcation could bridge the gap "before children reach the age of reason" and could "instill reasonable habits in children" "so that they can cash in or capitalize on their training when they reach the autonomous stage of morality"(Hamm, 1975, p. 42). Hamm thought that objections to this form of values education were not due to its lack of effectiveness, but to the "contents in the bag".

Hamm (1975) also described two components to teaching virtues or values inculcation: specific contents and rules to define the content. He claimed that teaching content was both useful and necessary and he likened this approach of teaching a body of rules (values), to some of the procedures used in Kohlberg's approach. Hamm also claimed there is "no mystery about how to go about inculcating these rules" (p. 44). Although Hamm didn't describe the methods, others suggested techniques such as setting an example, persuading or convincing, inspiring, using rules and regulations, having art and literature to expand awareness, imposing cultural or religious dogma and appealing to one's conscience (Raths, Harmin & Simon, 1978).

Daniels and Oliver (1977) also felt that values education involved the two constituents, content and procedures. But their interpretation of content differed from values inculcation in that they saw content in terms of the factual claims of practical reasoning theory (see 2.3.4 Value justification), not the teaching of specific conclusions of value issues.

Raths, Harmin and Simon (1978, pp. 45-46) considered people who believed that values must be imposed were confused about their own values, having never been "taught to internalize beliefs that have the body and life of values" or to "to think through value issues for themselves". These authors proposed a system known as "values clarification" (Raths, Harmin & Simon, 1966, 1978). Values clarification appears to be a more open and analytical approach to the content and procedures included in values inculcation.

2.3.2 VALUES CLARIFICATION

In advocating values clarification Raths, Harmin and Simon (1978) believed that "children must develop habits of examining personal aspirations, purposes, attitudes, feelings, activities, interests, beliefs and worries if they are to find satisfying ways of integrating their own thoughts, emotions, and behaviors within themselves and in relation to the world" (p. 35). They based values clarification on "a conception of humanity that says human beings are capable of being thoughtful and wise and the most appropriate value will emerge when people use those capabilities in defining their relationships with each other and an ever-changing world" (p. 38).

Raths, Harmin and Simon (1978) believed that discussions of value issues should begin with a presentation of decisions and alternatives. This initial step should be followed by meaningful interpretations intended to make students aware of the consequences of each alternative. Above all, they advocated establishing a safe accepting mood in the classroom, so that students felt no fear of censure, or sense of being judged, or any impediments to open reflection.

The basic steps to values clarification are first to focus attention on an issue in life, second to communicate a mood of acceptance (not necessarily agreement), and third to invite students to reflect using one of the seven criteria

for values, which are listed in Section 2.1 (Raths, Harmin & Simon, 1978). If teachers place any boundaries on choices, they must be clear and strong, so children have the power to make choices within a given framework. The constraining framework is that the issues should contain alternative options, the consequences of which the children can grasp, and that the alternative options should be neither very distasteful nor dangerous so that any choice can be tolerated. Raths, Harmin and Simon concluded that knowing when and how to apply values clarification is an art.

Despite the belief that values clarification was not imposing values in the manner of values inculcation, Raths, Harmin and Simon (1978) still imposed limits on alternatives student could choose as values. Some teachers could easily view these limits, as well as the discussions of consequences of choices, as a means of suggesting the correct choice.

Values clarification was intended to "free the individual for natural inner-directed growth" and this Kohlberg saw as a romantic ideology where the individual, rather than the society, was considered the source of values (Kohlberg, 1981, p. 4). Also, values clarification meant acceptance of the values as presented by the student, because criticism of values was seen as criticism of the student's life. Thus, another critique of this approach was that teachers found it difficult to accept some of the values that students said they held, such as cheating (Raths, Harmin & Simon, 1966).

Kohlberg (1981) considered values clarification "an essential part of moral education", but he thought it neither clarified nor resolved "questions of the nature of virtue, about which students and teachers alike must be concerned" (p. 3). He also felt that the values clarification approach allowed for relativism, where accepting students' values implied that all values were considered equal. In contrast, Kohlberg proposed an approach known as "dilemma discussion", which he claimed was based on universal goals and principles. An underlying assumption of Kohlberg's approach was that "some reasons were more adequate than others"(p. 28).

2.3.3 DILEMMA DISCUSSION

Kohlberg's (1981) approach to teaching moral development consisted of posing "real or hypothetical dilemmas" to students whereupon the teacher's role was "to ask Socratic questions that arouse student reasoning and focus student listening on one another's reasons" (p. 27). Kohlberg's aim was to match the teaching to the pupils within his proposed stages of moral development and to advance students gradually through the stages. Arousal of cognitive conflict in the student was considered necessary for the student to advance to a higher level (Blatt & Kohlberg, 1975).

In this approach, teachers present a set of hypothetical and occasionally real-life moral dilemmas at appropriate points in the curriculum. In the subsequent structured moral discussions, students are asked to state and explain their position on certain moral dilemmas. Input is received from other students, and alternatives are explored.

Compared to values inculcation, Kohlberg (1981) claimed his approach did not use indoctrination because students moved through the stages in a natural progression. Despite this, there could be some degree of coercion as one of the roles of teachers and peers was to point out what reasons were weak or inadequate during the discussions.

Raths, Harmin and Simon (1978) compared their values clarification approach with Kohlberg's. They felt that rather than trying to get people to move to higher moral reasoning levels, values clarification tries to assist people in integrating their current values with their lives irrespective of their "moral level". Values clarification is seen as more involved in the affective domain and making more use of everyday issues instead of hypothetical ones (Raths, Harmin & Simon, 1978).

Raths, Harmin and Simon (1978) also thought that a higher level of moral development might not be the best thing for everyone. Raths, Harmin and Simon said they could see "clear disadvantages in assuming students would be better off reasoning at a higher level than they currently reason at" (p. 298). Disadvantages included the possibility of students' losing self-esteem and being ill-adapted to the problems of their current situation, as well as of

teachers developing an authoritarian relationship to make students into something different than they were.

A problem with Kohlberg's claims of success in advancing students to higher moral levels using dilemma discussions was that no further tests were applied to confirm that students' behaviour actually changed (Schaeli, Rest & Thoma, 1985). Certainly both values clarification and dilemma discussion shared the goal of having students think more effectively for themselves and both approaches used an open-minded discussion method for teaching values. Effective thinking was also the goal of Coombs' "value justification" approach to teaching values.

2.3.4 VALUE JUSTIFICATION

Value justification, or value analysis, developed from Coombs' (1986) views of practical reasoning or "learning to reason well about practical issues" (p.11). The following four sub-sections include review the concept of practical reasoning, Coombs' standards for practical reasoning, the structure of value judgments and Coombs' method of "principle testing".

2.3.4.1 Practical reasoning and critical thinking

Practical reasoning was "as much a matter of being initiated into a complex and subtle practice as of learning to follow explicit procedures in the manner of following a recipe" (Coombs, 1986, p. 11). Although children, growing up, learn the rudiments of practical reasoning, they may not necessarily learn how to reason well. Coombs (1987) felt that children may fall prey to indoctrination, may grow up with limited available information or with no disposition or ability to consider another point of view. Learning to reason competently requires critical thinking, specific knowledge of issues and the ability to appreciate the position of others (Coombs, 1987).

Critical thinking is considered a fundamental requirement for making reasoned judgments. Critical thinking is not a unique type of thinking, rather, critical thinking "pertains to thinking in any situation provided the thinker intends to, and is somewhat successful in, reaching a reasoned judgment" (Bailin, Case, Coombs & Daniels, 1993, p. 7). Critical thinking is considered to involve "thinking through problematic situations about what to believe or how to

act where the thinker makes reasoned judgments that embody the attributes of quality thinking" (p. 4). Also, critical thinking is responding "thoughtfully to a particular challenge by making appropriate use of intellectual resources" (p. 5).

As mentioned above, critical thinking is a key component in Coombs' (1971) practical reasoning theory. Coombs (1986) felt that, although, the concepts, standards and procedures for practical reasoning can be taught, one could not directly teach the disposition to engage in critical thinking, nor the good judgment to apply these skills. He thought that students would gain good judgment from the opportunity to practise, obtain critical feedback and observe good judgments, and from being provided with resources, assistance and encouragement. To develop the disposition for good practical reasoning, students should engage in the process and then have to live with the results of their decisions. Coombs (1971) opposed the values inculcation approach, claiming that teaching students to rate a value object in a certain way was not a defensible educational objective.

Another characteristic of values justification is the incorporation of both the affective and cognitive approaches to teaching values. Purely cognitive methods are opposed by those that believe morality also involves emotional or affective aspects (Gilligan and Attanucci, 1988). Also, some feel that clinically discussing value issues without allowing emotional debate is inadequate to give rise to moral behaviour (Wallen, 1977). While values clarification is referred to as one of the cognitive theories because it emphasizes a person's understanding of moral issues, Coombs (1971) felt that both cognitive and affective aspects were involved in arriving at a rational value judgment. The cognitive processes are engaged in acquiring facts and testing them. The affective processes are involved because reasoning is dependent on a "commitment to value and principles, both of which embody feelings, attitudes, and preferences. When a person holds a rational evaluative conclusion there are some things he knows and some things he feels" (Coombs, 1971, p. 26). Thus Coombs felt it was inappropriate to label value justification as either cognitive or affective.

The value justification approach is based on a theory of practical reasoning, which is explained in the following sections. Teachers are encouraged to assist students in gathering facts, in determining the relevancy of

facts, in assessing the accuracy of factual claims, in testing the acceptability of value principles, and in testing the acceptability of the value principles.

Coombs (1991) insisted that because value judgments cannot be proven true or false it is not possible to teach techniques that would "ensure success in resolving value conflicts" (p. 20) and he recognized that there were no proven prescriptions for the best way to execute this approach.

The purpose of learning to apply practical reasoning skills in controversial situations is that it encourages the development of four aspects of practical reasoning. First, reasoners clarify the actual reasons for their value judgments. Second, they ensure that there are good grounds for holding those reasons. Third, they investigate other perspectives and relevant data, and fourth, they check that the principles implied by their reasons are acceptable to them. In conducting these steps, reasoners may identify sources of conflict such as inaccuracies in the truth, relevance, valence, interpretation of certain factual reasons, or the acceptability of the implied principle. Thus practical reasoning process provides building blocks for increased understanding and may lead to resolving conflict between parties holding differing views on controversial issues. Value justification uses the theory of practical reasoning and can be explained in terms of standards and the structure of value judgments.

2.3.4.2 Standards of practical reasoning about value issues

Practical reasoning, or deciding in a rational way what one has "good and sufficient reason to do" (Coombs, 1986, p. 1), is based on making value judgments by evaluating one's reasons for various courses of action. Rational means "having the faculty of reasoning" (Simpson and Weiner, 1989, p. 218) or operating in a manner "which one accepts when he has full knowledge of what he is doing" (Coombs, 1971, p. 7). Coombs (1971) felt it was "always relevant to ask for justification of value judgments" (p. 13).

In practical reasoning, any judgment about public policy (as opposed to judgments about many mundane individual actions, such as what to wear on a given day) presupposes a standard of moral acceptability as conveyed in the principle of justice or just distribution.

A person who is making a social judgment has a *prima facie* obligation to choose that alternative which realizes the greatest common benefits for persons, without violating the fundamental rights of individuals. An alternative which provides greater total benefits but distributes them unequally may be chosen only if the judge has good reason to believe this choice is genuinely impartial and universalizable, i.e., that it follows from principles which every rational person would have reason to want everyone to follow. (Coombs, 1986, p. 10)

Coombs (1987) also felt that social judgments meant that all members of groups should be treated in a morally acceptable way and that the group's treatment of persons outside of the group should not be immoral.

Coombs (1971, 1986) described standards of rational value judgments or standards of good reasoning. A more recent review of critical thinking, distinguished two types of standards (Bailin, et al. 1999). These authors divided their standards of good thinking into "standards", that were relevant to judging intellectual products, and "principles", that were relevant to guiding practices of inquiry. They also noted that there was considerable overlap between the two types of standards and that the principles were abstract, vague and required the exercise of good judgment both to interpret them and to determine what they required in a particular case. In many ways, this concept of critical thinking reframes Coombs' earlier idea of practical reasoning.

A compilation of the standards and corresponding requirements of practical reasoning described by Coombs (1971, 1986) are:

Standard 1. The reason must be confirmed by adequate evidence, true.

Requirement: Well-developed critical thinking.

Standard 2. The facts or reasons must be relevant (be genuine values for the reasoner).

Requirement: The knowledge and experience to imagine what it would be like to fulfill the reason.

Standard 3. As much relevant information as possible must be considered.

Requirement: The knowledge, disposition and motivation to do so.

Standard 4. The choice of action must involve acting morally.

Requirement: A test that the decision is impartial, universalizable and consistent with other more basic moral beliefs.

Standard 5. The choice of action must realize greatest benefit compared to other morally acceptable alternatives.

Requirement: A variety of abilities including being able to "impose order on complex bodies of reasons so that the relative benefits of alternatives can be clearly compared" (Coombs, 1986, p. 15).

Coombs (1986) suggested that the good practical reasoner should have knowledge, experience, motivation and initiative, as well as the ability to think critically (to discover and consider courses of action, to envisage outcomes and to make judgments). The good practical reasoner must also be able to assess the moral acceptability of the alternatives with a level of judgment that is "impartial, universalizable and consistent with one's moral beliefs" (Coombs, 1986, p. 13). The reasoner has to learn the concepts and standards applicable to practical reasoning and acquire experience in making and having to live with one's value judgments. In evaluating practical reasoning, it is the adequacy of the reasoning, not the course of action, that is judged. Developing adequate practical reasoning requires learning the structure and logic of value judgments.

2.3.4.3 Structure of value judgments

A value judgment determines the quality or worth of an object or action when measured against a given standard or norm (a judgment may be positive, negative or neutral) (Coombs, 1971; Taylor, 1961). Judgments are made from many different points of view (e.g., moral, economic, ecological, legal, etc.), and subsidiary judgments contribute to a decision about the overall worth of a value object. Coombs (1971, 1986) described practical reasoning about value judgments as having three basic components:

- 1. VALUE JUDGMENT** or value position.
- 2. REASONS** or factual evidence, relating the value object to the principle.
- 3. IMPLIED PRINCIPLES** used as grounds or standards for the judgment.

These components of reasoning were described as forming a syllogism where the value judgment was the conclusion of a deductive argument with the factual reason as the minor premise and the implied principle was the major premise (Coombs 1971). For example:

*** VALUE JUDGMENT or CONCLUSION**

Logging should proceed in the lower Tsitika Valley

*** FACTUAL REASON or MINOR PREMISE**

Logging the lower Tsitika Valley will help to keep the local resource-based communities alive.

*** IMPLIED PRINCIPLE or MAJOR PREMISE**

We ought to do things that keep local resource-based communities alive.

In many situations, the concluding value judgment is based on a complex statement, combining a number of related implied principles. For example, a person may conclude "we ought to allow logging to proceed in the lower Tsitika Valley, because this course of action was based on careful plans, and will help to keep the local resource-based communities alive, even though some believe this course of action will neither protect the region's biodiversity nor allow other (non-timber) users to have a long-term sustainable future".

This concluding judgment involves proceeding through a number of steps. First, factual statements or reasons are identified and linked to the appropriate implied principles. Second, these principles are examined for their merit, and appropriate relationship to the conclusion. Third, additional factual evidence is collected, and other views, together with their implied principles, are considered. Fourth, all implied principles are combined with appropriate weighting, and then a final concluding judgment is made.

To choose between implied principles and make a concluding judgment, Coombs (1986) noted that the last two basic standards need to be applied. The conclusion must be consistent with acting in a morally acceptable manner, which Coombs (1986) described as acting impartially "with respect to the competing interests of persons" (p. 8) or not acting immorally from a social perspective. Coombs (1971, 1986) considered that moral judgments took precedent over judgments from other points of view. Also the conclusion should achieve the "greatest benefit" or be an alternative that enhances a person's chosen concept of a good life.

According to Coombs (1986), the reasoner must be able to come to terms with various interpretations and layers of morality. Also, the reasoner must be

able to understand the difference between a personal (pertaining only to the self, such as the religious belief in celibacy) and a social moral belief (affecting others, such as the tolerance of religions). A reasoner must know why a system of impartial social morality is desirable in our society, and why its "demands must take preference over self-interest if we are to have the kind of social order in which individuals can lead a fulfilling life" (Coombs, 1986, p. 14).

In arriving at this concluding judgment, conflicts could arise at various stages. Controversy could arise over the truth of a factual claim, the relevance or rating or valence of a factual reason, the interpretation of a particular implied principle, or the acceptability of each implied principle applied in the overall judgment Coombs (1971, 1986). To assist this analysis, Coombs proposed a system of "principle testing" to evaluate the acceptability and significance of each implied principle.

2.3.4.4 Principle testing

Coombs offered four tests to determine the acceptability of each of the implied principles and to ensure that moral judgments are "impartial, universalizable and consistent with one's more basic moral beliefs" (1986, p. 13):

1. **NEW CASES TEST**, which assesses whether the implied principle is acceptable when applied to other analogous (potentially undesirable) circumstances.
2. **ROLE EXCHANGE TEST**, which assesses whether the implied principle supports acceptable consequences for those likely to be most adversely affected by the judgment.
3. **UNIVERSAL CONSEQUENCES**, which assesses whether the consequences of everyone acting on the implied principle would be acceptable.
4. **SUBSUMPTION TEST**, which assesses whether the implied principle is consistent with other fundamental principles held by the reasoner.

To be useful these tests must be applied appropriately and persons using them must be disposed to alter their judgment should the test fail.

For example if the issue of "what quality of cars should be allowed to drive on public roads" was presented and the reasoner replied "cars that run

and are inexpensive". The implied principle would be that we ought to base selections on whether the object runs and is inexpensive. Examples of each of the four types of tests are given below.

* New Cases: In your very cramped office, if your new office equipment took up over twice the office space of more modern equipment, but it was selected on the basis that it worked and was inexpensive, would you be satisfied with the selection criteria?

* Role Exchange: If you were a long distance driver, would you feel safe driving for extended periods on roads where the qualifications for other cars on the roads were that they ran and were inexpensive?

* Universal consequences: Would it be acceptable if everyone drove cars on the roads that caused extensive air pollution, as long as those cars ran and were inexpensive?

* Subsumption: If a fatality resulted from an unsafe car that was driven on a public road, would the selection criteria of running and being inexpensive, still be the best choice?

2.4 INVESTIGATING PRACTICAL REASONING ABOUT VALUE CHOICES IN EIA

To advance to the next stage in pursuing my goal of identifying educational techniques to reduce conflicts in EIA, I briefly summarized the background information I had acquired, first about values and second about EIA. I could now identify value judgments as "those judgments which rate things with respect to their worth" (Coombs, 1971, p. 2). I also recognized that the term "value" was described in a number of ways and that a value to some meant establishing a list of criteria to which one was committed. People gained values through life experiences, including direct and indirect values education. Two differing views on value development were that values were gradually acquired through life depending on various factors, or that there were distinct and progressive stages through which values developed.

Teaching values could be approached in various ways. Values inculcation meant instilling values in children through reward and punishment systems. Values clarification was examining the details of specific values.

Dilemma discussion involved describing and enhancing stages of value development on the assumption of a universal pattern of such development. Value justification comprised analyzing value judgments with standards or principles to improve understanding and reduce conflict.

EIA, while it is defined as an "assessment by government agencies or the proponent of the potential impacts of a proposal on the natural environment" (Andrews and Higham, 1986, p. 2), is in fact a process of value reasoning about potential biophysical and social impacts resulting from a proposed project. EIA involves both the public and experts in evaluating and judging impacts of proposals, based on societal goals and objectives. Finally, the EIA process ought to demonstrate techniques for justifying and weighing value positions.

The next step in this project involved conducting the case study. To do the case study, I felt I needed to adopt one of the approaches to values education and to test the approach in an EIA situation. The approach had to be suited to the structure of an EIA, which is based on rationally discussing or reasoning and then judging the impacts of proposals. I selected the value justification approach to explore value reasoning in EIA, as this approach emphasized methods of improving reasoning in conflicts over value judgments. Coombs' theory was well suited to this project, as Coombs presented a formal structure for reasoning that could be tested with a wide range of participants of varying expertise, using a relatively simple format.

Chapter 3 CASE STUDY METHODS

To explore practical reasoning on value issues using a case study, I chose a local resource management issue, the Tsitika River Watershed, which had a broad range of stakeholders (see Table 1) and which was in the early stages of an EIA. I sought to involve stakeholders from all interest groups as participants in a value-reasoning process. All stakeholders involved in this case study are hereafter referred to as participants.

The method used in this case study is developed from the theory of practical reasoning about value issues proposed by Coombs (1971, 1986). Identifying reasons and implied principles, and testing those principles form the basis of examining the practical reasoning of participants. The evaluation format is known as the Justificatory Test (J-Test) (Case, 1988). A questionnaire entitled "Logging in the Lower Tsitika Valley: What do you think and Why? A Critical Assessment Questionnaire" was designed and used for this project, and is included in Appendix B. The questionnaire was administered during the re-screening stage of the Tsitika Watershed EIA, from February to June 1991. This chapter includes a description of the J-Test format, as well as a summary of the design and implementation of the questionnaire.

3.1 J-TEST FORMAT

The J-Test format, conceived by Case (1988), is based on a theory of reasoning about value issues developed over fifteen years by the Association for Values Education Research (AVER) at the University of British Columbia (AVER, 1991). The J-test uses the structure of value judgments described in Section 2.3.4.3. Participant's reasons are solicited, principles behind those reasons are identified and then the principles are "tested" as explained in Section 2.3.4.4. The J-Test explores the participants' attitude towards an issue in two ways. First, participants identify their reasons for their attitude, and second, the participants test the acceptability of the implied principles behind their reasons. The J-Test also invites participants to examine the other side of the issue, by showing participants a list of reasons for the opposite conclusion, and then asking them to identify any of these reasons that are acceptable to them.

In this study, participants are asked if they support logging in the Lower Tsetika. The yes or no responses lead to corresponding lists of reasons, for and against logging, from which the participants choose the reasons they can support. One reason in support of the logging is that "logging would provide jobs in the timber industry", and a reason against the logging is that "not logging would protect this region's biodiversity". Three of the participants' reasons in support of their positions are challenged using principle tests. An example of a challenge referring to other fundamental principles (subsumption test) is whether the participant would support providing jobs, if this course of action conflicted with a higher value such as endangering lives.

The J-Test is primarily a diagnostic test for practical reasoning about value issues. The diagnostic aspect examines participants' ability to choose factual reasons for their conclusion, as well as participants' ability to test the acceptability of the principles implied by their reasons, using principle testing. The participants' knowledge, experience and motivation are revealed in the process of choosing reasons. Further aspects of their ability to think critically show up in the principle testing and in the final re-examination, when participants are asked if they are still certain of their conclusion.

The J-test also has a descriptive component, which gathers both new and existing information about the issue, as well as exposes some descriptive details about the reasons and motivations of the participants involved. In this way, the J-Test is similar to a primary "scoping" technique in any EIA and offers improvements to the traditional approach. The important aspects of the issue are identified through the generation and selection of the reasons. The perceived importance of these factors is recorded when "best" reasons are selected. Considerable additional descriptive material is obtained through the comments.

By participating in the J-Test, participants have the opportunity to increase their awareness of the nature of practical reasoning. Each section of the questionnaire is similar to an exercise in practical reasoning. By taking part in these exercises, participants are exposed to activities in practical reasoning that could become valuable habits.

Through the reason selection exercise, participants can see that they may hold their position for different reasons than someone else and that they may or may not support the other person's reasons. For example, a logging company executive may support the logging to 'provide revenue' or because logging is 'legally authorized', but, if outside logging operations are brought in to do the logging, the executive may not have thought of logging 'to keep local resource-based communities alive'. Considering this reason broadens the executive's awareness. Also, exposure to reasons from the opposite side makes participants aware that by taking part in reasoning they will be exposed to credible and opposing reasons. Furthermore, in completing the principle tests, participants re-examine supporting reasons under challenging circumstances. The challenges present limits to possible support for these reasons and help to put reasons into a context of competing interests.

The exercises challenge participants in a variety of ways. Participants may move away from rigid positions, and thus develop a more open-mind on value judgments. They may learn to identify the limits of their choices, and thus to put their reasons into a justifiable contextual framework. They may weigh competing interests, and thus develop an inquiring and defensible attitude to reasoning. They may be able to see the reasons for the opposite position, or to role-play positions of individuals, who may be disadvantaged by their choices, and thus participants may become more considerate of the opinions of others. Overall, the J-Test engages participants in the value justification approach to teaching values.

3.2 DESIGN AND IMPLEMENTATION OF THE QUESTIONNAIRE

The J-Test questionnaire, for this case study, was designed to examine the practical reasoning of stakeholders in the EIA of the lower Tsitika Valley. Potential questionnaire participants were identified from several sources: membership in two government-appointed multi-agency Tsitika committees; independent involvement in Tsitika-related logging, fishing, tourism, scientific, conservation or educational activities; and membership in First Nations Bands with land claims over the area. Participants were separated into two broad groups: members of the Tsitika committees (hereafter referred to as committee

members) and independent individuals (hereafter referred to as non-committee members). Membership in the multi-agency committees is summarized in Appendix A, Table 17.

The two groups, committee and non-committee members, were separated due to the assumed difference in their exposure to all sides of the issue and in their involvement in lengthy discussions about the Tsitika Watershed issue. These differences were considered as factors that could affect their performance on the questionnaire. The committees had been set up with the intention of including representation from all interests and their members had met regularly over several years to discuss these interests. Thus, the committee members were expected to have a broad knowledge of all sides of the issue and considerable experience in using practical reasoning skills in discussion. The non-committee members were from individual interest groups, so they were expected to have had less exposure to issues from another perspective, as well as limited experience in justifying or discussing their own positions. Thus committee members were expected to be more skilled at practical reasoning and more tolerant of both sides of the logging issue.

The design and implementation of the questionnaire proceeded in the three phases described below.

3.2.1 PHASE I

Phase I consisted of developing an exhaustive list of reasons whether or not logging should proceed in the Tsitika Valley. The reasons reflected the range of concerns that stakeholders might have with respect to the potential impacts of the logging. The list was generated by a diverse group of 31 participants from various interest groups including government agencies, forest and fishing industries, environmental groups and the public (Table 1). These participants were not in either of the formal committees.

The participants in Phase 1 were asked to identify all of the reasons people might give for and against logging in the lower Tsitika. Reasons were grouped into categories and formulated into two lists (pro and con). Ultimately the lists consisted of 16 reasons why logging should proceed and 15 reasons why logging should not proceed (See Section 3.2.2.2).

Table 1. Participants in Phase I, II and III.

Category	Number of Persons in Each Phase		
	Phase I	Phase II	Phase III
Government agencies			
BC Ministry of Forests	2		6
BC Ministry of Environment	1		2
BC Ministry of Parks			2
BC Ministry of Tourism			2
BC Ministry of Native Affairs			1
Federal Department of Fisheries and Oceans	3	1	2
Forest Industry			
Management	3		6
Labour	1	1	4
Independent	2	1	
Other Industries			
Fishing Industry *	2	2	3
Tourism Industry			1
Other			
Independent Scientists and Specialists	6		6
Informed Public *	6	2	
Environmental Group	3		8
Lawyer	1		
Teacher - college or university	1		2
First Nations Band Council *			1
Total	31	7	46

* includes First Nation individuals

3.2.2 PHASE II

The six sections of the questionnaire were developed in Phase II, based on the J-Test format. These sections are explained below and examples are given. When completed the questionnaire was verified using a 'pilot' trial with seven participants. These participants were selected from various interest groups as shown in Table 1. The pilot included completing the questionnaire and then answering questions about the clarity, content and process. Minor changes were made to some of the reasons and probes at the suggestion of the participants.

3.2.2.1 Initial position

Participants were asked to make a concluding value judgment, hereafter referred to as their "position", and to indicate how certain they felt about their position.

Example, from the questionnaire, of the value judgment or position:

Logging should proceed in the lower Tsitika Valley?

- Agree*
- Disagree*

Please indicate how certain you feel about your answer?

- Absolutely convinced*
- Reasonably certain*
- Have some reservations*

3.2.2.2 Reasons

Participants were shown a list of reasons supporting their position (Tables 2 and 3). They were asked to choose the reasons that they agreed with and to select up to three reasons that they considered the most important. Participants were also invited to write down any additional reasons that were not included on this list.

3.2.2.3 Probes

Participants were requested to respond to four or five probes for each of their most important reasons (probes are included in Appendix B). The probes were questions that challenged the implied principle behind the factual reason. The probes were constructed on the basis of any of Coombs' (1980) four types of principle tests: New Cases Test, Role Exchange Test, Universal Consequences Test, or Subsumption Test, (see Section 2.3.4.4 Principle Tests). Participants were asked to answer the probes for each reason with a "yes" or "no" response. They were directed to comment on the probes if they wished. On completing the probes, they were asked to indicate if they still supported the reason they had chosen, or if they wanted to modify it. Space was allowed for comments and revisions.

Table 2. Reasons in support of logging the lower Tsitika.

- A. Logging the lower Tsitika would provide jobs in the timber industry e.g. logging, milling, silviculture and other related jobs.
- B. Logging the lower Tsitika would produce revenue for the provincial government and the timber companies.
- C. Logging the lower Tsitika as part of that annual allowable cut allows the timber companies to meet the demand for domestic wood supplies.
- D. Logging the lower Tsitika will help to keep the local resource-based communities alive.
- E. Logging the lower Tsitika will profit timber industry and will cause no significant loss to any other used group.
- F. Logging the lower Tsitika allows residents in a resource-based community to pursue their chosen livelihood.
- G. Logging the lower Tsitika would discourage environmental groups who constantly increase their demands for environmental protection.
- H. Logging the lower Tsitika is legally authorized by the BC government through Tree Farm License agreements.
- I. Logging the lower Tsitika was decided on the basis of careful planning procedure and extensive studies.
- J. Logging the lower Tsitika will not significantly damage the aesthetic value of the region.
- K. Logging the lower Tsitika is based on a plan for sustainable harvesting of the area.
- L. Logging the lower Tsitika will have no known adverse effects on the area's wildlife, including the killer whale habitat.
- M. Logging the lower Tsitika is the most productive management option for this valuable old growth forest resource, which would otherwise be wasted as the old trees die or burn down.
- N. Logging the lower Tsitika is opposed mostly by people who are ill-informed about the timber industry.
- O. Logging the lower Tsitika is economically beneficial and will not damage any of the best examples of old growth forest ecosystems in the province.
- P. Logging the lower Tsitika benefits the general public by improving recreational access and the visibility of some wildlife species in the area.

Table 3. Reasons in support of not logging the Lower Tsitika.

- A. Not logging the lower Tsitika would have minimal negatives effects on the timber industry (e.g. the number of jobs, corporate profits, government revenue, and volume of timber cut) since it represents such a small area.
- B. Not logging the lower Tsitika would allow the other (non-timber) users to have a long-term sustainable future in the region, (e.g. tourism, fishing, hunting, research).
- C. Not logging the lower Tsitika would protect this region's biodiversity.
- D. Not logging the lower Tsitika would prevent significant environmental damage including degradation of the habitat of fish, killer whales and other wildlife.
- E. Not logging the lower Tsitika would avoid risking environmental damage including the degradation to wildlife habitat since present research is inadequate to provide error-proof management plans.
- F. Not logging the lower Tsitika would conserve an area, which has significant spiritual and emotional value for many people.
- G. Not logging the lower Tsitika would show our respect for other living creatures in the ecosystem.
- H. Not logging the lower Tsitika would protect an area that is considered scared by the Tlowitsis-Mumtagilia peoples and over which they have never relinquished their traditional rights.
- I. Not logging the lower Tsitika would respect widespread public desire to protect a valuable publicly owned wilderness area for future generations.
- J. Not logging the lower Tsitika would lead to restructuring of obsolete management plans for the area which do not reflect changing public attitudes towards the forest.
- K. Not logging the lower Tsitika would help to protect an internationally recognized ecological feature of BC.
- L. Not logging the lower Tsitika would avoid further tarnishing Canada's reputation as a country committed to environmental protection.
- M. Not logging the lower Tsitika would set an example and encourage third world countries to consider the environmental costs of development and to preserve significant natural areas.
- N. Not logging the lower Tsitika would represent increased public influence over the timber activities of large multinational corporations.
- O. Not logging the lower Tsitika would protect the last significant example of a unique ecosystem.

The purpose of the probes is to assess openness to ideas and consistency in reasoning by examining the value principles underlying the factual

statements that each side has supported. The two opposing sides may completely differ about the value principles and may find the other side's completely unacceptable, or they may put a different weight on these principles. The differing weight may come from differences in life experiences. The probes attempt to use commonly understood experiences, relevant to the situation, to challenge each principle and to inspire the participant to review the weight or significance that has been placed on the principle. At the very least, the participant becomes aware of the implications of these cases on the principle and that there could be limits or situations in which the principle would not be supported. This may lead to more of an understanding of the opposite position.

In the New Cases test, such as the example below, the principles were applied in new situations that were expected to be familiar to participants. Given the potential differences in life experience among the participants and the limited time, cases which ranged to the most negative of examples were used, as these were likely to have the most impact on the participant (Coombs & Meux, 1971).

New Cases Test Probe

Reason: *"logging the lower Tsitika will profit the timber companies and will cause no significant economic loss to any other user group"*

Implied principle: *"we ought to do things that profit one user group and won't cause significant economic loss to any other user groups"*

Probe: *"Would you support making decisions on the basis of considering only the economic benefits of user groups if this applied to all public decisions such as schools and hospitals?" Yes or No*

The role exchange test involves the participant in exchanging places with someone who might be adversely affected by the application of the principle in a given situation. The issues involved in this test are the participants' understanding of the role selected as well as the participant's reaction to being placed in that role. For example, a participant might not understand how the role would be affected, might disagree that the role is affected, might argue the degree to which the role is affected, or finally the participant may not be able or willing to take on the role. Again, in this project, cases were selected that were

within the potential realm of experience of the participants. An example is given below.

Role Exchange Test Probe

Reason: *"logging the lower Tsitika would provide jobs in the timber industry e.g. logging, milling, silviculture and other related jobs".*

Implied principle: *"we ought to do things that provide jobs".*

Probe: *"If you were in the fishing industry would you support the idea of providing jobs for people who engaged in an industry that damages your livelihood"? Yes or No*

The universal consequences test involves evaluating what would happen if everyone did an action that was supported by the principle. The controversy in this test is likely to be over the significance of the consequences. An example follows.

Universal Consequences Test Probe

Reason: *"logging the lower Tsitika allows residents of resource-based communities to pursue their chosen livelihood."*

Implied principle: *"we ought to do things that allow residents of resource-based communities to pursue their chosen livelihood."*

Probe: *"Consider the consequences if everyone in resource-based communities wanted to work in the timber industry. Would you agree that things ought to be done to allow all of these people to pursue their chosen livelihood?" Yes or No*

The theory of the subsumption test is to identify a more general principle that could be supported by the participant and is related to the given principle. The two opposing sides may be able to support the more general principle and/or a discussion of the facts that relate the two principles may bring the opposing sides closer together. The way the subsumption test was used in this J-Test format was to attempt to identify a more fundamental or a higher moral principle that would challenge the given principle. An example of this is given below.

Subsumption Test Probe

Reason: *"Logging the lower Tsitika would provide jobs in the timber industry e.g. logging, milling, silvicultural and other related jobs".*

Implied Principle: *"we ought to do things that provide jobs".*

Probe: *"If there were other ways to provide jobs during tough economic times such as employees accepting a drop in salary in order to keep everyone employed, would you take a drop in salary to provide jobs? Yes or No*

Asking the participants to review their support for the reason after completing the probes gives them the opportunity to weigh the principle in light of the challenges they have experienced. Inviting participants to modify their reasons allows them to express the weight they would give their reason, or in other words, to state the limitations or constraining factors they would apply to their reason.

3.2.2.4 Opposite reasons

Participants were also shown a list of reasons for the opposite position and were asked to choose any reasons they considered good reasons from this list. Presenting the opposite reasons to the participants is also a challenge to their concluding value judgment. Reasons that are accepted from the opposite position, if they are interpreted correctly by the participants, are obviously at odds with the value judgment. By reviewing these reasons, the participants may become aware of ideas they hadn't considered before, or they may revisit the weight they originally gave these contradicting arguments/reasons

3.2.2.5 Concluding position

Participants were asked to make the concluding value judgment again and also were requested to reconfirm the certainty of their position. Participants were asked to explain if their position or certainty changed from their initial response. Space was also left for comments.

3.2.2.6 Background and evaluation

Participants were requested to answer questions about their background in practical reasoning and EIA. They were also asked whether the probes

caused any reevaluation of their position. Finally, they were asked to indicate what sources of information contributed to their position and to record any other comments about the questionnaire or about logging in the lower Tsitika Valley. An example of one of the background questions is given below.

Background question

Have you had any formal instruction in critically assessing or justifying positions in controversial issues?

Yes, quite a bit

Yes, some

No, none

If yes, please explain.

3.2.3 PHASE III

The questionnaire was circulated to 46 participants (Table 1). These participants included both members and non-members of the official committees (24 Committee; 22 Non-committee). Participants were initially contacted by phone and then were either visited at work or at their homes. Visits took place in Vancouver, Victoria, and in 13 cities and small communities throughout Vancouver Island and the smaller islands, such as Sointula, Alert Bay and Denman Island. Four participants received and or returned their questionnaires by mail.

During visits, a modified interview process was used. I explained the questionnaire and assured participants that their answers would be confidential. While it was obvious to participants that I would initially see their choices, I explained that as their name was not attached to any portion of the questionnaire, no record would be kept relating responses to names. While the participant completed the questionnaire, I waited in another room. Participants took between 30 and 60 minutes to complete the questionnaire.

3.2.3.1 Participants reception of the questionnaire

In general, the questionnaire was favourably received and respondents had no problems with the actual format. Positive feedback included support for the thought-provoking aspects of the questionnaire and the opportunity to review the issue. General criticism included annoyance with yet another study

of the issue, discomfort with having one's views challenged, and difficulty in making yes or no choices within the limits of the probes. I was impressed by the participants' general willingness, and with their commitment to put in the time required for the questionnaire. Participants from all stakeholder groups were included, for example, forest company executives, government employees, scientists, tourism operators, fishers, local First Nations' band members, logging personnel working in the Tsitika, teachers and members of environmental groups.

3.2.3.2 Analysis of the results

The numerical data were reduced or grouped in two ways: first, by the position taken on the concluding value judgment, either Yes or No and, second, by membership in one of the committees, whether committee member or non-committee member. In addition, all comments were transcribed and noted for the author's position and committee membership. The results are presented in the next chapter in the same order as the sections of the questionnaire. Where appropriate the data are displayed in chart form for ease in assessing the complicated number of categories. No quantitative statistical analysis of the number of participants responding in each category was attempted as the proportions of yes and no responses to the concluding value judgment were unexpectedly disparate.

In Chapter 5, the elements of practical reasoning that the J-Test reveals are identified and then in Chapter 6 the results are examined in terms of these elements. The issues explored by a qualitative analysis of the results in chapters 5 through 7 were:

- The value of the J-Test as a diagnostic and a teaching tool.
- The strengths and weakness of people's reasoning abilities as revealed by J-Test.
- The ways that these reasoning abilities might be improved.

The questions I asked were:

- What was the J-Test able to accomplish when used in the context of this project?
- What were the limitations of the test?

- How did my own methods and abilities in using the test affect its performance?
- What improvements could make the test more useful?

Chapter 4 RESULTS

This chapter summarizes the data collected using the critical assessment questionnaire from Phase III, with 46 participants. Where appropriate, the overall result for all participants was determined, and as mentioned in the previous chapter, responses were reduced or grouped in two ways. First, responses were grouped according to the participants' position on the logging of the lower Tsitika (Yes Position, No Position) and second, depending on whether participants were members of the official committees (Committee members, Non-committee members).

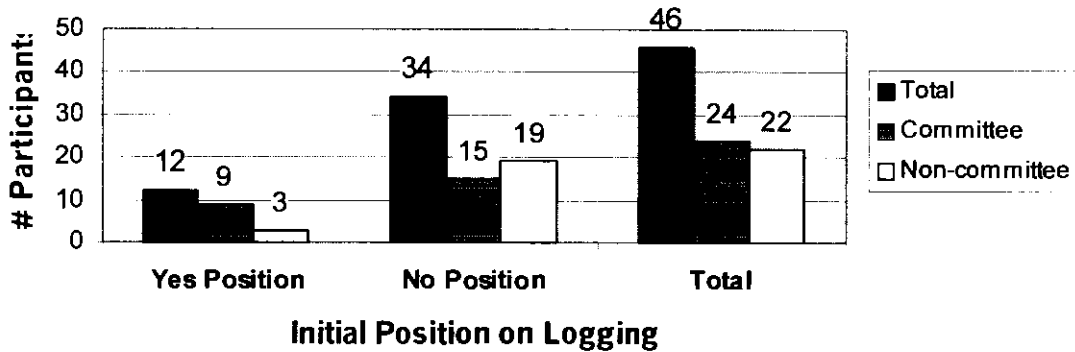
For the groups, the results are presented for all Yes Position/No Position participants (hereafter referred to as YesP and NoP) and all Committee/Non-committee members (hereafter referred to as Com. and Non-com.). However, for the selection of reasons, the Com./Non-com. groups are further subdivided by position as YesP and NoP participants selected from different lists of reasons. The selection choices of the entire Com/Non-com. groups can only be compared when the selections of opposite reasons are compared with the supporting reasons' section (Section 4.4.4). Unfortunately the subgroup, YesP Non-com., is small (n=3), and comparisons with this group are speculative. As noted previously, numerical differences between these categories were not analyzed statistically. However they are included to indicate possible trends in the qualitative analysis of the value of the J-Test and of what was revealed about the practical reasoning of the participants.

Comments were solicited from participants throughout the questionnaire and these are included as examples in each section. The majority of comments were received in the probe section; these comments were grouped into categories and examples are given in section 4.5.2. The categories of probe comment categories were not numerically assessed for trends as participants selected different important reasons and therefore completed different probes, and the invitation to offer comments was optional.

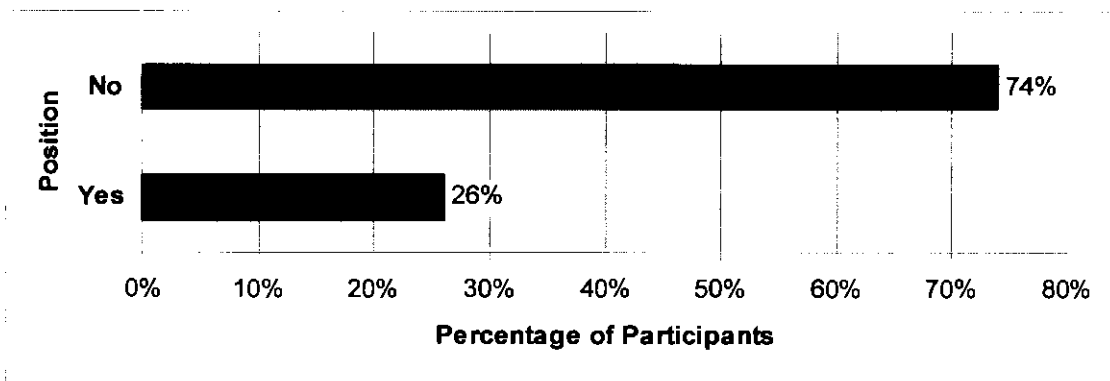
4.1 INITIAL POSITION

The questionnaire began by asking participants whether or not logging should proceed in the lower Tsitika Valley. Twelve out of 46 participants

indicated that they supported the logging, while 34 participants were not in support of continued logging (Figure 1a). The choice of the "No" position by the majority (74%) of participants was not anticipated (Figure 1b). Therefore the results reflect an imbalance towards the NoP.



a. Number of participants choosing Yes and No positions, and number who were Committee members or Non-committee members.



b. Percentage of participants selecting each position.

Figure 1. Participants choosing the Yes or No position on logging (n=46).

4.2 CERTAINTY

Participants were asked to indicate how certain they were of their position. Possible choices included: Absolutely Convinced; Reasonably Certain; and Some Reservations. The majority of participants (59%) were Absolutely Convinced of their position (Figure 2). Approximately the same percentage of YesP and NoP participants was Absolutely Convinced (YesP 58%; NoP 59%) (Figure 3). However, a higher percentage of Non-com. members was Absolutely Convinced (82% Non-com.; 38% Com.), and a higher percentage of Com.

members was reasonably certain (46% Com.; 14% Non. Com.) or had some reservations (17% Com.; 5% Non-com.) (Figure 4).

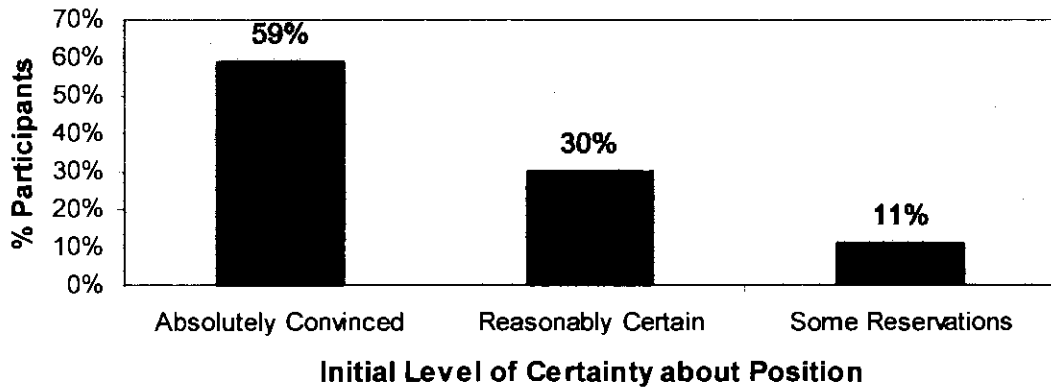


Figure 2. Percentage of participants choosing each level of certainty about their position (n=46).

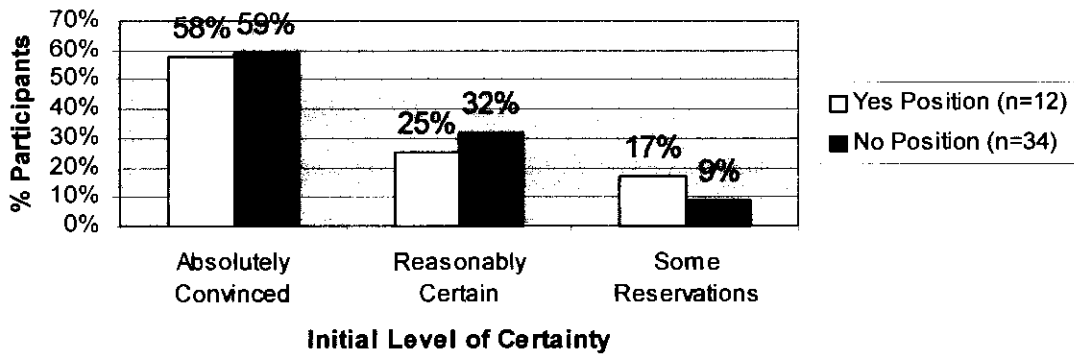


Figure 3. Initial certainty of participants choosing Yes and No positions.

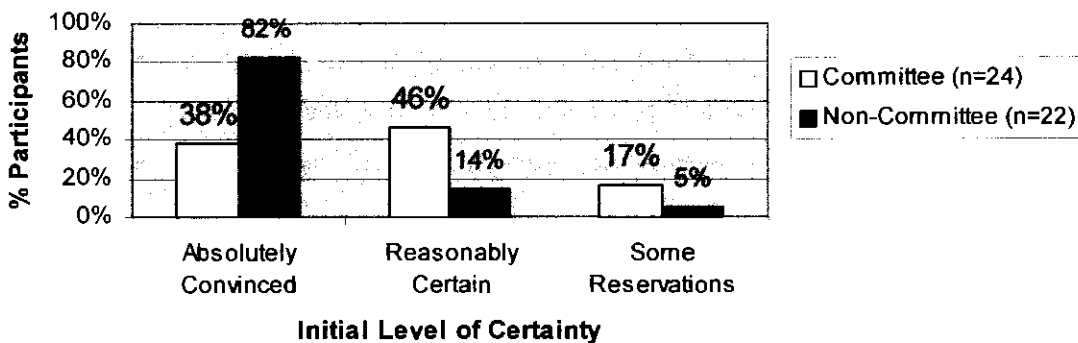


Figure 4. Initial certainty of Committee and Non-Committee members.

4.3 REASONS FOR THE POSITION

Participants were presented with lists of reasons for either the YesP and NoP positions, depending on their initial choice. Then they were asked four questions:

- Select all of the reasons that they agreed with, in support of their position.
- Choose up to three most important reasons from their selection of supporting reasons.
- Add any additional reasons that were not on the list.
- Choose any reasons that they agreed with, from a list of reasons for the opposite position.

Participants' responses to each of the four questions are described separately for both the YesP and NoP. The choices of reasons are recorded in this chapter and discussed in chapter 6.

4.3.1 SUPPORTING REASONS

Forty-five participants selected 28 of the possible 31 supporting reasons. One participant (YesP Com. member) chose not to select any reasons from the lists and, instead, offered an additional reason. This participant's data is not included in the other sections regarding reasons, thus for those sections the YesP group contains 11 instead of 12 members, and the Committee group 23 instead of 24.

Overall, YesP participants chose approximately the same number of supporting reasons per participant as NoP participants (6.7; 8.5), but all Com. members chose fewer reasons per participant than Non-com. members (5.8; 10). In addition, those that were absolutely convinced of their position tended to choose more reasons per participant than those less certain of their position (Absolutely convinced 9.4; Reasonably certain 4.7; Some reservations 5.4). This later trend between certainty and the number of reasons also held for all groups (YesP/NoP and Com./Non-com.).

4.3.1.1 Yes Position - supporting reasons

YesP participants chose from among 13 of the possible 16 reasons offered in support of the Yes position (Table 4). The subgroup YesP Com. members

chose 13 reasons and Non-com. members chose 10, but YesP Com. members tended to choose fewer reasons per participant (5.8; 7.3).

As shown in Table 4, the two reasons for logging the lower Tsitika, selected by over 80% of YesP participants were:

- D. "keep communities alive".
- I. "based on careful plans".

Three other reasons were chosen by almost 75% of participants:

- A. "provide jobs".
- K. "is sustainable".
- L. "no adverse wildlife effects".

Table 4. Reasons for supporting logging of the lower Tsitika, selected by participants choosing the Yes Position.

Abbreviated reason supporting YES Position (complete reason in Appendix C)	Number Yes Position (n=11)	Percentage Yes Position	Number / Percentage Committee Members (n=8)	Number / Percentage Non-committee Members (n=3)
D "keep communities alive"	9	82%	7 / 88%	2 / 67%
I "based on careful plans"	9	82%	6 / 75%	3 / 100%
A "provide jobs"	8	73%	5 / 63%	3 / 100%
K "is sustainable"	8	73%	5 / 63%	3 / 100%
L "no adverse wildlife effects"	8	73%	5 / 63%	3 / 100%
H "is legally authorized"	6	55%	6 / 75%	0
B "produce revenue"	5	45%	3 / 38%	2 / 67%
F "allow chosen livelihood"	5	45%	5 / 63%	0
C "AAC for domestic wood"	4	36%	2 / 25%	2 / 67%
J "not harm aesthetics"	4	36%	3 / 38%	1 / 33%
P "benefit public/improve recreation"	4	36%	3 / 38%	1 / 33%
O "not damage best old-growth"	3	27%	1 / 13%	2 / 67%
M "productive management option"	1	9%	1 / 13%	0
E "profit timber industry/no losses"	0	0	0	0
G "discourage environmentalists"	0	0	0	0
N "opposed by ill-informed"	0	0	0	0

Com. members selected D "keep communities alive" most often (88%), while all Non-com. members selected four reasons I, A, K, L (100%), which are listed on the previous page. All five reasons were well supported by both subgroups. The major differences between the subgroups were that Com. members also preferred: H. "is legally authorized" and F. "allow chosen livelihood", which were not selected by Non-com. members. On the other hand, over 50% more Non-com. members supported O. "not damage best old-growth".

4.3.1.2 Yes Position - supporting reasons - certainty

The selection of supporting reasons, grouped by the level of certainty of the participants, is shown in Table 5. The selections of those "reasonably certain" and those with "some reservations" have been combined and are referred to as those "less certain".

Table 5. Reasons for supporting logging that were selected by Yes Position participants with varying levels of certainty.

Abbreviated reason YES Position (complete reason in Appendix 3)	Percentage Absolutely Convinced YesP Participants (n=6)	Percentage Less Certain YesP Participants (n=5)
A "provide jobs"	100	40
K "is sustainable"	100	40
D "keep communities alive"	83	80
I "based on careful plans"	83	80
L "no adverse wildlife effects"	83	60
B "produce revenue"	67	20
C "AAC for domestic wood"	67	0
F "allow chosen livelihood"	50	20
H "is legally authorized"	50	40
P "benefit public/improve recreation"	50	20
J "not harm aesthetics"	33	40
O "not damage best old-growth"	33	20
M "productive management option"	17	0
E "profit timber industry/no losses"	0	0
G "discourage environmentalists"	0	0
N "opposed by ill-informed"	0	0

Those participants who were absolutely convinced of their position preferred reasons A and K (100% support). Those less certain preferred D and I (80% support) and these reasons were also supported by over 80% of those absolutely convinced.

- D. "keep communities alive".
- I. "based on careful plans".

The major selection differences, between groups based on certainty, were that 60% more of the absolutely convinced participants selected:

- A. "provide jobs".
- K. "is sustainable".
- C. "Annual Allowable Cut (AAC) for domestic wood".

4.3.1.3 No Position - supporting reasons

NoP participants chose all 15 of the possible reasons listed in the questionnaire (Table 6). The subgroup of NoP Com. members chose 14 of 15 reasons, and NoP Non-com. members chose all 15 reasons. NoP Com. members again chose fewer reasons per participant (5.8) than Non-com. (10.5).

While twelve of the reasons were selected by over 50% of the NoP participants, the two reasons, supported by over 80% of the NoP participants, were:

- E. "avoid risking environmental damage".
- K. "international ecological feature".

The reasons most commonly selected by NoP Com. members were also E and K, and while Non-com. members preferred I. "public desire for wilderness". However four reasons received over 50% support from both subgroups including E, K and:

- C. "protect biodiversity".
- B. "non-timber users sustainable".

The three reasons with the greatest difference in the level of support were:

- I. "public desire for wilderness".
- H. "sacred to First Nations".
- G. "respect for living creatures".

These reasons received approximately 50% more support from Non-com. members. Five other reasons were supported by 30% more members of Non-com. than Com. (A, N, O, L, M).

Table 6. Reasons for not supporting logging of the Lower Tsitika, selected by participants choosing the No Position.

Abbreviated reason supporting NO Position (complete reason in Appendix C)	Number No Position (n=34)	Percentage No Position	Number / Percentage Committee Members (n=15)	Number / Percentage Non-committee Members (n=19)
K "international ecological feature"	30	88%	13 / 87%	17 / 89%
E "avoid risking environmental damage"	28	82%	13 / 87%	16 / 84%
I "public desire for wilderness"	25	74%	7 / 47%	18 / 95%
C "protect biodiversity"	23	68%	8 / 53%	15 / 79%
B "non-timber users sustainable"	20	59%	8 / 53%	12 / 63%
F "conserve spiritual/emotional area"	20	59%	7 / 47%	13 / 68%
D "prevent environmental damage"	19	56%	6 / 40%	13 / 68%
H "sacred to First Nations"	19	56%	4 / 27%	15 / 79%
G "respect for living creatures"	18	53%	4 / 27%	14 / 74%
A "minimal harm to timber industry"	17	50%	4 / 27%	13 / 68%
J "restructure obsolete plans"	17	50%	5 / 33%	12 / 63%
N "increased public influence"	17	50%	4 / 27%	13 / 68%
O "protect last of a unique ecosystem"	13	38%	3 / 20%	10 / 53%
L "avoid tarnishing reputation"	11	32%	2 / 13%	9 / 47%
M "encourage third world countries"	9	26%	0	9 / 47%

4.3.1.4 No Position - supporting reasons - certainty

The selection of reasons based on the degree of certainty of NoP participants, shown in Table 7, revealed little consistency between those absolutely convinced and those less certain. Those absolutely convinced of their position preferred I. "public desire for wilderness", which had 50% less support from those less certain. Those less certain favored two reasons which were also supported by at least 80% of those absolutely convinced:

- K. "international ecological feature" (over 80% of each group).
- E. "avoid risking environmental damage" (over 80% of each group).

For the remaining ten reasons, other than B. "non-timber users sustainable", which received over 50% support from both subgroups, there was a disparity of 30 to 70% more support by those absolutely convinced.

Table 7. Reasons for not supporting logging that were selected by No Position participants with varying levels of certainty.

Abbreviated reason supporting NO Position (complete reason in Appendix C)	Percentage Absolutely Certain Participants (n=20)	Percentage Less Certain Participants (n=14)
I "public desire for wilderness"	95	43
K "international ecological feature"	90	86
H "sacred to First Nations"	85	14
A "minimal harm to timber industry"	80	7
C "protect biodiversity"	80	50
D "prevent environmental damage"	80	21
E "avoid risking environmental damage"	80	86
F "conserve spiritual/emotional area"	80	29
G "respect for living creatures"	70	29
N "increased public influence"	70	21
B "non-timber users sustainable"	65	50
J "restructure obsolete plans"	65	21
O "protect last of a unique ecosystem"	55	14
L "avoid tarnishing reputation"	50	7
M "encourage third world countries"	40	7

4.3.2 MOST IMPORTANT REASONS

The most important reasons selected by each position, and selected by those with various degrees of certainty, as discussed below, illustrate the significant issues for these participants.

4.3.2.1 Yes Position - most important reasons

YesP participants selected 10 of the possible 16 reasons as the most important reasons for supporting the logging (Table 8). The reason, most often selected by the YesP participants, was I. "the decision was based on a careful planning process and extensive studies". Four other important reasons selected, by more than 30% of the YesP participants included:

- A. "providing jobs".

- D. "keep communities alive".
- K. "is sustainable".
- L. "no adverse wildlife effects".

Table 8. Most important reasons for supporting logging the lower Tsitika, selected by participants choosing the Yes Position.

Abbreviated reason supporting YES Position (complete reason in Appendix C)	Number Yes Position (n=11)	Percentage Yes Position	Number / Percentage Committee Members (n=8)	Number / Percentage Non-committee Members (n=3)
I "based on careful plans"	8	73%	6 / 75%	2 / 67%
D "keep communities alive"	5	45%	5 / 63%	0
A "provide jobs"	4	36%	1 / 13%	3 / 100%
K "is sustainable"	4	36%	1 / 13%	3 / 100%
L "no adverse wildlife effects"	4	36%	3 / 38%	1 / 33%
H "is legally authorized"	3	27%	3 / 38%	0
F "allow chosen livelihood"	2	18%	2 / 25%	0
J "not harm aesthetics"	1	9%	1 / 13%	0
O "not damage best old-growth"	1	9%	1 / 13%	0
P "benefit public/improve recreation"	1	9%	1 / 13%	0
B "produce revenue"	0	0	0	0
C "AAC for domestic wood"	0	0	0	0
E "profit timber industry/no losses"	0	0	0	0
G "discourage environmentalists"	0	0	0	0
M "productive management option"	0	0	0	0
N "opposed by ill-informed"	0	0	0	0

In the Com/Non-com subgroups, YesP Com. members selected 10 reasons as most important reasons, while Non-com. members chose only four. The most important reason for the YesP Com subgroup was I. However, the two reasons selected by all Non-com members but only one Com. member were:

- A. "provide jobs".
- K. "is sustainable".

Similarities were a high level of support from both subgroups for I (greater than 60%) and moderate support for L "no adverse wildlife effects" (greater than 30%). Major differences were that two reasons support by the YesP Com.

members received no support from the Non-com. members D. "keep communities alive" (63%) and H. "is legally authorized" (38%).

4.3.2.2 Yes Position - most important reasons - certainty

The selection of reason grouped by the level of certainty of the YesP participants is shown in Table 9. Those absolutely convinced most often selected A, I and K as their most important reasons. Those less certain favoured I, D, and L. Thus I. was a popular choice for both levels of certainty. The major differences were first, that none of those less certain supported A or K, and second that 30 to 45% more of those less certain chose D and L.

Table 9. Most important reasons for supporting logging, that were selected by Yes Position participants with varying levels of certainty.

Abbreviated reason YES Position (complete reason in Appendix 3)	Percentage Absolutely Certain YesP Participants (n=7)	Percentage Less Certain YesP Participants (n=5)
A "provide jobs"	57	0
I "based on careful plans"	57	60
K "is sustainable"	57	0
D "keep communities alive"	29	60
F "allow chosen livelihood"	29	0
H "is legally authorized"	14	40
L "no adverse wildlife effects"	14	60
B "produce revenue"	0	0
C "AAC for domestic wood"	0	0
E "profit timber industry/no losses"	0	0
G "discourage environmentalists"	0	0
J "not harm aesthetics"	0	20
M "productive management option"	0	0
N "opposed by ill-informed"	0	0
O "not damage best old-growth"	0	20
P "benefit public/improve recreation"	0	20

4.3.2.3 No Position - most important reasons

NoP participants selected all 15 of the reasons for not logging as most important reasons (Table 10). Due to this wide selection, the maximum support for any one reason was 41%. The three most often selected reasons were:

- E. "avoid risking environmental damage".
- I. "public desire for wilderness".
- K. "international ecological feature".

The reason most often chosen by the subgroup NoP. Com. members was E. "avoid risking environmental damage" and by the NoP Non-com. members, was D. "prevent environmental damage".

Table 10. Most important reasons for not supporting logging in the lower Tsitika, selected by participants choosing the No Position.

Abbreviated reason supporting NO Position (complete reason in Appendix C)	Number No Position (n=34)	Percentage No Position	Number / Percentage Committee Members (n=15)	Number / Percentage Non-committee Members (n=19)
E "avoid risking damage"	14	41%	8 / 53%	6 / 32%
I "public desire for wilderness"	11	32%	5 / 33%	6 / 32%
K "international ecological feature"	11	32%	7 / 47%	4 / 21%
C "protect biodiversity"	9	26%	3 / 20%	6 / 32%
D "prevent environmental damage"	9	26%	2 / 13%	7 / 37%
F "conserve spiritual/emotional area"	8	24%	4 / 27%	4 / 21%
B "non-timber users sustainable"	7	21%	6 / 40%	1 / 5%
H "sacred to First Nations"	6	18%	0	6 / 32%
N "increased public influence"	6	18%	1 / 7%	5 / 26%
G "respect for living creatures"	5	15%	3 / 20%	2 / 11%
O "protect last of a unique ecosystem"	4	12%	0	4 / 21%
A "minimal harm to timber industry"	3	9%	1 / 7%	2 / 11%
J "restructure obsolete plans"	2	6%	1 / 7%	1 / 5%
L "avoid tarnishing reputation"	2	6%	1 / 7%	1 / 5%
M "encourage third world countries"	1	3%	0	1 / 5%

Both subgroups of NoP Com. and Non-com. members favoured E and I. The major differences were first, that 30% more Com. than Non-com. members selected B. "non-timber users sustainable", and second, that H. "sacred to First Nations" was supported by 32% of Non-com. members but by no Com. Members.

4.3.2.4 No Position - most important reasons - certainty

The most important reasons in support of not logging, selected by NoP participants and grouped on the basis of their certainty, are shown in Table 11. Those absolutely convinced preferred C. "protect biodiversity" and I. "public desire for wilderness" and those less certain preferred E."avoid risking environmental damage" and K "international ecological feature". None of these preferred choices received favorable support from the opposite subgroup, in fact there was little similarity between the selections of the subgroups. Another marked difference was over 50% more support by those less certain for B."non-timber users sustainable".

Table 11. Most important reasons for not supporting logging, that were selected by No Position participants with varying levels of certainty.

Abbreviated reason supporting NO Position (complete reason in Appendix C)	Percentage Absolutely Certain Participants (n=20)	Percentage Less Certain Participants (n=14)
C "protect biodiversity"	40	14
I "public desire for wilderness"	40	21
F "conserve spiritual/emotional area"	35	7
D "prevent environmental damage"	25	21
E "avoid risking environmental damage"	25	64
G "respect for living creatures"	20	7
H "sacred to First Nations"	20	14
N "increased public influence"	20	7
O "protect last of a unique ecosystem"	20	0
A "minimal harm to timber industry"	15	0
K "international ecological feature"	10	64
M "encourage third world countries"	10	0
B "non-timber users sustainable"	5	43
J "restructure obsolete plans"	5	7
L "avoid tarnishing reputation"	5	7

4.3.3 ADDITIONAL REASONS

Overall 28 additional reasons were contributed by 23 of the participants. These reasons reflected further details and nuances of the reasons in the questionnaire.

4.3.3.1 Yes Position - additional reasons

Eight additional reasons were offered by six YesP participants (five Committee members; one Non-committee member). The additional reasons were in the following categories.

- Three stressed the value of the existing planning process for the area (Tsitika Watershed Integrated Resource Plan (TWIRP) - Tsitika Follow-up Committee).
- Three reiterated other issues already mentioned in the existing reasons, namely, limited environmental damage, improving habitat for the wildlife of the immature forest and improving recreational access to high elevation areas.
- Two reasons described the financial return to the "owner of the resource", namely, income going to secondary support services, and the prospect of different users competing in financial terms. In a similar vane, the YesP participant, who chose none of the reasons offered in the questionnaire, referred to the resource value of the valley. The comment was "I believe that continuing with the TWIRP of the lower Tsitika offers the higher economic and social benefit to the owner of the resource when compared to making it into a park or ecological reserve. If it were privatized then all the other values could materialize as dollars competing with the timber values".

Another YesP participant expanded and commented on some of the original reasons. This participant stressed that logging in the area was a political decision and that the role of government employees is to follow the government's decision while trying to minimize impacts. This person also connected the position of not logging the Tsitika with problems in adjusting the Annual Allowable Cut (AAC) in terms of the TWIRP.

4.3.3.2 No Position - additional reasons

Twenty additional reasons were given by 17 NoP (7 Committee members; 10 Non-committee members). These additional reasons are in the following categories.

- Emphasizing the values of the valley
 - Five reasons pertained to the importance of protecting killer whale habitat.
 - Four stressed the value of the scenic backdrop of Robson Bight.
 - Four referred to the value of old growth wilderness.
- Discussing the threat to the valley from logging
 - Three noted the studies that were done and are in-progress especially with regard to fisheries and hydrology problems.
 - One noted the need to do experimental logging in less sensitive areas.
- Noting problems with the forest industry
 - Two discussed issues related to finance and the logging industry such as the need to constructively address the looming crisis in the forest and the need to distribute profits locally instead of through off-shore corporations.
- One encouraged recognition of the intrinsic value of other beings.

4.3.4 REASONS for the OPPOSITE POSITION

All participants were asked to choose reasons for the opposite position that they could support. Viewing reasons for the opposite position is a challenge to the participants' chosen position. In selecting opposite reasons as acceptable, the participants had to be sufficiently open-minded and intuitive to consider the implied principles and to judge whether any of these reasons were true, relevant and could be supported in the Tsitika situation.

Overall 52% of participants selected at least one reason as supportable from the reasons for the opposite position. More NoP than YesP chose at least one opposite reason (56%; 42%) as did more Com. than Non-com. members (63%; 41%). In addition, Com. members chose almost twice as many opposite reasons per participant as Non-com. members (2.5; 1.3).

Some of the comments, written by participants, gave reasons for the rejection of the opposite point of view. For example, a YesP participant noted "While I can understand that some people hold the opinions listed under [the opposite position], I have considered those opinions in the past and cannot agree with them". Similarly a NoP participant remarked "For the section in which you consider the opposite position, I can understand how they would be good reasons for some, but they are not 'good enough' for me." Several modifications were also volunteered for reasons from the opposite position (see 4.6.3 Modifications of the reasons).

4.3.4.1 Yes Position - opposite reasons - reasons for not supporting logging

Although only 42% of YesP participants chose one or more of the reasons in support of the opposite position as acceptable, those that did choose, selected 11 of the possible 15 (Table 12). The two most commonly selected reasons, chosen by over 35% of YesP participants were:

- E. "avoid risking environmental damage".
- I. "public desire for wilderness".

Forty-four percent of the subgroup YesP Com. and 33% of YesP Non-com. members chose 10 and 3, respectively, of the 16 reasons in support of the opposite position. The reasons most commonly selected by the Yes P Com. members were the two reasons given above, E and I. The lone YesP Non-com. member, who chose reasons, selected three reasons, I, F and H. Thus I and H were supported by both these subgroups of Com. and Non-com. members (>25%). However, H. "sacred to First Nations" was not selected by any of the YesP Com. members, on the other hand eight reasons selected by some Com. members were not chosen by any Non-com. members.

Table 12. Reasons for not supporting logging in the lower Tsitika, (opposite reasons) that were selected as good reasons by participants who chose to support logging (Yes Position).

Abbreviated reason supporting NO Position (complete reason in Appendix C)	Number Yes Position (n=11)	% Yes Position	Number / % Committee Members (n=8)	Number / % Non-committee Members (n=3)
E "avoid risking environmental damage"	4	36%	3 / 38%	0
I "public desire for wilderness"	4	36%	3 / 38%	1 / 33%
F "conserve spiritual/emotional area"	3	27%	2 / 25%	1 / 33%
B "non-timber users sustainable"	2	18%	2 / 25%	0
M "encourage third world countries"	2	18%	2 / 25%	0
N "increased public influence"	2	18%	2 / 25%	0
A "minimal harm to timber industry"	1	9%	1 / 13%	0
C "protect biodiversity"	1	9%	1 / 13%	0
H "sacred to First Nations"	1	9%	0	1 / 33%
J "restructure obsolete plans"	1	9%	1 / 25%	0
L "avoid tarnishing reputation"	1	9%	1 / 13%	0
D "prevent environmental damage"	0	0	0	0
G "respect for living creatures"	0	0	0	0
K "international ecological feature"	0	0	0	0
O "protect last of a unique ecosystem"	0	0	0	0

4.3.4.2 All groups - reasons for not supporting logging

Reasons for not logging, selected by both YesP and NoP participants, were derived from the selections of supporting reasons by the NoP and of the opposite reasons by the YesP (Table 13.). Similarities between the choices of the YesP and NoP include:

- E. "avoid risking environmental damage",
- I. "respect public desire for wilderness".

Table 13. Reasons for not supporting logging as chosen by all groups of participants (No Position, Yes Position, Committee members and Non-committee members).

Abbreviated reason supporting NO Position (complete reason in Appendix C)	% No Position (n=34)	% Yes Position (n=11)	% ALL Committee Members (n=23)	% ALL Non-committee Members (n=22)
K "international ecological feature"	88%	0	57%	77%
E "avoid risking environmental damage"	82%	36%	70%	73%
I "public desire for wilderness"	74%	36%	43%	86%
C "protect biodiversity"	68%	9%	39%	68%
B "non-timber users sustainable"	59%	18%	43%	55%
F "conserve spiritual/emotional area"	59%	27%	39%	64%
D "prevent environmental damage"	56%	0	26%	59%
H "sacred to First Nations"	56%	9%	17%	73%
G "respect for living creatures"	53%	0	17%	64%
A "minimal harm to timber industry"	50%	9%	22%	59%
J "restructure obsolete plans"	50%	9%	26%	55%
N "increased public influence"	50%	18%	26%	59%
O "protect last of a unique ecosystem"	38%	0	13%	45%
L "avoid tarnishing reputation"	32%	9%	13%	41%
M "encourage third world countries"	26%	18%	9%	41%

However, there were three major differences between the two positions.

- The reason most commonly selected by the NoP, K. "international ecological feature" (88%) was not chosen by any of the YesP participants.
- Two other choices preferred by NoP participants, D. "prevent environmental damage" (56%) and G. "respect for living creatures" (53%) were also not chosen by any YesP participants.
- The reason least favoured by the NoP, M. "encourage third world countries" received moderate support by the YesP (18%).

The major similarity between the preferred selections of all Com. and Non-com. members was E. "avoid risking environmental damage". Two other reasons were among the top three choices of both groups: K. "international ecological feature", and I. "public desire for wilderness". The differences were

that most reasons had more support from the Non-com. than Com. members, and specifically H. "sacred to First Nations" was selected by 55% more Non-com. than Com.

4.3.4.3 No Position - opposite reasons - reasons for supporting logging

Fifty-six percent of NoP participants selected 15 of the possible 16 reasons in support of the YesP (Table 14). Three reasons supported by over 20% of the NoP participants were:

- A. "provide jobs"
- D. "keep communities alive"
- F. "allow chosen livelihood".

Table 14. Reasons for supporting logging in the lower Tsitika (opposite reasons) that were selected as good reasons by participants who chose not to support logging (No Position).

Abbreviated reason supporting YES Position (complete reason in Appendix C)	Number No Position (n=34)	% No Position	Number / % Committee Members (n=15)	Number / % Non-committee Members (n=19)
A "provide jobs"	12	35%	7 / 47%	5 / 26%
D "keep communities alive"	8	24%	4 / 27%	4 / 21%
F "allow chosen livelihood"	7	21%	5 / 33%	2 / 11%
C "AAC for domestic wood"	6	18%	4 / 27%	2 / 11%
K "is sustainable"	6	18%	4 / 27%	2 / 11%
B "produce revenue"	5	15%	3 / 20%	2 / 11%
I "based on careful plans"	5	15%	3 / 20%	2 / 11%
H "is legally authorized"	4	12%	4 / 27%	0
O "not damage best old-growth"	4	12%	3 / 20%	1 / 5%
L "no adverse wildlife effects"	3	9%	2 / 13%	1 / 5%
N "opposed by ill-informed"	3	9%	2 / 13%	1 / 5%
M "productive management option"	2	6%	1 / 7%	1 / 5%
E "profit timber industry/no losses"	1	3%	0	1 / 5%
G "discourage environmentalists"	1	3%	1 / 7%	1 / 5%
P "benefit public/improve recreation"	1	3%	0	1 / 5%
J "not harm aesthetics"	0	0	0	0

The choices of subgroups NoP Com. and Non-com. members were similar, most of the reasons with the three highest percentages of selections are the same (A, D, F, C, K). The only discrepancy is that 43% of Com. members chose H. "is legally authorized", which was not selected by any Non-com. members.

4.3.4.4 Reasons for logging - all groups

Two of the three reasons, most often selected by the YesP participants, were also preferred in the selection of opposite reasons by NoP participants (Table 15.):

- D. "keep communities alive".
- A. "provide jobs".

Table 15. Reasons for supporting logging as chosen by all groups of participants (Yes Position, No Position, Committee members and Non-committee members).

Abbreviated reason YES Position (complete reason in Appendix 3)	Percentage Yes Position (n=11)	Percentage No Position (n=34)	Percentage ALL Committee Members (n=23)	Percentage ALL Non- committee Members (n=22)
D "keep communities alive"	82%	24%	48%	27%
I "based on careful plans"	82%	15%	39%	23%
A "provide jobs"	73%	36%	52%	36%
K "is sustainable"	73%	18%	39%	23%
L "no adverse wildlife effects"	73%	9%	30%	18%
H "is legally authorized"	55%	12%	43%	0
B "produce revenue"	45%	15%	26%	18%
F "allow chosen livelihood"	45%	21%	43%	9%
C "AAC for domestic wood"	36%	18%	26%	18%
J "not harm aesthetics"	36%	0	13%	5%
P "benefit public/improve recreation"	36%	3%	13%	9%
O "not damage best old-growth"	27%	12%	17%	14%
M "productive management option"	9%	6%	9%	5%
E "profit timber industry/no losses"	0	3%	0	5%
G "discourage environmentalists"	0	3%	4%	5%
N "opposed by ill-informed"	0	9%	9%	5%

Generally there was a lower percentage of NoP than YesP participants selecting reasons, indicating less overall support for the reasons by the NoP participants. In fact, three reasons received very little support (0 to 9%) by the NoP participants:

- L. "No adverse effects on wildlife",
- J. "not harm aesthetics",
- P. "benefit public/improve recreation".

However, despite the general lower support by the NoP than YesP participants, three reasons E, G, N, received low support from the NoP but were not chosen by any YesP participants.

Comparing the selections of all Com. and Non-com. members, three reasons in support of the logging were chosen by both groups:

- A. "provide jobs"
- D. "keep communities alive".
- I. "based on careful plans".

The major differences were that H. "is legally authorized" was preferred by the Com. members but not selected by any Non-com. members. Also, another reason, F. "allow chosen livelihood", was selected by more Com. than Non-com. members (>30%).

4.4 TESTING OF THE IMPLIED PRINCIPLE - PROBES

4.4.1 RESPONSE to the PROBES

This portion of the questionnaire consisted of challenges that tested the participants' acceptance of the value principles, implied by their selected reasons. Four or five challenges or probes were given for each reason, and as mentioned previously, each probe tested the implied principle in one of four ways:

- in new situations (new cases).
- if everyone took the same action (universal consequences).
- if the participant was one of the most disenfranchised by the action (role exchange).
- if other related fundamental principles were applied (subsumption).

The probe section consisted first, of stating the implied principle behind the most important factual reason, second, asking the probe questions, and third, asking if the participant still supported their reason or if they would like to modify it. Results from the probes included yes or no responses as well as the comments offered by participants.

The probes were intended to lead participants to reconsider the reasons they selected and ultimately to review the basis for their position. Rejection of the value principle implied inconsistency in the participants' reasoning, and discomfort with the probe implied uncertainty on the part of the participant. Participants were expected to be able to judge the consequences of their position, and if their reasoning was thoughtful and truly represented their values, then their responses to the probes was expected to be consistent and certain. However, as mentioned the probes were intended to "challenge"², and if effective, the probes created situations of conflict for the participants. Thus, due to the variety of possible conflicts, a "No" response to a probe did not necessarily mean rejection of the principle, and often the No response was part of a complex reasoning process, where participants commented or modified their reasons, as discussed below.

In this study, participants invested considerable effort in the probe section. The probes generated 478 completed responses and 173 comments. A summary of the results of the probe portion of the questionnaire is shown in Appendix D. Only one of the 46 participants chose not to complete the probe section, and this participant commented, *"I don't like any of the reasons you have given especially when they lead so well into the simplistic probes"*. Also, overall, only 10% or 51 of the possible responses to the probes were left blank.

Probes may have been left blank because the language used was confusing to the participant or because the question was unacceptable in some manner, such as creating an acceptable level of conflict. For example, one NoP participant left all four probes blank for reason F "conserve spiritual/emotional area" and commented for each probe. In the comment on probe 4, the

² Challenge: to demand proof of, to question, dispute; to call to engage in a fight or contest (Dodds de Wolf et al., 1983).

participant suggested a solution to the conflict that this participant found unacceptable, "*Either or thinking - creative solutions can be found...*"

Overall, 29% of the probes received a No response. The probes for reasons selected by the YesP participants seemed less acceptable than for those selected by the NoP (60% YesP; 20% NoP). Examples of probes receiving a large percentage of No responses follow.

For NoP probes, that were answered by at least 25% of respondents, the greatest percentage of 'No' responses was 55%, for probe 4 of reason I "public desire for wilderness":

If you thought that widespread public opinion on a particular issue was ill-informed would you still support things that are examples of widespread public opinion for this cause?

Unfortunately this probe may have been more confusing than intended. In hindsight, this probe is more than a simple challenge, that attempted to spark a No response. Actually, the "Yes" response would be accepted not only in support of the initial reasoning but because one could argue that the societal moral choice for this probe is to accept widespread public opinion, as these opinions form the moral fibre of society (a reverse subsumption test). The assumptions are that 'public' represents society and that social morality evolves, for example, aspects of past western social morality, such as slavery, are not considered acceptable today. However, 55% of participants responded No or in other words, they accepted that they had just cause to believe that public opinion was 'ill-informed' and their rational choice was a No response, because being ill-informed is not a wise basis for a rational opinion. Thus, participants were sufficiently challenged by the probe to move them away from the applied principle. Those that replied Yes (45%) accepted the fact that their evaluation of public opinion as "ill-informed" was incorrect, and their Yes response was completely consistent with the implied principle.

For the YesP probes that were answered by at least 25% of respondents, the greatest percentages of No responses (100%) were for 3 of the 4 probes for reason K "is sustainable". For example, probe 4:

If an area had significant spiritual, hereditary or ecological value would you support development plans for this area that were based only on the idea of sustainable use?

This probe and the other probes for reason K, that received No responses, were sufficiently negative "new cases" tests that all of the participants were pushed from supporting their principle in these cases.

Thus, if the challenges were "effective", then the probes generated No responses and the participants appeared to show "inconsistency" in their reasoning. These inconsistencies were often indications that the probe presented a situation, which limited the application of the reason. Other conflicts, arising for participants, were questions regarding the truth, relevance or valence of the probe statements generally or specifically as applied to the Tsitika situation. As a result, many of the participants responded with comments (section 4.4.2) or offered modifications of the factual reasons (section 4.4.3).

Therefore, the fact that a probe generated a greater percentage of No responses related more to the quality of the probe than to the quality of the reasoning of the participant, although the former may have inspired the latter. As the degree of "challenge", and also the truth, relevance and valence of the probes varied for individual participants, and as participants responded to different probes of varying quality, I have not drawn any inferences about reasoning from overall numbers of No responses, blanks or comments for YesP/NoP or Com/Non-com groups.

4.4.2 COMMENTS on the PROBES

Participants were invited to comment on their reactions to each of the probes, and 81 or 79% of the 101 probes received at least one comment. One hundred and seventy-three comments were recorded, or 33% of all the responses to the probes (173 of 529) were accompanied by a comment (YesP 49% and NoP 27%). The comments revealed various sources of controversy and how the participants reasoned through the perceived problems, including:

- stating limits under which the implied principle was accepted.
- challenging the truth, relevance or valence of the probe.
- having difficulty with role-play probes.
- referring to another fundamental principle.
- offering solutions to problems created by probes.

- choosing compensation, or the economic point of view.
- weighing emotions and facts, and tangible and intangible concepts.
- dismissing the use of extreme probes.

Examples of each of these types of probe comments are given below.

4.4.2.1 Stating limits

When probes were successful in challenging the implied principle for a reason, for example in "new cases" test probes, the participants were uncomfortable with the new case presented in the probe situation. They often addressed this conflict over the acceptability of the implied value principle by describing the cases, where the principle would apply. In other words, they placed their own limits on the application of the value principle. For example, for NoP reason A "minimal harm to timber industry", probe 2 stated,

If having minimal negative effect on an industry meant that the industry would no longer have the funds to support charitable causes or the arts, would you support doing things that had minimum negative effects on the industry in this case?

One participant agreed with the probe but stated *"Only if it helped minimize environmental damage, which is my primary concern."* In this way, the participant refocused the situation on their specific concern. In other cases, participants simply pointed out they could not support the implied principle in all cases, for example, *"Yes, but not necessarily over all issues"*.

Setting limits for the principle also showed up in cases where the participant responded No, and thus appeared to show 'inconsistent' reasoning. The No, however, may have reflected careful adjudication of value criterion, for example, probe 1 for YesP reason A "provide jobs" asked,

If jobs were to be lost in other ways such as mechanization, would you oppose mechanization?

One participant responded *"No, but I would support retraining for alternate profession and/or job placement"*. This participant did not rate "preservation" as an acceptable cause of job loss, but was willing to accept "mechanization" as acceptable and even to propose solutions to job loss in the event of mechanization. Thus, this participant accepted the implied principle "we ought

to do things that provide jobs" when it came to logging, but not when it came to opposing mechanization.

4.4.2.2 Challenging the truth, relevance or valence

Reactions to probes were also expressed as counter-challenges regarding the truth, relevance or valence of the probes. Probes needed to be applicable to the situation to be effective; however if the truth, relevance or valence of the hypothetical probe situations were at odds with the opinions of the participant, then conflicts ensued. Probe 3 for YesP reason A "provide jobs" stated,

If you were involved in the fishing industry would you support the idea of providing jobs for people who engaged in an industry that damaged your livelihood?

All 4 participants who chose this reason responded No to this probe, however one commented "*a very slanted question - assumes logging damages fish streams*". All participants successfully engaged in the role-play and were not able to accept the application of the principle from the point of view of the disadvantaged. But for at least one participant, conflict arose over the implied relationship between logging and fishing. Apparently, this conflict was mild and insufficient to deter the participant from responding No. Another role-play probe discussing fishing and logging stimulated the comment "*The Tsitika is not a good example of the above*", but also resulted in a No response.

In other cases the conflict over the truth of a probe did result in a Yes response. For example, probe 2 for YesP reason D "keep communities alive" stated,

If people in resource-based communities were provided with jobs but considerable profits from public resources went primarily to multinational corporations outside of the country, would you support keeping these resource-based communities alive?

One participant responded "*This is a crock and spouts the usual diatribe about so-called multi-national cos*". It appears this person disagreed with the truth and perhaps relevance of the probe situation. Also another participant, responding to YesP reason D, but probe 5, which is given in the next example below, plainly stated their conflicting opinion about the truth and relevance of the probe, "*In my view this is a misleading question as I know of no examples*

where this has occurred". Another example of a comment stating conflict over relevance was "Not applicable".

4.4.2.3 Conflict in role-play tests

Some participants expressed difficulty or unwillingness to engage in role-play challenges particularly in the case of First Nation issues. Probe 5 for YesP reason D "keep communities alive" stated,

What if you were a native person who had lived in a region for generations and in the last 50 years a non-native community had moved in and begun resource extraction. If the livelihood of the new community damaged your cultural heritage would you feel the new community should be supported?

One participant responded Yes and commented "I'm non-native can't comment". Thus, this person was unwilling to be in the role of the most disenfranchised in this case. To a further First Nations role-play test, another participant responded No and commented "I'm only guessing, as I'm not native".

4.4.2.4 Other fundamental principles

I had difficulty understanding the application of the subsumption test that referred to another fundamental principle. Many of my subsumption test probes appear to be extreme examples of new cases tests, which I created as a result of searching for a challenging example of a higher order principle to apply to a probe. An example of a subsumption test probe that successfully challenged the participant and yielded a morally justifiable comment was probe 2 for YesP reason P "benefit public/improve recreation", which stated,

Suppose an activity that was beneficial to the general public was severely detrimental to a group of people, would you still agree with engaging in this activity because it benefited the general public?

The participant responded No "All groups and opinions have to be considered".

4.4.2.5 Offering solutions

Another reaction to the discomfort of accepting the implied principle in challenging situations, was to offer solutions to the uncomfortable consequences of sticking to the principle. For example, probe 3 for YesP reason L "no adverse wildlife effects" stated,

Would you agree to an activity in your local area that had no known effect on the wildlife resources but was severely damaging to the aesthetics of

the region?

One participant responded Yes, but commented "*But I would see what could be done or altered to reduce the avoidable impacts on aesthetics*".

4.4.2.6 Compensation, economic point of view

One recurring theme for comments was mentioning "compensation" for ameliorating the consequences resulting from adherence to the implied principles in the probe situation. For example, probe 1 for NoP reason K "international ecological feature", stated,

If your company had hired workers and purchased equipment because it had been given legal rights to utilize an area and the government then decided that the area's important ecological features required protection. If it meant that your company could no longer operate, would you support protection of these ecological features?

Four participants responded with 'compensation'-related responses, such as "*If established legal rights were revoked, the government should provide compensation....*"

On a similar vein, the "economic" point of view was used to justify the consequences. For example, probe 2 for YesP reason F "allow chosen livelihood" stated,

Suppose residents of resource-based communities wanted to farm. Do you agree that Crown forest land should be available to other residents e.g. farmers, to allow them to pursue their chose livelihood?

One response was Yes "*If it would provide a higher economic value*".

4.4.2.7 Conflicts weighing emotions and facts, and tangible and intangible concepts.

Other conflicts that recurred both in the probe exercise and in other sections were arguments over emotions versus facts and between the value of apparently tangible concepts such as "wildlife" and intangible ones such as "cultural heritage". I discuss these conflicts in chapter 6, but the perceived conflict between emotion and fact was illustrated in probe 3 for YesP reason I "based on careful plans" which stated,

Suppose extensive studies undertaken 15 years ago, had laid out elaborate plans for the nuclear energy needs of your growing town and the development of nuclear facilities was now beginning as dictated in the

plans. Would you support this development on the basis of these plans despite changes in public attitudes towards nuclear power?

One participant responded No and commented *"I would say no only if facts rather than emotion were basis for saying it shouldn't go ahead."*

An example of weighing tangible and intangible was probe 1 for YesP reason L "no adverse wildlife effects" which asked,

As a native person would you support activities that had no known adverse effect on wildlife resources even if you felt that those activities would destroy significant aspects of your cultural heritage?

Two comments from participants, one who responded No and the other who left the question blank, were *"Therefore impacts not related to wildlife issues but rather cultural, therefore wrong section for this question!"* and *"Can't answer, effect on wildlife, or effect on Heritage. They're not the same."* These participants seem to find the question of weighing the two choices, wildlife or culture, either difficult or confusing.

4.4.2.8 Extreme probes

As noted previously, the most expedient and effective use of a new cases test as a challenge, is to propose a situation that is the most negative for the person's principle. Meux (1981) noted that negative cases "have the greatest impact on the person testing his principle" (p. 132). However, depending on the participants' perspective, knowledge of the issue, depth of commitment, etc., the degree of perceived negativity could vary. While some participants may see one situation as vaguely challenging, another may view the same case as so negative as to be offensive. Thus in some cases, comments illustrated, that certain participants felt the probes were too extreme or unrealistic, such as *"a bit extreme don't you think"* or *"this is a very unrealistic question"*. A general comment at the end was *"...irritating in that they used poor comparisons often much more extreme than warranted"*.

4.4.3 MODIFICATIONS of the REASONS

After completing the probes, participants were asked if they still felt that their selected reasons were important reasons in support of their position. Then, they were asked if they wanted to modify the reason and if so, how. All of

the YesP participants confirmed their support for their chosen reasons (n=33 selections), while 85% of the NoP participants confirmed and 13% left the question blank (n=98 selections). Two NoP participants replied that they no longer felt their reasons (E "avoid risking environmental damage" and I "public desire for wilderness") were good ones.

Overall, modifications were offered for 25% of the all reasons selected (n=131 total selections). Similar numbers of YesP and NoP selections (YesP 24%; NoP 26%) were modified. Committee members offered slightly more modifications for their selections than Non-committee members (Committee 33% or 22/64; Non-committee 23% or 15/65). A comparison of the number of No responses to modifications, offered no trend, but three reasons had considerable No responses and modifications and examples of the modifications are given below the three reasons.

- For the YesP - I "based on careful plans" ("No" responses 17; modifications 3).
- For the NoP - E "avoid risking environmental damage" (16; 7).
- I "public desire for wilderness" (11; 4).
- Also, one reason for the NoP had more modifications than "No" responses: K "international ecological feature" (3; 4).

Modifications for reason I, for the YesP, incorporated ideas such as adjusting the 'plans' on the basis of new information, "*modify to incorporate results...*"; revisiting plans, "*plans have to be revisited to keep abreast...*"; and relying on plans that proved logging could "*be done without environmental damage*".

Modifications for reason E, for the NoP included discussions of research needs, one participant commented "*once adequate research is done then we can proceed with rational management*" and two comments referred specifically to research regarding killer whale habitat. Other modifications were focused on the word 'error-proof'. These modifications either supported conservation when faced with the potential for error, "*I'm not sure if we can ever provide error-proof plans... it should be on the side of conservation*"; or emphasized the impossibility of error-proof and noted the need to "*plan to minimize the chance of mistakes*". One participant, who withdrew support from the reason, prior to modifying it,

commented that while they didn't support logging prior to the availability of adequate data, they noted that further research could "*free up even more areas*" for logging. Another participant remarked that the wording of the reason should be "*stronger, that this area is the 'last of its kind' habitat, thus no risks can be taken*".

Thus many modifications redefined parameters of the reason, some were alterations to the wording, while others stated specific conditions or limits on the reasons, such as "*with no job loss for dependent communities*".

Modifications also became mini-discussions of the reason. For example for reason K of the NoP (see above) one participant commented

Internationally means that it is also provincially and nationally recognized. In other words I have confidence in Canada's ability to recognize important features. You should substitute nationally recognized for internationally recognized. (NoP)

This reason also generated a whole discussion of other risks to killer whales, with comments such as, "*Logging isn't the only threat...*".

Opposite position selections also generated modifications. Four participants (2 YesP, 2 NoP) offered 11 modifications or comments for the reasons they chose from the opposite position, even though this was not requested. These comments directly addressed the truth, relevance, valence or interpretation of the reason. For example, a comment on NoP reason A "minimal harm to timber industry" was "*but it is the accumulative impact over the land base that one should keep in mind.*" This comment applies the reason over a broader area and questions the truth of the factual claim. Similarly another comment challenged the truth of YesP reason M "productive management option", "*if this were true it would be a good reason*". Another participant's comment for YesP reason K "is sustainable", demonstrated the adjudication process between reasons for and against logging, "*I believe sustainable harvesting is a good goal but I don't think that area should be logged*".

4.5 CONCLUDING POSITION AND CERTAINTY

After considering all of the probes for each implied principle, as well as the reasons from the opposite position, participants were asked if they still held

the same position on logging with the same degree of certainty. No participants changed their basic position on the issue; that is no participant who initially replied "Yes" to the logging, changed to "No", and *vice versa*. Despite this, five participants (11%) reported a change in the degree of certainty of their position. Three participants noted an increase in the certainty of their position (1 YesP Committee member; 2 NoP Non-committee members), and 2 noted a decrease in certainty (1 YesP Committee member; 1 NoP Non-committee member).

Comments were invited from those whose position or certainty changed. However, two YesP participants offered comments even though their certainty didn't change. One of these comments began by revealing the possibility for change, but ended by denouncing the other position as purely emotional and denying the truth of the opposite reasons,

My position has not changed as the Tsitika plan can be modified. However, it must be done using a process that looks to the facts, rather than the emotional diatribe we're going through today. All your reasons on Tab4 seem to appear to assume logging in the lower Tsitika would destroy the area, what a crock. (YesP)

The comments of two of those whose certainty increased involved emotion. The YesP participant denounced the NoP on the basis of the reasons being "*more emotional than fact based*", and the NoP participant expressed sentiments in terms of emotions, saying "*logging must stop because I saw the mess it makes me sad to see such destruction*". The other NoP participant commented regarding the possible acquisition of the area by First Nations, and suggested that while the certainty against logging increased, there was a position of compromise, at least with regard to First Nations logging.

Feel that if native band gets the lower Tsitika, would feel OK if selective logging was done to build buildings in the valley that enhanced spiritual practices such as long-houses, sweats... (NoP)

The comments of those whose certainty decreased contained thoughts about both sides of the issue and revealed the difficulties of adjudicating between competing interests. These comments were:

I do have some reservations about logging as we do not have all the answers yet with regard to the long-term effects it may have on other resource values. I believe there is an "in between position" where we have such things as alternate harvesting methods, smaller cut blocks, visual analysis, etc. etc. (YesP)

I have no problem saving the area if harvesting will impact whale use/habitat. If we can preserve whale use and accommodate some harvesting, fine. However I am less sure that a decision not to harvest, will not be made for spurious (i.e. political) reasons. In this case a lot of people in these small communities will have been hurt, and the Public would assume no responsibility. (NoP)

4.6 AMOUNT OF REEVALUATION

One of the questions at the end of the questionnaire asked participants if the probes had caused any reevaluation of their position on the logging. Overall, one participant (3%) felt the probes caused "significant reevaluation" and 23% felt they caused "some reevaluation". Seventy-four percent of respondents replied that the probes had not caused them to reevaluate their choice. More NoP than YesP participants felt that the probes caused some or considerable reevaluation (28%; 14%), and similar numbers of Com. and Non-com. members responded that the probes caused some or considerable reevaluation (25%; 24%).

Fourteen participants offered comments about the degree of reevaluation. The same two YesP participants reiterated that the other positions' arguments were emotional, not factual. One YesP participant found the probes too extreme or not relevant to the Tsitika, but noted that one of the NoP reasons was justifiable (E "avoid risking environmental damage"). Another YesP participant expressed comments that revealed some consideration of all the reasons, "*while I can understand that some people hold the opinions.... I have considered those opinions in the past and cannot agree with them*". One NoP participant also felt that the probes used extreme comparisons, and four other NoP used the space to review aspects of the issue or to restate their position, for example, "*I am convinced there is a crisis in the woods, there is a need to protect remaining old growth*".

Finally, the comments of four NoP participants suggested, that at least for some, the probes were effective in causing them to review their reasons and the issue. The comments included

the probes were useful in that they made me take a different perspective...(NoP),

good questions (NoP),

although after careful consideration my position remains unchanged"

(NoP),

probes elicited considerable thought and reflection, at times a testing of position, but no changes. (NoP).

4.7 PARTICIPANTS' BACKGROUND

Three additional questions in the final portion of the questionnaire requested information about the participants' background in dealing with controversial issues and EIA. The questions asked whether the participants had any formal education in critically assessing controversial issues, whether they had ever participated in an EIA, and whether they had any formal training in EIA.

Forty-four percent of participants responded that they had some formal education (including classes, seminars, and workshops) in critically assessing issues. More NoP than Yes P participants had some or quite a bit of formal education in critical assessment (47%; 29%) and similar numbers of Com. and Non-com. members had some or quite a bit of formal training in this field (Committee 45%; Non-committee 43%).

Fifty-six percent of participants had participated in a previous EIA. More NoP than YesP had participated in an EIA (61%; 38%). More Com. than Non-com. members had at least some previous EIA experience (Committee 71%; Non-committee 40%). Only 35% of participants had any formal education in EIA. Slightly more NoP than YesP participants had at least some formal training in EIA (38%; 25%) and slightly more Com. members responded that they had some or quite a bit of formal instruction in EIA (40%; 30%). Overall, 59% of participants had either some experience or some formal education in EIA.

4.8 BRIEF SUMMARY OF RESULTS

Participants were enthusiastic and thorough in their responses to all sections of the questionnaire; thus considerable data were collected. Overall, the 46 participants selected 28 of the 31 reasons for and against the logging, developed during the questionnaire. Twenty-eight additional reasons were contributed and participants modified 25% of their selections. Fifty-two percent

of participants chose at least one reason from the reasons for the opposite position. Participants answered 478 probes. Twenty-nine percent of the probes received a No response, and 33% were accompanied by a comment. The comments were usually in response to conflicts over the truth, relevance, valence or interpretation of the probe, and one method of addressing the conflict was to state limits under which the implied principle would be acceptable.

No participant changed their position on the issue, but five changed the degree of certainty that they felt for that position. Twenty-six percent of participants felt the probes caused at least some reevaluation of their position. Although few participants had any formal education in EIA (35%) or in critically assessing issues (44%), more than half had some previous experience in EIA (56%).

Chapter 5 DISCUSSION - MERITS OF THE J-TEST

The J-Test functioned as both diagnostic and a teaching tool. In this chapter, I discuss two diagnostic features of the J-Test, as well as the educational benefits of participating in a J-Test format project. But first, I begin with a review of four general technical issues involved in this case study J-Test.

5.1 TECHNICAL ISSUES WITH THE CASE STUDY J-TEST

Three issues arose in using the J-Test for this case study, and these issues are discussed in the following sections, namely:

1. Possibility of bias in implementation of the test.
2. Varying acceptance of the probes by different participants.
3. Language and literacy issues.

5.1.1 BIAS

Two sources of bias may have affected the results of the questionnaire. The first stems from the implementation method and the second is due to the inevitable variation in commitment of participants.

Bias in the implementation of the questionnaire arose because the method was highly personal. The questionnaires were administered individually and participants were aware that the researcher would view their responses. This problem was an administration issue with this particular J-Test and not due to the testing methodology per se. Some participants may have felt uncomfortable revealing their choices or may have identified the researcher with a particular position and allowed this to influence their answers. Such considerations may have lead to this comment, *"I still have extreme concerns about how this will be used, however I did participate."*

Bias created in the implementation method may also have lead to an under-representation of the YesP among participants. An unexpected number of participants, from various stakeholder groups (e.g., government agencies, forest industry) did not choose to support logging in the lower Tsitika. As a result of this unexpectedly large number of NoP choices, the pro-logging position (YesP) is under-represented in the results of this questionnaire. The under-representation does not detract from the overall goal of this case study

(to investigate practical reasoning about value choices in EIA). But it does suggest the possibility of bias, where some participants might have felt that the researcher was partial to the NoP choice and this might have influenced their selection in favour of the NoP. Without this bias, more participants might have chosen YesP as their initial position, and participants might have added more forceful descriptive information in support of the YesP.

Solutions for avoiding this source of bias could have been to use a team of individuals, who were unknown to the participants and thus appeared unaligned to deliver the questionnaire, or to have a response system that was completely anonymous. However, the possible reluctance of some individuals to be open about their views may not be significant to the general application of the J-Test in an EIA situation, as an EIA functions in a social context where individuals present their views openly. If this sort of bias was of concern for an EIA situation, the J-Test questionnaire could be attempted in a group situation, to reduce the possible influence of an individual researcher.

As a result of the under-representation of the YesP, as well as the absence of randomly selected representative samples of stakeholder groups, meaningful statistical comparisons are unwarranted and trends, though interesting, are speculative. Again, this does not affect the objectives of this particular case study; but the speculations pertaining to the different groups cannot be generalized.

The second form of bias is due to the variation in the amount of time and energy that a particular individual is willing to invest in a questionnaire. Because the commitment of participants determines the accuracy and completeness of responses, bias in terms of the relative importance of each reason becomes a concern if participants don't take time to thoughtfully consider their responses. This bias transfers to the interpretation of the quality of reasoning and lack of commitment may be interpreted as poor reasoning skills. Participants who were able to see the benefits of participating, such as developing practical reasoning skills and resolving conflict, would likely have a higher level of commitment.

Other comments revealed that some participants, after completing the probe section, felt there was a bias to the questionnaire, *"I have a sense a strong*

negative bias to any logging in the lower Tsitika that is built into the questionnaire." However, both YesP and NoP participants wrote or verbally expressed similar sentiments. I believe these feelings were generated by the intentional discomfort created by the probes, which challenged the participants' firmly held opinions both in support of and against the logging. A method of distinguishing between bias on the basis of the administrator's persona and the questionnaire, could be to ask a question at the beginning of the questionnaire such as, "Are you comfortable that the administration of this questionnaire is free of prejudice?". Alternatively the researcher could engage in a discussion about this with the participants. Nevertheless, I expect if any participants were negatively affected by a significant perception of bias, they would not have freely engaged in the process.

5.1.2 ACCEPTANCE of the PROBES

The probes, used in a J-Test, are intended to present defensible challenges to the principle implied by the respondents' reason. Depending on the background experience, knowledge and point of view of the participant, the probes will have varying levels of acceptance. Participants' response to the probe challenges and the difficulties encountered are presented in section 4.4. The way probes were interpreted, the relevance to the Tsitika issue, the related truth of the question in the mind of the participant, and the participants' level of concern about the probe situation were all factors that affected the acceptance of the probe challenges. In addition, some participants may not respond well to challenges and this may also have affected their answers. Thus, the acceptance of the probes to the individual participants represents an unknown and uncontrollable issue that may mask the interpretation of participants' reasoning abilities.

5.1.3 LANGUAGE or LITERACY ISSUES

As discussed, the questionnaire was administered to a variety of stakeholders in Tsitika issue, from far-flung fishing villages to office towers in downtown Vancouver. There was no screening of participants for their level of literacy, and the questionnaire was not evaluated for, or designed with, a particular literacy or reading comprehension level in mind. In hindsight,

comprehension may have been a considerable issue for some of the probes. Reading the probes now, I can only wonder if participants understood what I had intended. However, asking a challenging question about, for example a 'new case', required explaining a new controversial situation related to the implied principle, then asking if the participant supported the principle in this new case, all in a brief paragraph. This process was repeated four times for each probe. Even, reading all these different cases posed a considerable challenge for the participant, let alone, being challenged, making judgments and responding. Thus, ensuring that the reading level was suitable for suitable for broad public use would probably improve the level of participants' comprehension.

5.2 THE J-TEST AS A DIAGNOSTIC TOOL

In this case study, the J-Test questionnaire performed as a diagnostic tool in two ways. First, the J-Test provided evidence about participants' thoughts about the issue and why. The J-Test revealed a variety of perceived impacts of the logging activities (reasons) and the level of support for the various impacts. This information about the stakeholders and their knowledge of impacts was complementary to the EIA process, and demonstrated the usefulness of the J-Test for this purpose. Second, the J-Test was a diagnostic tool for studying the strengths and weaknesses of the participants' reasoning.

The J-Test provided a structure, which used the important aspects of an evaluative decision process. Analysis of the participants' responses revealed both significant aspects of the issue, and to some degree, the quality of reasoning in terms of the activities and standards of good practical reasoning.

Immediately after completing this case study, I believe I had considerable difficulty separating the issue and the reasoning components. I may have been too close to the resource issue and thus was not able to fully interpret Coombs' comment that evaluating practical reasoning involves examining the "adequacy of the reasoning" not the "chosen course of action". The two components are linked in that the chosen courses of action are often a reflection of the possession of, or lack of good judgment, developed on the basis of sound reasoning. As Coombs pointed out, both the disposition to reason and the

possession of good judgment cannot be taught and are the result of practice, feedback, support and experience.

In order to assess the reasoning abilities of participants, I looked at the aspects of reasoning that the J-Test was able to reveal. To do this I reviewed the evaluative decision process and the model for value justification. Then I assembled questions for examining reasoning using the J-Test. But first, I observed how the diagnostic abilities of the J-Test revealed information about the issue, and how this was directly applicable to the EIA process.

5.2.1 DIAGNOSIS of the ISSUE

In this case study, participants, in the J-Test questionnaire, provided a comprehensive list of reasons for both logging and not logging the lower Tsitika. During the development of the J-Test questionnaire, reasons (factual) for both positions were collected from a variety of sources. Then during the implementation of the questionnaire, participants, who were various stakeholders in the issue, were asked to add any reasons not already on the lists, as well as to choose all reasons they supported. They also selected their most important reasons, which provided a ranking of the reasons. As noted previously, the list of reasons in this case study was reasonably comprehensive as no new reasons were added during the questionnaire implementation. Also, participants selected 28 of the 31 reasons, in support of the position, thus the majority of reasons appeared to accurately the important aspects of the issue. Therefore, the J-Test demonstrated the potential to provide both comprehensive and accurate factual information about the issue.

5.2.1.1 J-Test in EIA

Normally in an EIA, the tasks of collecting background material and assessing the significance of this material, for stakeholders and to the environment, are part of the initial scoping process³ (Federal Environmental Assessment Review Office [FEARO], 1986). In this case study, the development and implementation of the J-Test generated considerable information from

³ Scoping : process of determining important issues and alternatives that should be examined in EIA (FEARO 1986).

participants about the Tsitika River Watershed issue, thus, the J-Test functioned in a similar manner as a 'scoping' tool in an EIA. Other aspects of scoping are to begin communication among all parties involved in the issue and to ensure that all parties who are directly or indirectly involved are contacted. The J-Test also addressed some of these aspects, as in the development of the questionnaire, important stakeholder groups were identified and individuals were contacted. The principle intended results of scoping are

- involving all parties in a constructive participatory process and thus to diminishing conflicts,
- raising key issues early and therefore avoiding delays at the end of the process,
- introducing an awareness of potential mitigation measures or alternatives early to avoid surprises later on (FEARO, 1986).

Through the identification and ranking of support for the reasons for and against logging in the lower Tsitika, the J-Test effectively provided a thorough review of the major aspects of the issue. Further details were acquired by the contribution of additional reasons. Comments, throughout the J-Test, also contributed to an understanding of the issue by providing details about the issue and regarding points of conflict among participants. Thus this case study demonstrated that the J-Test is applicable to the EIA process and could be useful as a scoping tool.

5.2.2 J-TEST as an EVALUATIVE DECISION PROCESS

The J-Test is a format for an evaluative decision process and has various strengths and weaknesses in providing material for an analysis of the value decision. In order to assess the J-Test's merit as a diagnostic tool for examining practical reasoning, I first looked at what steps of an evaluative decision are accomplished by the J-Test. As a model, I examined six steps of value analysis as described by Coombs and Meux (1981).

- Identifying and clarifying the value question.
- Assembling facts.
- Assessing truth of facts.
- Clarifying the relevance of facts.

- Arriving at a tentative value decision.
- Testing the value principle implied in the decision.

I used these researchers' model to assess the J-Test's ability to provide a structure for the participants' deliberation about the controversial Tsitika issue.

In any discussion of a controversial issue, identifying and clarifying the value question are important, as aspects of the initial value question may be vague. Discussion will be fraught with frustration until the value objects, for example what is meant by 'logging' or the 'lower Tsitika', are specified, and clearly defined. In this J-Test, the value question was presented to the participants and there was no attempt to specify or define the terms.

Fortunately, the Federal EIA as well as the environmental community had defined the rough boundaries of an area referred to as the 'Lower Tsitika'. But there was still discussion amongst stakeholders about where the boundaries were, what kind of logging is 'acceptable', and how broad the issue was. The questionnaire revealed that some of the NoP saw the issue as part of the larger picture of logging in BC and that industrial logging had already taken so much of the province's old growth forest. On the other hand, the local logging community saw this small parcel as isolated from any other logging and directly affecting their economic future.

In addition, in this J-Test, there was no attempt to limit the point of view for the assessment. For example, the controversy included the economic, social, environmental and moral perspectives. Some of the conflicts created by this broad handling of the issue were presented in the results; for example, the participants experienced conflict when asked to choose between the tangible and intangible qualities of 'wildlife' and 'aesthetics', or between ecosystems and peoples health. Thus, the J-Test, as administered, did not present the opportunity to clarify or limit the value question, and part of the participants' frustration and conflict in completing the questionnaire might be attributed to the lack of clarification.

Gathering all the facts about an issue is also a critical step in making a decision. Assembling a wide range of facts is important; as well as organizing the facts by distinguishing various characteristics such as their rating, specificity, generality or other aspects of similarity, and ranking them in terms

of their importance (Coombs & Meux, 1981). This J-Test's development process provided the opportunity to collect the facts on the issue. The development stage of any J-Test could be accomplished through a combination of literature searches, consultation with experts and asking stakeholders. In this case study, numerous facts were gathered from all of the above methods. The facts were examined, combined and sorted for similarity and rated as positive or negative. Participants also contributed additional reasons (facts) in the implementation stage of the questionnaire. But in this case study, while 28 additional reasons were added to the existing 31, none of these reasons were new facts, but instead added nuances, details and interpretation of the facts, thus the development stage of this J-Test was effective in identifying the major facts in this issue.

In conducting value analysis, Coombs and Meux (1981) considered that "the most important facts to gather in coming to a value decision are those which indicate how the value object affects the significant interests and concerns of *people*." (p. 38). This statement leads into a much larger discussion of the position of humans on the planet, whether the rest of the environment is for human use, whether humans are capable of considering issues beyond self or "human" interest, etc, which I will not attempt to discuss. However, I question that this is the only perspective for EIA, however difficult and controversial the consideration of "respect for other living creatures" or the planet's existence without humans, may be. Some climb mountains because "they are there", perhaps we could consider the reason for leaving things alone is simply because they are there, or as I once heard First Nation's elders say, "because that's the way they are supposed to be".

Certainly this human-centered versus environment-centered debate existed in this case study. Some participants argued for the "*intrinsic value*" of other beings (53% of NoP participants). Another openly stated that "*human life is more important than wildlife habitat*", in response to a probe choosing between funds for wildlife habitat or health care. This debate is another reason for the complexity and conflict in this case study and in many EIA.

As mentioned, another aspect of assembling the facts is to rank them (Coombs & Meux, 1981). The J-Test participants were asked to select the

reasons (facts) they supported as well as their most important reasons. The percentage of participants selecting most important reasons were used to rank the facts in terms of their importance to the issue, for this group of participants. With a small number of participants this ranking is a "snap shot" of the issue in the "community at large"; however, with a larger number of people this could provide a useful way of ranking facts in the initial stages of a broader analysis of a controversial issue. Thus, for assembling facts about the issue, both in the initial assembly and ranking, the J-Test appeared highly successful.

The next steps in conducting a value analysis are assessing the truth of facts and clarifying their relevance. First the facts are examined and the basis for believing the facts are true is assessed. This step could be elaborate, requiring extensive research to reveal the adequacy of the information on which the fact is based, or it could consist of simply identifying the sources of the information and why they are reliable. The latter may then lead to conflict about the reliability of the sources. The J-Test, as so far characterized, makes no attempt to examine the research basis for the facts and there is also no identification of sources of the information. As noted in the results, the conflict over the truth of the reasons is another cause of conflict for participants in the J-Test.

Second, the step of clarifying the relevance of facts involves formulating a value criterion that gives valence to the fact, in other words creating a value (implied) principle and deciding if that principle is supportable (Coombs & Meux, 1981). The J-Test presented 'implied principles' to the participants, and these principles were used in the context of the principle testing, as discussed below. However, participants were not asked if their interpretation of the facts was adequately represented by the implied principles offered, or whether the points of view in the implied principles corresponded to those of their judgment. Thus, because participants didn't formulate their own value principles, they may have had less conviction that these principles represented their stated beliefs and less ability to see the connection of the principles to the judgment. For example, the participant who failed to choose any reasons and stated "*I don't like any of the reasons you have given especially when they lead so well into the simplistic probes*", may not have grasped the logical process inherent to

the J-Test. This participant might have benefited from a value analysis process that involved participants developing their own value principles in order to understand the linkage.

In most value analysis situations, the task of arriving at an initial position would occur after the steps described above. However, in the J-Test, participants were asked for their initial position immediately and then exposed to the other steps. The J-Test process operates on the assumption that from the start, participants are sufficiently informed about the issue to make an initial value decision. Nevertheless, in the J-Test, participants are asked the same value question at the end of the questionnaire to assess whether the value analysis process has caused any reevaluation of their position. Thus, the J-Test performs this step twice.

The final step of value analysis is the testing of the value principle. This process was discussed in section 4.4. This step helps to illustrate the consequences of supporting the principles implied by the factual reasons. Principle testing challenges the reasoner by presenting situations where the reasoner may not be able to support the implied principle. The J-Test uses probes, applied to the three important reasons selected by the participant, to test the principles behind the judgment. This process represents only a portion of the participants overall view of the issue and presents only a limited (four) set of challenges. In the J-Test, if the probes are too extreme or in other ways unacceptable to the participant, as discussed in the results, then there is no way to refine the probe and to home in on what is significant for that particular participant. Thus, a participant may not answer a probe or may fail to get the point of the challenge. In this way, the J-Test is limited and not able to address individual participants' needs. However, the J-Test does provide a sample 'testing procedure' and in this case study, as demonstrated by the comments, the J-Test was effective in creating challenges, conflicts and some degree of reevaluation.

Throughout any evaluative decision process, conflict may arise from differences at any of the steps described above (Coombs & Meux, 1981). For example, participants may assemble different reasons (facts) about a controversial issue, and these differing facts may lead them to different value

judgments. In any value analysis, when there is an effort to resolve conflicts in the process, a variety of results may ensue, such as

- agreement on the particular value judgment,
- agreement that the arguments are unsound and further research is necessary,
- finding some facts in common, or of similar relevance, or finding shared value principles,
- finding comfort with the personal judgment, or reduction in personal conflicts,
- increased understanding and respect for those with the opposing view,
- increased realization of deeply held commitments on both sides that deserve consideration and respect.

In the J-Test conflicts arose at various stages of the questionnaire, as noted previously. Unlike a formal discussion of a value issue, the J-Test offered no potential for conflict resolution and only created conflict. In a discussion, conflicts can be identified and conflict resolution can be attempted, through attempts to reduce the differences arising at any step in the process. For example, two participants might differ because one felt that logging caused slope failure in the Tsitika valley. Therefore this participant would oppose the logging because of this aspect of environmental damage. Another might believe that logging could be done without causing this damage, and therefore would be in favour of the logging. Through discussion of the facts about the type of logging and the effects with regard to slope failure, the two participants might be able to come to agreement about logging a certain way so as not to cause slope failure. In the J-Test, there is no attempt to identify or examine conflicting situations in each step of the value analysis, except through the voluntary comments of participants, and no attempt to resolve them.

In this case study, the J-Test participants were exposed to conflicting situations such as opposing reasons and probe challenges, and they expressed frustration with these conflicts, which was identified in the results. However, this case study suggests that some of the outcomes associated with attempts at conflict resolution, as listed above, may also arise from, or at least survive, merely experiencing conflict. For example in the case study, participants on

both sides expressed an understanding of the opposite position and some identified a desire to work towards compromise and resolving some of the aspects of the issue. These comments may not have been due to their experience with the questionnaire, but the creation of the conflict within the questionnaire did not remove these participants' resolve. For example,

I realize that we won't win every battle and things will never be just the way I'd like them to be but I still have to work towards a better end. (NoP)

I believe people can work together and eventually resolve conflict. (YesP)

A battle ground of conflict is not an end but a step in the process. If the process is set-up to work it can... (YesP)

I find the either-or approach very unsatisfying. No room for compromise in questions (i.e. shoot your mother or your father). We need conflict resolution and consensus building skills,... (NoP)

Thus, the J-Test provided a suitable structure for the evaluative decision process involving the Tsitika issue. The strengths of the structure are in gathering and rating facts, in arriving at a decision and in conducting a sample principle testing exercise. The weakness is the creation of conflict or confusion arising from three areas: no attempt to clarify the value question, to assess the truth of the facts, and no ability to assess individuals' perception of the probes. This conflict may partially cloud the interpretation of the reasoning, but overall, the J-Test provided considerable data for the diagnosis of both the significant aspects of the issue, as well as the reasoning skills of participants.

5.2.3 J-TEST in VALUE JUSTIFICATION

Another way to address how the J-Test performs as a diagnostic tool for assessing reasoning skills is to examine the requirements of value justification. Therefore, I considered which aspects of Coombs' value justification model (1981, 1986) could be revealed by the participants' responses to the J-Test:

- 1. Did participants engage in good practical reasoning activities?
 - choosing reasons for their positions,
 - identifying sources of conflict in the truth, relevance or interpretation of facts,
 - testing the acceptability of the principles implied by their reasons.

- 2. Did the participants' responses meet the standards of good practical reasoning?

Standard 1. The reason must be confirmed by adequate evidence, true.

Standard 2. The facts or reasons must be relevant (be genuine values for the reasoner).

Standard 3. As much relevant information as possible must be considered.

Standard 4. The choice of action must involve acting morally.

Standard 5. The choice of action must realize greatest benefit compared to other morally acceptable alternatives.

I reviewed elements of this model that could be assessed from the J-Test format. Then, in a later section, I drew, from both the steps of the evaluative decision process and the model of value justification, a framework of questions for examining the reasoning abilities of the J-Test participants in this case study.

5.2.3.1 Engaging in the process of practical reasoning

The process of engaging in the process of good practical reasoning, in Coombs' value justification model, involved three activities. The J-Test facilitated the first activity, "choosing reasons". The questions of whether the participant chose reasons, the number of reasons chosen, and which reasons were selected, could easily be assessed by the J-Test. However, with respect to the second activity, identifying sources of conflict in the truth, relevance or interpretation of facts, no specific attempt was made to have participants do this through the J-Test. Conflicts arose from an assessment of the facts, particularly those of the opposite position, as was evident from the voluntary comments of the participants. But the ability and willingness of participants, to identify these conflicts, was not directly assessed by the J-Test.

The third activity, of testing the acceptability of the principles implied by the reasons, was contained in the probe section of the J-Test. Participants' responses to the "probe" section of the questionnaire could be used to reveal aspects of their willingness and ability to test the principles behind their reasons.

5.2.3.2 Meeting the standards of good practical reasoning

In terms of the second element of Coombs' model, the standards of good practical reasoning, the J-Test revealed information that addressed some of the standards and not others. As noted, the J-Test had no provision to confirm the truth of reasons (standard 1) and the only evidence that the participants assessed the truth was if they volunteered comments. Similarly, whether or not the reasons were genuine for the participant (Standard 2) was only hinted at through comments. Standard three, or the consideration of as much relevant information as possible, could be presumed by the fact that the same information was presented to all participants. On the other hand, the number of reasons selected, and any comments rejecting certain types of information, could reveal aspects of the participants' reasoning.

The participants' choice of acting morally, or standard four, could be evaluated on the basis of their selection of the J-Tests' socially applicable reasons, and from the principle testing of other reasons. Finally, Standard 5, or the participants' success at adjudicating a complex array of facts to realize the greatest benefit, could be evaluated by determining their ability to come to terms with all of the information in this complex issue. The participants' selections and their comments could assist in evaluating this last standard.

5.2.3.3 Comparing the J-Test to a discussion

As a tool for assessing reasoning, the J-Test could be compared to a formal 'discussion' procedure for value analysis, as proposed by Coombs and Meux (1981), and Meux (1981). I used this comparison to point out the strengths and weakness of the J-Test. In the selection of reasons, the J-Test excels. Reasons are previously researched and a thorough list is available to the participant. Thus the participant can easily demonstrate all the reasons for their position. The difference with a discussion is that participants are involved in collecting their own reasons. The advantage in doing so is that participants demonstrate aspects of their reasoning in finding facts, in judging the relevance and valence of the facts, and in determining facts, such as "logging provides jobs" from evaluations, such as "logging is good". Further discussion of the facts can also show if participants are able to clarify and possibly resolve

conflict over the truth, or relevance of the facts, and this is not addressed by the J-Test.

In principle testing, using a formal discussion procedure, participants can examine the nuances of each challenge, can specifically define the limits under which a principle is acceptable, and can address the problem of 'extreme' probes by redefining the question in terms more acceptable to the participant. In the J-Test, if the probe challenge is successful, participants are moved from their ability to support the principle in that case. However, there is no opportunity to investigate how much of a challenge is necessary to move a participant, or to define under what conditions the participant would accept the principle. In some cases, participants in this case study offered examples of the limits under which they accepted the principle, but in other cases, the only evident result was conflict with the probe. The ability of participants to modify the reasons is one way that the J-Test approaches the discussion's ability to define limits of the application of the facts (reasons).

A positive aspect of the J-Test individual questionnaire format is the ability to involve a number of different individuals in the process without the potential of face-to-face confrontations and without the need to develop a level of trust in order to discuss the issue. Thus, the reasoning of diverse individuals can be readily examined. The disadvantage of not having others involved is the lack of guidance, from a facilitator or from other participants, about issues regarding facts, such as truth or relevance, and about standards of reasoning.

5.2.4 DIAGNOSIS of REASONING

In the previous sections, I examined the information that the J-Test could provide about reasoning, from the steps of the evaluative decision process and from the value justification model for practical reasoning. Here, I combine that information in the form of questions that could be used to assess reasoning abilities using the J-Test.

- Were participants able to choose reasons, both supporting and opposite?

- Is there additional information about whether the reasons were the reasons genuine for the participants (Standard 2) or if as much relevant information was considered as possible (Standard 3)?
- Were participants able to test the acceptability of the principles implied by their reasons and were participants able to choose a course of action that involved acting morally (Standards 4)?
- Were participants able to choose a course of action that realized greatest benefit compared to other morally (Standard 5)?

5.3 EDUCATIONAL VALUE OF THE J-TEST FOR PARTICIPANTS

For the J-Test to have educational value, the procedure must contribute to the teaching of practical reasoning about value issues. Therefore, I needed to determine what features or elements, involved in teaching practical reasoning, are performed by the J-Test?

Coombs (1986) described the necessity of learning two components of practical reasoning: first, to exercise good judgment, and second, to have the disposition to conduct good practical reasoning. Coombs considered that 'exercising good judgment' was learned by having the opportunity to practice and by having critical feedback on the process of applying the abilities and standards. On the other hand, the disposition to use good reasoning required providing students with the opportunity to use good judgment and to live by the consequences. A group situation was considered the best way to teach moral reasoning. Coombs and Meux (1981) also pointed out that little was "accomplished through a single value analysis" and that participating in procedures other than value analysis also developed students' capabilities for rational evaluation.

The J-Test questionnaire provided the participants with the opportunity to engage in a practical reasoning exercise. The features of the J-Test, such as documenting the reasons behind positions, testing the acceptability of the reasons and being exposed to reasons from the opposite position, provided practice in practical reasoning procedures. Even though this exercise lacked direct support and guidance, and was an individual endeavour, the structure of

the J-Test allowed participants to express and analyze their views in a manner that supported the various aspects of good practical reasoning.

The J-Test structure included the potential for successful challenges to the participants' position. As shown in the results, the probes caused participants to realize that there were often limits and conditions necessary for their reasons. In other words, they used their own life experiences to provide the 'consequences' of living with the implied principle. As a result, the value judgment could become more relevant to the issue and more accurately reflect the individual's genuine views. Participants, in this case study, actively engaged in the reasoning process and 26% stated that the probes caused them some reevaluation of their position. Also, despite the strong polarization of views, two individuals (4%) actually concluded, after completing the questionnaire, that they were less certain of their original position. Thus, I conclude that the J-Test was a valuable tool for giving participants experience in practical reasoning.

5.4 CONCLUSIONS

To summarize my conclusions from this chapter, the J-Test provided a thorough review of the perceived impacts of the logging activity and also the level of support for the important impacts. In this way, the J-Test resembled a scoping exercise in EIA. The J-Test also provided the suitable structure of an evaluative decision process to analyze the strengths and weaknesses of participants' reasoning. The J-Test engaged participants in choosing reasons, testing principles implied by their reasons, but not in investigating the source of conflicts or in conflict resolution. Responses to the J-Test could provide information on participants' ability to correctly respond to moral judgments and to adjudicate complex information on the basis of greatest benefit (Standards 4 and 5). The J-Test provided the opportunity to practice good practical reasoning and therefore was a good teaching tool, particularly as a supplement to a program that would add the important guidance and direction.

Chapter 6 DISCUSSION - REASONING AS REVEALED BY THE J-TEST

In this chapter my objective is to discuss what the J-Test reveals about the reasoning of participants. As a supplementary objective, recognizing the speculative nature of this query, I investigated whether the J-Test exposes any differences between the groups of YesP and NoP participants, or Com. and Non-com. members. I assess participants' reasoning in terms of questions concerning the aspects of value analysis that the J-Test could address:

- Did participants choose reasons, both supporting and opposite?
- Is there information about whether the reasons were genuine for the participants (Standard 2), or if as much relevant information was considered by participants as possible (Standard 3)?
- Were participants able to test the acceptability of the principles implied by their reasons and were participants able to choose a course of action that involved acting morally (Standards 4)?
- Were participants able to choose a course of action that realized greatest benefit than any morally acceptable alternative (Standard 5)?
- Were further aspects of reasoning revealed in their final indication of their certainty?

6.1 CHOOSING REASONS

The first question to consider is the following: were participants able to choose reasons, both supporting and opposite? A significant indication that the participants engaged in practical reasoning was their willingness and ability to select reasons. Only one participant refused to take on this process. The other 45 participants not only chose supporting and important reasons but also contributed to the data gathering by giving additional reasons. Overall, a wide range of reasons was chosen. The five important reasons most often selected by the YesP and NoP participants are listed in Table 16.

The YesP choices suggest support for the governments' planning process, as well as for personal and community needs. In addition, the YesP participants seem to accept the publicity from the forestry sector about the sustainability of industrial logging and the lack of impact on wildlife. The YesP

participants favoured both the direct and personal advantages of logging and expressed a "no harm caused" belief about the impacts. The NoP, on the other hand supported "wilderness" and "biodiversity", they valued the ecology of the area, and they were concerned about the potential damage caused by logging. Thus, the NoP also stated benefits, although less personal, more public/environmental advantages, and they emphasized a "harm possible or imminent" belief to the impacts of logging. Although the J-Test made no allowance for assessing the truth of these factual claims, I would have enjoyed being part of a discussion to clarify the meanings of terms and to seek the source and reliability of the facts, with these participants.

Table 16. Five important reasons most often selected by participants in support of their position.

YesP participants choices	NoP participants choices
● I. "based on careful plans".	● E. "avoid risking environmental damage".
● A. "providing jobs".	● I. "public desire for wilderness".
● D. "keep communities alive".	● K. "international ecological feature".
● K. "is sustainable".	● C. "protect biodiversity".
● L. "no adverse wildlife effects".	● D. "prevent environmental damage".

Some of the differences in selection between YesP Com. and Non-com. members, outlined in the results, suggest that Non-com. members seem more interested in personal jobs and supporting the idea that logging was sustainable, while Com. members favoured the broader benefits to "resource-based communities". Also, Com. members, many who were government employees, seemed more aware than Non-com. members that the government had given companies the "legal" right to log in this area. Therefore they supported the existing "legality" as a major reason for logging. However, both subgroups shared similar support for the government's planning process.

Differences between NoP Com. and Non-com. members demonstrated that while both were concerned about environmental damage, they differed in the perceived degree of threat. To the Non-com. members, environmental damage was a certainty and must be "prevented", while to the Com. members the best policy was to avoid 'risking' any potential chance of environmental

damage. Also more Com. members favoured the broader needs of "non-timber users" in the area, which was similar to the attitude of YesP Com. members who selected logging in favour of community needs. However, no NoP Com. member chose First Nations' concerns as an important reason not to log, although one third of Com. members selected this as a supporting reason, and it was a significant important reason for Non-Com. members. This lack of important recognition of the overall importance of First Nations interests by Com. members, suggests that perhaps the committees did not have First Nations' issues in their mandate or perhaps that they felt less inclined to single out one interested stakeholder.

Despite displaying ability to select reasons, participants were less willing to choose reasons from the opposite position, as 48% chose no opposite reasons. Not supporting opposite position reasons may indicate that participants felt there were weaknesses or flaws in these reasons, such as their truth or relevance. For example, one participant's comment about a reason from the opposite view was "*first it must prove it would*", and another stated "*If this were true it would be a good reason*". Alternatively, perhaps participants were simply being closed-minded to a segment of possible relevant information.

A greater percentage of Com. than Non-com. members chose opposite reasons, and they tended to choose more reasons per person. Com. members, who had been involved in lengthy discussions about Tsitika issues from all perspectives, might have been more familiar with and knowledgeable of the truth and relevance of reasons from both sides.

Unfortunately, the support, or lack of support, for opposite reasons was hard to interpret from J-Test results. In essence, I believe the J-Test was asking participants to select reasons from the opposite lists that they would have included amongst their own "pros and cons list" when coming to their final judgment. However, some participants might have faced the choice of opposite reasons as if they were choosing reasons that should have weighed highly in, or even altered, their decision. For example, one participant commented, "I can understand how they would be good reasons for some, but they are not good enough for me". Did this person mean that they supported these reasons but that the reasons weren't good enough to sway the final judgment, or simply that

while others believed these reasons, the reasons lacked truth or relevance for this person? The potential for confusion suggests that there may have been more support for the opposite reasons than was acknowledged in the J-Test responses.

In comparing the selection of the supporting and opposite reasons among groups for supporting the logging, (Note- "supporting" reasons are slightly different than "important" reasons), the top five selections of the YesP participants were among the top seven of the NoP participants. For the position of not supporting the logging, four of the top six reasons of NoP participants were well supported by the YesP participants. Unfortunately, no YesP participants supported the first choice of the NoP group, that the area was an international ecological feature. Other than this fact, the level of agreement suggests that there was considerable understanding of the opposite position among participants. By demonstrating this, the J-Test provided an insight into possible routes for conflict resolution with these participants, or for an opening towards further exploration of the reasons, the motivation of participants, as well as the many facets of the issue itself.

6.2 GENUINE REASONS AND RELEVANT INFORMATION

In order to consider Coombs' second and third standards of good reasoning, the following question arises: is there information about whether reasons were genuine for participants (Standard 2), or if as much relevant information was considered as possible (Standard 3)?

As noted, the J-Test does not provide the opportunity to directly assess whether reasons represent participants' genuine values. However, the J-Test in this case study may have revealed that genuine values were overlooked as none of the YesP participants chose important reasons favouring obtaining profit and revenue from logging, despite revenue and profit seeming to represent prime motivating forces for the commercial forestry economy.

- B. "Produce revenue".
- E. "Profits timber industry /no losses".

Thus, I suspect that these genuine reasons might have been ignored in favour of more politically correct responses, or in other words, perhaps some of the

reasons selected were not genuine values. Discovering the truth would require a discussion format.

In terms of considering all relevant information, two problems were observed. Com. members exhibited an apparent narrowing of perspective, and some participants in the J-Test refused to consider what they called "emotional" arguments from the opposite position.

While Com. members tended to choose more reasons from the opposite per person than Non-com. members, they chose fewer supporting reasons per participant than the Non-com. members. Choosing fewer reasons suggests their apparent refusal to consider all choices. Alternatively, the selection of fewer reasons may have resulted from many years of serious consideration of the issue during which time various aspects were thoroughly researched, negotiated, weighed and some aspects were ruled out. The Com. members' thorough consideration of the issue is supported by the fact that Committee members also gave the most modifications for their reasons. In modifying their responses they used detailed information about the issue to make the reasons very specific to the Tsitika. Other possible explanations for the Com. members' choice of few reasons may be that influential members had narrowly focused the Committees' overall view, or that members were simply out of touch with some of the perspectives on the issue.

Participants, who were unwilling to recognize emotional arguments as relevant information were therefore not considering all possible relevant information. These participants rated what they called emotional evidence or reasons lower than what they considered "factual" reasons, or they discounted the emotional reasons altogether. These comments illustrate this point:

I would say no [to a nuclear power plant] only if facts rather than emotion was the basis for saying it shouldn't go ahead. (YesP)

The reasons and probes against logging in the lower Tsitika gave me no good reason to re-evaluate my opinion. They were emotional and not factual. (YesP)

Traits, lacking in these participants, may be the knowledge and or the motivation to consider this emotional information. These participants apparently failed to understand that "good reasons are never devoid of emotion

or human concern" (Coombs, 1987, p. 10). Coombs observed that many people erroneously "associate rationality with being coldly analytical and thus devoid of emotion or human concern" (p. 10). Daniels and Oliver (1977) pointed out that emotional concerns have a cognitive core, and that people make a serious mistake when they separate the emotional and the rational.

Social conditioning may be responsible in part for the participants' favoring "scientific" arguments over emotional arguments, as our society seems to have an inordinately high respect for what is referred to as scientific information. This respect is based on at least two underlying fallacies, the view that science is value free, and the idea that the scientific perspective takes precedence over any other.

The belief that modern science is value-free requires knowledge and experience to dispel. Scientists embark on research projects for a variety of reasons, under a host of controlled conditions. Many of the choices within a project are value decisions, (e.g. in order to obtain adequate funds, the study may favour the interests of the funding organization). Participants in an EIA may not have the skills to evaluate all of the technical data nor the opportunity to know all of the value decisions that were made in any particular research project, and thus they will be unable to accurately judge the data's scientific merit. Therefore, the fact that participants in this case study expressed a strong faith in studies and plans and other technical data of researchers is disturbing and suggests not only that practical reasoning skills need improvement but also, that further scientific education is warranted.

The notion that the scientific perspective takes precedence over any other may be the inescapable result of our technologically oriented society. In resource management issues, science is usually manifest as technology-based sources of dollars. One of the obvious difficulties in dealing with these conflicts is the weighing of disparate values such as aesthetics and money, as discussed in section 6.4. The scientific community noted the conceptual problem of measuring something like aesthetic value (Beanlands & Duinker 1983), but attempts are still made to weigh all aspects of an issue from a scientifically measurable, often economic perspective. Perhaps participants in an EIA might

discover a broader perspective by trying to weigh all the aspects using non-typical frames of reference, such as aesthetic value.

Considering the broad perspective or including all possible relevant information are essential for good practical reasoning. Despite the social pressures to believe in scientific information, good practical reasoning is demonstrated by including, not discounting, emotional arguments. Fortunately, the J-Test recognizes both the cognitive (factual) and affective (emotional) aspects of an individual's thought in arriving at a rational judgment. The cognitive aspects are engaged in acquiring facts and in the ability to test them. The affective aspects are involved because reasoning is dependent on a "commitment to value and principles, both of which embody feelings, attitudes, and preferences. When a person holds a rational evaluative conclusion there are some things he knows and some things he feels" (Coombs, 1971, p. 26).

Therefore, the J-Test doesn't prejudge the perspective from which the stakeholder is operating. The J-Test also accommodates differing values as social criteria for EIA decisions. Participants can then disagree with the truth, relevance, interpretation or acceptability of an argument. If participants are encouraged to engage in the process of reasoning using exercises such as the J-Test and abiding by these standards, a broader frame of reference may be generated, which may in itself help to resolve this difficulty of an overemphasis on the scientific perspective.

6.3 TESTING THE ACCEPTABILITY OF PRINCIPLES AND MORAL REASONING

My question concerning Coombs' forth standard is: were participants able to test the acceptability of the principles implied by their reasons and were participants able to choose a course of action that involved acting morally? Overall the participants demonstrated they were willing and able to engage in principle testing. They completed 478 responses to 90% of the probes and added 173 comments. An account of responses to the probe section of the J-Test is recorded in section 4.4. A few participants appeared not to understand the concept of testing the principles behind the reasons. One participant

underlined the word "implies", wrote, "*I don't agree*" and didn't fill in any probes for that reason. Another commented,

you are jumping one stage in seeking the principle. We are not talking about logging all old-growth, just some areas of old-growth. (YesP)

This participant probably intended to modify the range of the reason rather than to critique the testing of the principle. A third participant, who did not complete the probes, wrote,

I don't like any of the reasons you have given especially when they lead so well into the simplistic probes. (YesP)

Discomfort and conflict for the participant was expected during the principle testing section of the questionnaire, if the probe was a successful challenge. In answering the probes, participants revealed various reactions to having their ideas challenged. Participants resented choosing between issues that, to them, had similar value. One participant commented,

I find the either-or approach very unsatisfying. No room for compromise in the questions (ie. shoot your mother or your father). We need conflict resolution and Consensus-building skills, not questions that ask us to choose between two equally important values. (NoP)

Some participants expressed apparent frustration with the truth, relevance or valence of the probes, and some criticized various probes as too extreme, inappropriate, or too close to choose. The J-Test may represent a more frustrating format for value analysis than formal discussion, as there is no opportunity for conflict resolution.

Developing the skills to deal with choices between competing interests is imperative for participants in issues such as the logging in the Tsitika Watershed, as competing choices are the basis of EIA. Over 50% of the participants in this case study stated that they had no formal training in EIA or in critically assessing or justifying positions, and over 40% had no experience in EIA situations. Thus, the lack of experience and training could explain some of the participants' frustration and irritation, but overall the participants willingly engaged in the principle testing exercise and most attempted to reason through the challenges.

In terms of the ability to choose a course of action that involved acting morally, Coombs felt that to test moral judgments for impartiality, universality and consistency, reasoners needed to understand

- the differences between personal and social belief,
- why impartial social morality is important, more important than self-interest.

An example of a personal belief is "the value of having or getting a job", while a social belief is "the value of keeping the community alive". The difference is that a personal belief refers to how the individual should act, and a social belief refers to how all others in society should act.

Social morality dictates that what was right for one person should be universally endorsed and followed by others, and thus, was appropriately regulated by rules.

Coombs (1986) noted that "each person's interests are better served when morality is observed by all" (p. 9). An impartial social morality is a requirement of social living. Minimizing conflict in a pluralistic society, that has a variety of acceptable individual moral beliefs, necessitates adopting an impartial moral view with respect to the competing interests of individuals (Coombs, 1986). Social morality means that instead of people simply maximizing their self-interest, the activities of people are treated impartially and coordinated with rules that might require individuals to act against their own self-interest. In agreement with this concept of social morality, Hayes (1981) noted Hardin's comment that one can "never ask a person to act against his own self-interest. The most you can ask him to do is to join with you and others in passing a law restricting everybody" (p. 65).

Social concerns are also significant in EIA, as the suggested framework for EIA is the premise that "societal goals and objectives provide the criteria against which any project-related environmental change must be assessed and evaluated" (Whitney & Maclaren, 1985, p. 21). The implication for practical reasoning in EIA is that many values may not be negotiable on an individual level, but may require consideration of society as a whole. These values can only be debated in the context of the "commons" where individual personal values become subservient to those of the community. Hayes (1981) described

this influence over individual values as "community pressure" or "mutual coercion mutually agreed upon" (p. 65). If we accept these premises, then EIA must be built upon a clearly defined or definable set of societal goals and objectives. Safeguarding society from the negative impacts of our activities will depend on the ability of EIA participants to understand societal goals and to engage in effective practical reasoning about controversial issues.

Coombs (1987) noted two criteria for evaluating practical reasoning about personal and social morality, or individual choice versus societal responsibility. First, the judgment should realize benefits to the individual, providing that the choice of action is morally acceptable. Second, all things being equal, the benefits of the judgment should be distributed equally. In this section, I examine the responses of participants in terms of their moral choices, and in the next I discuss decisions based on the concept of greatest benefit.

In this case study, some participants recognized the direct influence of social morality. These participants acknowledged that while they wouldn't personally select a probe choice that had negative personal consequences, they would be willing to accept the consequences of such a choice if it was made by society. Typical comments were

If the public decides then I have to roll with the punches. (YesP)

I would take public desire into account, but I would also have to be convinced personally that it (what public opinion supported) is needed. (NoP)

The choices and comments of participants, in this study, also demonstrated the conflict between individual and social values. The reasons in the questionnaire illustrate how the complexity of this conflict is increased by the various ways in which the "environment" benefits the individual and the society. For example, the environment of the Tsitika River Valley offers direct and indirect individual and social benefits of logging and of not logging, as shown in the following reasons.

- *Logging the lower Tsitika would provide jobs in the timber industry ... (Individual benefits with social spin-offs)*

- *Logging the lower Tsitika benefits the general public by improving recreational access and the visibility of some wildlife species. (Social benefits)*
- *Not logging the lower Tsitika would allow other (non-timber) users to have a long-term sustainable future in the region ... (Individual benefits with social spin-offs)*
- *Not logging the lower Tsitika would conserve an areas which has significant spiritual and emotional value for many people. (Social benefits).*

Weighing these benefits is complicated and inevitably involves the problem of using the financial frame of reference that was discussed above. Added to this consideration of competing benefits and interests were the complications of First Nations' rights and respect for other living creatures.

The lower Tsitika lies within the territorial claim of the Tlowitsis-Mumtagila peoples. Thus, the final judgment became one of competing moral issues. These issues such as society's commitment to honoring the land claims of First Nations' peoples, and to respecting the rights of minority groups and those most disenfranchised, are perceived (probably incorrectly) as in opposition to the need to base moral judgments on "equal and impartial consideration of the interests of everyone concerned" (Coombs, 1981, p. 25). Com. members apparently failed to significantly recognize the rights of First Nations, in this case study. Only 27% of NoP Committee members and no YesP Committee members chose the rights of First Nations as a supporting reason, and no Committee members chose this reason as one of the most important reasons in support of their position (NoP).

Not logging the lower Tsitika would protect an area that is considered sacred by the Tlowitsis-Mumtagila peoples and over which they have never relinquished their traditional rights.

This omission might have reflected internal guidelines dictated to Committees members rather than personal decisions. However, the Com. members' apparent failure to recognize First Nations' rights suggested a conflict that wasn't apparent for Non-com. participants. All NoP Non-com. members chose protecting First Nations' rights as a supporting reason, 32% chose it as a most important reason. Even 33% or one of the YesP Non-com. members chose

protecting First Nations' rights as a good reason for the opposite position. With respect to the significance of this to the EIA, the omission of First Nations' rights suggests major differences in the interpretation of the impacts of logging among certain influential group members (government, industry and First Nations). These differences were evident when First Nations faced the logging interests and the Crown in court over this issue.

Determining societal goals presents a confusing task, as different sets of goals and objectives result from conflicting philosophical views. For example, the extreme economy-based philosophy views the world as "a warehouse to be plundered in satisfaction of the material needs and wants of humankind" (Rees, 1988, p. 275). The philosophy, at the other end of the spectrum, views non-human species as possessing intrinsic value and views Homo sapiens as having no right to cause their extinction (Callicott, 1989). Thus the predominant societal goals may not be clearly defined, making practical reasoning based on social morality extremely difficult.

Participants in this case study demonstrated differences in their beliefs concerning the rights of other living creatures. A reason not to log the Tsitika out of respect for other creatures was selected as a supporting reason by 53% of the NoP (27% of Com. members and 74% of Non-com. members) and as a most important reason by 15% (20% of Com. members and 11% of Non-com. members).

Not logging the lower Tsitika would show our respect for other living creatures in the ecosystem.

This reason was not chosen as a good reason for the opposite position by any of the YesP. The philosophical views of the place of humans on the planet are widely divergent. Respecting the rights of other creatures is close to the moral view that non-human species have intrinsic value and that there is a fundamental need to adopt an ethic that respects nature (Callicott, 1989; Taylor, 1986). A comment of one participant summed up this sentiment,

If logging is allowed to continue below Catherine Creek a kinder more understanding generation will look back upon what we ruined, an incredible example of nature at its finest, and be shocked and saddened.
(NoP)

These examples illustrate the various social morality issues that made this case study a highly complex problem for practical reasoning. Then, added to these moral judgments was the concept of deciding on the basis of greatest benefit.

6.4 ADJUDICATION OF GREATEST BENEFIT

The question regarding Coombs' fifth standard is: were participants able to choose a course of action that realized the greatest benefit than any morally acceptable alternative? To meet this standard, Coombs (1986) felt that individuals needed to consider complex bodies of reasons, to compare the relative benefits of alternatives, and then to select the position with the greatest benefit compared to other morally acceptable alternatives. For these tasks, Coombs suggested that the following abilities were required:

- Impose order on a collection of reasons so that the benefits can be compared.
- Imagine the outcomes of each reason.
- Determine to what degree each value, realized by the reasons, was compatible with one's most enduring values.

The Tsitika issue represented a complex value decision and participants demonstrated some capacity to rationally grapple with this complexity. For example, the choice of a large number of supporting reasons was an initial indication that participants recognized that the issue was multi-faceted.

Participants addressed the concept of "greatest benefit" in comments throughout the questionnaire, but the method of rating this benefit can be a source of conflict for environmental issues, and is a problem that is recognized in EIA. Participants from both positions considered financial rewards the most important criterion, or the choice of greatest benefit. Typical financially oriented comments were

If it would provide a higher economic value. (YesP)

If [financially] compensated for my loss. (NoP).

While one comment combined economic and social values, I believe this participant also saw the judgment from a financial perspective and considered

social benefits in terms of dollars returned to society to be put to other social uses, rather than the social value of the integrity of the ecosystem:

I believe continuing with the TWIRP for the Tsitika offers the highest economic and social benefit to the owner of the resource when compared to making it into a park or ecological reserve. If it were privatized then all other values could materialize as dollars competing with the timber values.
(YesP)

These comments reflect the widespread societal acceptance of money as a key value which has led to the expectation that environmental impacts must be evaluated in terms of dollars or material value, or they must be compared with alternatives that are presented in dollar terms. The classic British Columbia slogan, "jobs versus the environment" illustrates the dilemma. Many people expect that environmental concerns must have a dollar-value to be calculated in this equation. Thus environmental concerns are left out of greatest benefit discussion if their immediate financial benefit to humans is unknown or not directly measurable in dollar terms.

Financial parameters are often used for evaluating impacts in EIA. The powerful influence of financial considerations is recognized as a problem in EIA. As is the fact that the intangible components of cultural, social and amenity values, which are promoted by most public participants in EIAs and are difficult to assess in terms of money, often go unrecognized (O'Riordan & O'Riordan, 1979). I expect that a reasonable approach to the concept of greatest benefit in environmental issues requires a major shift in the perspective of western society. One divergence from the financial approach is the "biocentric" outlook for humanity where humans are merely one part, albeit highly influential, of a community of life on Earth (Taylor, 1981). Until more than the financial perspective receives general acceptance, the over-riding influence of financial concerns will probably remain a problem for practical reasoning about greatest benefit in environmental issues. Therefore, while the participants' comments demonstrated this financial influence, the critique is not of their reasoning, but of the received societal morality.

Coombs (1986) noted that "greatest benefit" has both individual and social implications. Perhaps, those who consider the broadest social or global benefit could claim to have a more comprehensive or 'social' understanding of

"greatest benefit". In this study, some participants, probably due to the immediate effects on their personal well being, considered the issue largely from their own or at least a local "human-centered" perspective. For example, YesP Non-committee members selected personal jobs as a major consideration in this issue. Also, the following comment indicates the level of personal involvement, *"Perhaps I would have given different answers if I didn't feel my family and I are threatened after four generations in this industry"* (YesP).

In general, many of the choices of the NoP were less human-centred as they did not support the human activity of logging. Fifty-three percent of the NoP participants supported showing respect for other living creatures in the ecosystem, which received no support from the YesP. While the personal benefits are reaped from a healthier more stable environment, this value is a general benefit, much like that of supporting a healthier community. In addition, some of the NoP responses to the probes demonstrated a strong commitment to social environmental concerns over personal self-interest. These participants said they would be willing to give up or had already given up conveniences and even jobs to protect the environment.

Nevertheless, social concerns were recognized by participants from both positions. YesP Committee members expressed concerns for the welfare of resource-based communities, the importance of planning and legal activities. General social concerns were also factors for the NoP participants, who as well as choosing protecting the environment, also chose respecting public opinion, valuing other than timber user-groups, controlling timber companies, and respecting the rights of First Nations peoples.

Overall, considering how committed the participants were to their positions, some of their comments reveal an appreciation of the difficulty of adjudicating among competing values and an understanding of the need to compromise and to consider the other side's views:

Hope compromises can be found and the opposing sides can learn to talk to each other. (YesP)

I had trouble with the probes. I realize that we won't win every battle and things will never be just the way I'd like them to be but I still have to work towards a better end. (NoP)

While I can understand that some people hold the opinions listed under "blue tab 4" [opposite position] I have considered those opinions in the past and cannot agree with them. (YesP)

Thus, although problems arose for the participants engaged in this practical reasoning exercise, overall, the standards of good practical reasoning were evident in their responses, and the participants demonstrated the disposition to reason about complex issues. With training and experience, participants could improve their practical reasoning skills, and their continued contribution to addressing these difficult issues will improve the performance of EIA.

6.5 CONCLUSION

Participants in this study actively engaged in the process of practical reasoning and demonstrated a willingness to express their views in the J-Test format. The responses indicated their ability to consider and test the "facts" involved, and also demonstrated some limitations or stumbling blocks in their reasoning. When participants were grouped by their position on the issue and by their expected experience with discussing the issue, general trends in the selection of factual reasons and reasoning skills were evident. Overall, I acknowledge that finding a broad range of abilities and backgrounds was an understandable result, given that I examined a diverse group of stakeholders. The unexpected result was their general willingness and the thoroughness of their participation. I was encouraged by the participants' enthusiasm to "converse" or engage in reasoning in the questionnaire. This suggested that exercises such as the J-Test could be avenues for developing and practicing good reasoning skills, as well as improving the understanding of the issue.

In this case study, the J-Test exposed a variety of ideas as well as problems and I was left wanting to know more. I now see the J-Test's limitations and I am curious to know if a discussion with participants might address areas where the J-Test was weak:

- Reveal more about the participants' reasoning ability in finding facts and judging facts from evaluations.
- Resolve conflicts over the truth and relevance of facts.
- Identify clearly the limitations of the application of principles.

- Involve participants in a deeper understanding of each of their individual needs and the social context of their lives.

But I can also see that a discussion with these participants might be difficult due to possible confrontation, and that discussing as broad a range of ideas might be more arduous than with the J-Test. I recognize that firmly held opinions are unlikely to be changed. However, I can see the benefit of learning to rationally analyze firmly held beliefs and to justify them as Coombs (1981) described. The next aspect to consider is the educational component. In the final chapter, I consider not only how the J-Test exercise could be improved, but also what the J-Test exercise in practical reasoning skills reveals about the potential of education to improve EIA.

Chapter 7 DISCUSSION - EDUCATIONAL IMPLICATIONS AND CONCLUSION

In this chapter I address the third objective of this case study, which is to explore educational opportunities for teaching practical reasoning to benefit EIA. First, I discuss how the J-Test could be improved, then I suggest possible short- and long-term opportunities for educational programs in EIA, and finally I conclude with lessons I learned from this project.

7.1 IMPROVING THE J-TEST

Any improvements to the J-Test would have to be based on the intended objective of using the J-Test. Possible objectives for a J-Test exercise are:

- Find out about an issue, what people feel about it, how strongly they are attached to their positions.
- Investigate participants' practical reasoning.
- Teach practical reasoning.
- Create more understanding among groups in a controversial situation.
- Get people to change their opinion on a controversial issue.

The J-Test has the potential to contribute in all these areas, although perhaps only in a very limited way in the last area. The suggestions for improving the J-Test, discussed below, apply to various potential uses.

Two basic technical improvements would apply to any uses of the J-Test. These technical improvements include first, ensuring that the J-Test is administered anonymously to reduce the potential for bias towards the administrator. Unfortunately, any positive aspects of a known relationship between administrator and participant, such as trust, shared commitment, or performance standards would also be lost. Second, the reading level could be reviewed and aimed at a level suitable for the participants. This would help to alleviate problems with understanding the probes.

If the J-Test was intended as a tool for teaching practical reasoning, then the administration might include a summary of the steps of the format and explain the value analysis process. In order to provide more experience with the stages of value analysis (see Section 5.2.2), elements might be added to the J-

test to give participants more opportunity to identify their conflicts or justify their reasons.

Probes also present problems in development. If the J-Test was going to be used routinely as an educational tool, with different issues, then probe examples would be beneficial. A set of examples of each type of probe challenge could be developed with explanations of method and intent.

To deal with the problem of probes being unacceptable to some participants, a series of probes could be offered, with participants asked to complete only a small number, say three, and participants could select which probes to answer. Also, participants could be asked to explain any conflict they identify with the probes or the reasons, or after the probe exercise, to define the limits under which the principle would be acceptable.

Participants could be asked if they agreed that the 'given' implied principle was actually implied by the reason they offered, and if not, to identify the principle implied by their reason. They could also be asked to state background information supporting their reasons. Finally, a discussion could follow the questionnaire, where the participants identified any conflicts or frustrations. An administrator could assist the discussion by attempting to resolve conflicts and by promoting Coombs' standards (1981) of reasoning.

The intended use of the test should also dictate the complexity of the issue selected. For example, the Tsitika issue was perhaps too complex to generate substantial data on the participants' reasoning. As only three of an array of supported reasons were used in the principle testing, other important aspects of the participants final judgment were not examined. A detailed investigation of participants' reasoning might look at all the reasons and ask further questions about the adjudication process for the final decision. On the other hand, the Tstitka J-Test presented an excellent overview of the issue, by exposing participants to the large selection of 31 reasons.

Finally, developing a J-Test questionnaire requires considerable effort, but the rewards are also substantial. The more complex the issue, the more effort can be expected. For teaching purposes at an early level of understanding of value justification, the simpler issues may be easier to comprehend. Computer adapted techniques have been suggested (R. Case, Simon Fraser

University, personal communication, 1994). The intent of the technology may have been to assist in the analysis of the data, but computerized J-Tests may be best suited as teaching tools in a more comprehensive value analysis education program. Students could use these programs as exercises and the technology could be used to assist in presenting options, alternatives and explanations. The J-Test offers potential for adaptation to many uses and situations.

7.2 EDUCATION in EIA

In this section, I suggest the elements of possible educational programs, as well as the direction curriculum design could take, both short- and long-term. I do not propose curriculums or describe teaching strategies, but rather suggest ideas for individuals participating in EIA or planning processes, and for those involved in teaching in schools or community education programs.

7.2.1 ELEMENTS of an EIA EDUCATION PROGRAM

A comprehensive educational curriculum for any subject contains both content and process elements. Content usually refers to knowledge of specific subject matter, and process deals with the development of various intellectual abilities necessary to the pursuit of learning. To participate in an EIA one has to learn:

- content: e.g., how EIA are triggered, the formal stages of an EIA, the facts about proposed developments, social and biophysical environmental impacts.
- process: e.g., the ability to think critically and to use good practical reasoning to evaluate information about impacts and to make decisions.

Teaching the content of an EIA curriculum is an important educational concern and the content changes as the EIA system evolves. Formal EIA classes often included the content elements of EIA but not instruction in practical reasoning about value issues. Some teachers may have indirectly included teaching the process element of an EIA curriculum by conducting role-playing exercises and involving students in actual EIA cases.

I suggest that the major goal of the process element in an EIA curriculum should be to teach the ability to employ the standards of good practical reasoning when examining value issues. Evaluations are, by definition,

processes of appraising or valuing (Simpson & Weiner, 1989), and EIA evaluations require the rational identification, rating and judging of impacts. The ability of individuals to reason well is a major factor in conducting a successful EIA. "One cannot ignore the fact that much of decision making depends upon the actual personalities of the individuals involved, their sense of fair play, their willingness to depart from customary practices, their ability to be flexible, their feelings about their occupational status and career prospects, and their attitude towards the guiding principles of the institutions in which they are employed" (O'Riordan & O'Riordan, 1979, p. 80).

7.2.2 SHORT-TERM EDUCATIONAL OPPORTUNITIES for INDIVIDUALS CURRENTLY INVOLVED in EIA

Somewhere in Canada today a group of people is probably involved in a heated discussion of the impacts of some proposal on their lives and on the future of their communities. These adults, from a variety of cultural and educational backgrounds, could benefit from short-term approaches to improving practical reasoning skills. These individuals may not have read Raths or Coombs or Kohlberg and they may not think about the principle of justice, the theory of social judgments, or the notion of a caring perspective. Nevertheless, opportunities are needed for adults to enhance their value reasoning (Daniels & Oliver, 1977). How could these people be helped to implement effective reasoning, such as critical thinking, and to appreciate the goals of the process or the "layers of morality" encountered along the way?

Involving adults in either content or process elements of an EIA educational program presents major difficulties. Teaching critical thinking and values education in schools may result in long-term benefits for EIA, but most adults are beyond school-based programs. Some believe that the majority of adults have a poorly developed system of values (Raths, Harmin & Simons, 1978). The participants in this case study demonstrated strongly polarized views and almost 50% appeared to be unwilling to support reasons from the opposite point of view. However, the participants were willing to engage in reasoning to identify and discuss conflicts, to review a variety of moral considerations and to adjudicate amongst a complex array of facts. Thus I

concluded that similar EIA participants would benefit from an educational program that offered practical reasoning skills as well as valuable EIA content material. This case study has demonstrated that the J-Test is a potentially useful educational tool in such a program.

Developing and participating in a J-Test questionnaire could be beneficial for EIA participants, both in the early stages and later during formal panel reviews. Compiling the lists of the perceived impacts of the Yes and No positions on an issue from representative stakeholders would teach fact gathering skills. The development of probes would assist participants in understanding the concept of implied principles and of the limits to the reasons given for positions.

The J-Test questionnaire could then be used as a practical reasoning exercise. Participants could include members of all stakeholder groups, such as appointed consultants, formal committees, proponents, the concerned public and even those responsible for conducting the EIA. Participating in an exercise such as the J-Test questionnaire would provide an introduction to key aspects of practical reasoning.

Another potential short-term educational option is to support the attendance of EIA participants at seminars on conflict resolution and similar topics, such as those given by the Justice Institute of BC. The benefit of this would be the first-time exposure of many participants in EIA to these topics. This case study demonstrated that the majority of participants, who were stakeholders in the Tsitika River Watershed issue, had no formal training in EIA or in critically assessing controversial issues. Also, a specific introductory course in EIA content with some value reasoning exercises could be offered to EIA participants at the beginning of an assessment and could be made a requirement to participate as a key stakeholder in an EIA.

The reason I am promoting educational activities such as courses and workshops with adults is that I have witnessed their success. While administering the J-Test I witnessed adult confrontation and the J-Test results demonstrated not only polarization but also the conflicts with the issue that existed for participants. Even though the J-test participants demonstrated a willingness to engage in reasoning, I was doubtful that adults would be willing

to learn new behaviours, such as listening or tolerance. However, I attended educational workshops on consensus building and conflict resolution that were offered on a large scale to hundreds of participants at the 1993 Peace camp in Clayoquot Sound, BC. These workshops, facilitated by volunteers, were delivered morning and evening each day to new groups of primarily adults.

The success of the Clayoquot workshops was measured by the cooperation and of lack of conflict demonstrated by large groups of strangers involved in a highly confrontational activity. For many of these individuals, this experience may have been an "epiphany" for them, where they peacefully presented their ideas in a thoughtful manner and listened to others who held the opposite position. This achievement rekindled my conviction that thoughtful, cooperative participatory education about value reasoning with adults is indeed possible.

The increasing emphasis on public participation in the EIA process presents a challenge for EIA organizers. One of the first tasks of individuals responsible for conducting EIA should be to avail themselves of background material on the process of making value judgments, such as the technique of value analysis. The second and very daunting initiative should be to develop programs to extend this background information to the new "decision-making" public. As discussed above, this might be through exercises and courses conducted as part of the EIA process, or general adult education programs which might be required of all those who wish to be an EIA participant.

7.2.3 Long-term educational opportunities

Defensible curricula on the EIA process are needed in public schools to prepare youth for future roles as EIA participants. This long-term goal should result in greater future success in administering defensible EIA programs. Curricular materials should encompass the various content components of EIA. However, curricula devoted to content alone will do little to enhance the overall performance of EIA participants. In addition, students need to learn the process element of an EIA curriculum, which would involve learning to assess information and to make defensible value judgments.

Almost three decades ago, Daniels and Oliver (1977) described the need for attention to the issues of value reasoning in Canadian schools. They also

noted the initiatives that should be taken to develop a value reasoning program, such as funding for research and development and the exchange of information among values educators. Since then, throughout the globe, a resurgence of interest in various approaches to values education has occurred (Cummings, Gopinathan & Tomoda, 1988) and moral education was stated as an educational initiative in BC (Robitaille, Oberg, Overgaard, McBurney, 1988).

Despite the apparent need for values education, many educators seem to shy away from a general discussion of values or "moral education". This aversion may be due to a fear of being criticized for the specific value content or of being accused of indoctrination. Alternatively, educators may feel they lack sufficient background in practical reasoning to adequately instruct about value decisions. This lack of practical reasoning skills is backed up by a study examining Social Studies education in BC, which noted that critical thinking in the current curriculum is "neither as effectively nor as widely implemented as intended" (Cassidy & Bognar, 1991, p. 7). The investigators noted that teachers themselves "are unsure of what is meant by critical thinking" (p. 7).

In contrast to avoiding values education, in BC we are seeing the establishment of religion-based schools and new "back-to-basics" schools. Proponents of the back-to-basics approach popularly renounce the notion of debating values issues and claim their approach will reinforce the important "basic values".

Educators will need considerable assistance to successfully incorporate values education into the general curriculum. As if discussing the complexity of values issues isn't difficult enough, educators have to cope with the diverse array of teaching methods used in values education. In addition, they have to acquire the art of delivery of these methods as they initiate "students into a complex and subtle practice which requires both commitment to good reasoning and the exercise of good judgment" (Coombs, 1986, p. 18).

With regard to the choice of methods, any recommendation to "teach" values education would have to acknowledge that children learn about values in a number of ways depending on the circumstances. Knowing that individual children have preferences in the ways they learn and who they are able to learn from, teachers will understand that values education will be successful with

some children using situations with rules, with some using values clarification experiences and with others by values justification techniques. Given the global nature of today's world, educators may want to open Canada's traditional "civic education" model of values and expose students to the concepts of interpersonal and moral values from other parts of the world (Cummings et al., 1988).

To address the need for values education in an environmental context, we need look no farther than environmental education programs. One of the original definitions describes environmental education as "the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education entails practice in decision making and self-formulation of a code of behaviour about issues concerning environmental quality" (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 1980). Tenets for environmental literacy have also been suggested, namely:

- the ability to have an aesthetic response to the environment
- the ability to think about systems
- the ability to think about time
- the ability to think critically about value issues
- the ability to separate number, quantity, quality, and value
- the capacity to move from awareness to knowledge to action
- the capacity to revise, discard or learn new basic ecological concepts
- the ability to work cooperatively with others
- well developed process skills
- the capacity to reconcile the love of nature (McClaren, 1989, 1991).

Environmental education programs have been using exercises in conflict resolution (Hungerford, Litherland, Peyton, Ransey & Volk, 1988), as well as courses directly promoting an appreciation or valuing of nature. Appreciation of nature has been the focus of various mainstream education programs such as Project Wild (Western Regional Education Council, 1989) and professional ecologists in the USA have joined with educators to enhance elementary school programs in natural history (Feinsinger, 1987). In BC, "Rediscovery", a remarkable, largely volunteer, program developed curricula to reintroduce

young people to the natural world using an inter-racial and inter-generational approach (Henley, 1989). These approaches need to be extended to later grades, both high school and university. Haemig (1987) suggested establishing courses in natural history as a university entrance requirement.

The addition of value reasoning and appreciation of the natural world in future education programs may better equip stakeholders in EIA to influence the issues affecting future generations. Currently, the weight of decision making power, with respect to environmental issues in EIA, sits largely in the hands of politicians, with little if any accountability. Societies need a better education in order to participate fully in making sound environmental value decisions.

Education in practical reasoning is necessary if the EIA process is to be more than a persuasive political compromise, full of rhetoric. When all stakeholders are equipped to consider all aspects of environmental issues in a considerate and rational manner, the judgments are more likely to lead to the greatest benefit to society and to the planet as a whole.

7.3 CONCLUSION - WHAT I LEARNED

I conclude with a synopsis of what I learned from this process. I began with a desire to save the world, a vague notion of what was meant by people having different values and a blind faith in the power of education. Early in the project, I learned the power of people with different values and I lost my faith in education. As I continued to work on the project, I began to develop my own conception of "values" and I started to appreciate that people hold very deep connections to things that they experience in their lives.

Through experiences, probably nurtured early in life, we develop connections of fear, love, dislike to certain things, which become deeply ingrained. I realized that if we later encounter issues that relate to these deep connections, we react with the profound emotions. These reactive behaviours also become deeply ingrained. For example being bitten by a dog early in life with no positive support could result in a fear of dogs. Then later experiences involving dogs might trigger that deep connection to fear or dislike, and result in developing irrational behaviours towards anything related to dogs. These

emotional responses might drive us to judge or act without thinking or certainly without thinking reasonably.

If we intervened at this stage and made the effort to analyze or to justify our judgments, we might act differently. At least we would become aware of the process and we could clarify what the value was, what the implied principle was, and what the implications of acting on the principle might be. So we might reconsider whether the choice of action was justified. We will probably never lose the deep connections we have acquired, and as in the above example, the individual may never lose the irrational fear of dogs, but this person might be able to rationally analyze a situation involving dogs and understand other possible choice of actions.

Thus, I saw the potential of learning about value justification. We could use rational analysis to guide our powerful values. I regained my respect and trust in education. If the principles of values justification become an active part of education programs, I believe future generations will experience less frustration with making judgments and will participate in EIA with greater understanding and confidence. As for saving the world, my values tell me, we should keep trying!

APPENDIX A HISTORY OF THE TSITIKA RIVER WATERSHED ISSUE

The Tsitika watershed is located on northeastern Vancouver Island, British Columbia (Figure 5) and consists of 39,505 hectares of rugged forested land. The area is drained by the Tsitika River and its two major tributaries (Claude-Elliot and Catherine Creeks). Much of the forest, prior to logging, was old growth, more than 300 years old (Vreeswijk, 1983). Fish and wildlife values in the watershed include Provincially "blue-listed" (vulnerable) Roosevelt elk populations as well as deer, bear, cougar, wolf, seven species of salmonids, and numerous other species of fish and wildlife. In addition, the Tsitika River estuary, Robson Bight, is visited by the majority of killer whales (*Orcinus orca*) that use Johnstone Strait, and the shoreline near the mouth of the Tsitika has "rubbing beaches" where killer whales rub their undersides on the pebble beach (Blood, MacAskie & Low, 1988, Briggs, 1988).

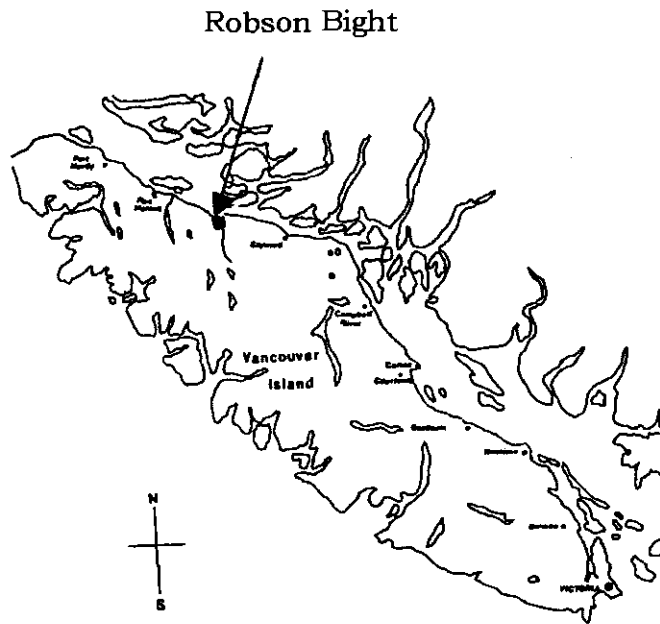


Figure 5. The Lower Tsitika River, British Columbia, © J. Balke.

In mid 1914, the Tlowitsis band made a request to the Royal Commission on Indian Affairs, that the lower Tsitika - Robson Bight area be registered as an Indian reserve village site, fishing station and trapping base. Later in 1914, a 5300 hectare pulp lease in the Tsitika valley bottom was taken over by Powell River Company, which later became part of MacMillan Bloedel.

Commercial logging in the Tsitika Valley has been publicly controversial since at least 1972, when the BC Fish and Wildlife Branch of the BC Ministry of Environment proposed the entire Tsitika watershed as an ecological reserve. In 1973, a moratorium on logging and road building in the Tsitika was declared by the BC government's "Environment and Land Use Committee". A study group and public meetings were initiated. As a result of extensive deliberation, the government of the day released the Tsitika Watershed Integrated Resource Plan (British Columbia Ministry of Forests and Lands [BC MOF], 1978, Vreeswijk, 1985). This plan retained small areas for ecological reserves and park (Schoen Lake Park, Gold Lake added to Strathcona Park). Commercial logging was provided for on over 95% of the productive forest land in the watershed (Coulombe, Kofinas, Macqueen & Moore, 1991) and clear-cutting of blocks up to 243 hectares was permitted (Vreeswijk, 1985).

In 1979, the Tsitika remained the last unlogged watershed on eastern Vancouver Island. In 1979, MacMillan Bloedel began logging and road building in the upper Tsitika. In 1979, Fisheries Act violation charges were laid against MacMillan Bloedel, in the Russell Creek case, a tributary in the upper Tsitika Valley. Later, in 1984, a BC Court of Appeal ruled in favour of MacMillan Bloedel in the Russell Creek case. Numerous studies of windfall, hydrology, fish habitat, whale use of the estuary, and deer in old growth forests were conducted in the ensuing years.

Two multi-agency committees (Tsitika Follow-up Committee (TFC) and Johnstone Strait Killer Whale Committee (JSKWC)) became involved in examining and overseeing industrial activities and public concerns in the Tsitika watershed. The TFC, formed in 1978, had responsibility for monitoring the implementation of the Tsitika Watershed Integrated Resource Plan (British Columbia Tsitika Planning Committee, 1978). The composition of the TFC's membership changed over the years. At the time of this study, the TFC included representatives of government agencies; logging, fishing and tourism industries; and public outdoor recreation groups (See Table 1 for a list of the member agencies). The JSKWC was formed in 1990 to examine the "impacts of human activity on killer whales in Johnstone Strait" (British Columbia Ministry of Lands and Parks and Canadian Department of Fisheries and Oceans, 1991).

The JSKWC membership included representatives of government agencies and killer whale specialist advisors (Table 17). Both multi-agency committees conducted public information sessions to gather public input on the issue.

Table 17. Composition of multi-agency committees.

1. Tsitika Follow-up Committee	
Number of persons	Category of members
	Government agencies
3	BC Ministry of Forests
1	BC Ministry of Environment
1	BC Ministry of Parks
1	Federal Department of Fisheries and Oceans
	Forest Industry
4	Management
1	Labour
1	Public Representative
	Other
1	Fishing Industry
1	Tourism Industry
1	Public Recreation Organization
2. Johnstone Strait Killer Whale Committee	
Number of persons	Category of members
	Government agencies
1	BC Ministry of Forests
2	BC Ministry of Parks
1	BC Ministry of Tourism
1	Ministry of Native Affairs
3	Federal Department of Fisheries and Oceans
	Independent Specialists
2	Advisors on Killer Whales
1	Resource Management

As the commercial logging in the Tsitika moved down the watershed and approached Robson Bight, public concern over the impacts of logging increased (Western Canada Wilderness Committee, 1990; Wood, 1991). In 1990, at the confluence of Catherine Creek with the Tsitika River, concern reached a peak and environmental protests were mounted. Loggers' access to the lower Tsitika was blocked, an injunction was obtained, and protesters were arrested.

Also in 1990, under the Federal Environmental Assessment Review Process, an EIA was initiated for the lower Tsitika Valley. Specifically, the EIA covered impacts and environmental protection relating to a logging company's (MacMillan Bloedel) five year logging plan (1990-94) for the lower Tsitika River. The area under investigation for the Federal EIA was the section north of a logging cutblock designated Block 101 at Catherine Creek. This section of the Valley encompasses the lower reaches of the Tsitika River, which supports five species of anadromous salmon (*Oncorhynchus* spp.). The area also contains three small ecological reserves including an area set aside to protect the unique killer whale habitat.

Previously, environmental impact assessment of all logging operations in British Columbia, were conducted under provincial government guidelines such as those for the Vancouver Forest Region (BC MOF, 1988). But in 1990, as a result of the Federal Court of Appeal decision on the case "Friends of the Old Man River Society v. Canada (Minister of Transport)", the Federal Environmental Assessment Review Guidelines Order was found to apply to any activity for which the Government of Canada had decision-making responsibility (FEARO, 1989, Elder 1989). Therefore under the Fisheries Act, the Federal Guidelines Order applied to logging activities affecting the salmon-bearing river and the killer whale habitat, such as in the Tsitika case. Thus, the Federal Minister of Fisheries and not the Provincial Minister of Forests was responsible for initiating the Tsitika EIA.

The impetus for initiation of the EIA in this case was the public concern over the impact of logging on the river and estuary. The interested public included the logging, fishing and tourism industries, conservation organizations, First Nations Bands, as well as the general public. Many had been involved in the public debate over resource use in the valley for many years. The EIA, initiated by the Federal government, focused the debate on the various impacts of logging the Tsitika River system, within the context of integrated resource management.

The recommendation of the first stage of the EIA or screening procedure, released August 1990, was that there was insufficient public concern for a full Panel Review to be convened and that further information should be gathered

prior to another screening process. This information was to include a report of the visual impact of logging, consultation with the First Nations Bands, completion of a siltation generation study, as well as reports from the two multi-agency committees. Although some of this information was gathered, a subsequent Supreme Court ruling removed the Tsitika Watershed issue from the Federal EIA process.

The Supreme Court's judgment stated that to trigger an EIA or environmental assessment review process (EARP) the federal government had to be exercising "affirmative regulatory duty" (Robinson, 1992, p. 2). This means that as the Fisheries Act does not give the Minister of Fisheries a permit-issuing authority, there is no need to apply the EARP to decide whether to "exercise his powers of intervention in respect of a project affecting fish habitat" (Robinson 1992, 2). Thus, the federal EARP process could not be applied to the Tsitika Watershed issue or any issue where, although the federal authority was responsible for protection, the federal authority did not issue permits or permission to conduct the activity. This left the federal Tsitika EIA file on hold, pending passage of the new federal EIA process, whereupon these issues were to be clarified and finalized.

Meanwhile, public concern over the Tsitika remained high. As a result, the lower Tsitika Watershed became a "protected area" under the Old-Growth Strategy initiative of the Provincial government and then was also selected as a "protected area" by the Provincial government's Vancouver Island land use planning process of the Commission on Resources and Environment. Subsequently, the lower Tsitika, including the bulk of the tree farm licence north of Catherine Creek and the three adjacent ecological reserves, has become the Lower Tsitika River Provincial Park.

APPENDIX B A CRITICAL ASSESSMENT QUESTIONNAIRE

**LOGGING IN THE LOWER TSITIKA VALLEY:
WHAT DO YOU THINK AND WHY?**

A CRITICAL ASSESSMENT QUESTIONNAIRE

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**FUNDED BY THE CANADIAN ENVIRONMENTAL ASSESSMENT
REVIEW COUNCIL**

LOGGING IN THE TSITIKA VALLEY

This questionnaire is designed to examine the positions people hold on controversial issues and to explore the reasons for their positions. There are no right or wrong answers in the questionnaire. The intention is to find what you think.

The topic of this questionnaire is the logging of the lower Tsitika valley on northeastern Vancouver Island. The logging of this area is a controversial issue and is currently the subject of a federal government environmental impact assessment.

This questionnaire consists of six sections:

- 1. YOUR POSITION**
- 2. YOUR REASONS**
- 3. PROBES INVESTIGATING YOUR REASONS**
- 4. CONSIDERING THE OPPOSITE POSITION**
- 5. CONCLUSION**
- 6. BACKGROUND & EVALUATION**

The size of the questionnaire is due to the network of possible choices. Although you will be asked questions in each section, you will only complete a small portion of the overall questionnaire.

Your participation in this questionnaire will make a valuable contribution to our understanding of the process of making choices in controversial environmental impact assessment issues.

Now, please turn to **Red Tab "1"**

1. YOUR POSITION

Please put a check mark in the box beside the answer which best reflects your position on logging in the lower Tsitika valley.

Logging should proceed in the lower Tsitika Valley.

AGREE

DISAGREE

Please indicate how certain you feel about your answer.

ABSOLUTELY CONVINCED

REASONABLY CERTAIN

HAVE SOME RESERVATIONS

If you marked "**AGREE**" above, please go to **TAB "YES"** in the blue section.

If you marked "**DISAGREE**" above, please go to **TAB "NO"** in the green section.

2. REASONS FOR YOUR POSITION

The "**YES**" tab denotes the section for those that **agreed logging should proceed in the lower Tsitika Valley**. In this section you will be asked for the reasons in support of your position.

First, you will be asked to select from a list of reasons generated by others knowledgeable about the issue.

Second, you can insert additional reasons if desired.

Third, you are asked to choose up to three of the most important reasons.

over ...

2. REASONS FOR YOUR POSITION *(Yes Position)*

Please put check marks in the boxes beside those reasons that you would select in support of your position on logging the lower Tsitika (check as many as you wish).

- A. Logging the lower Tsitika would provide jobs in the timber industry e.g. logging, milling silviculture and other related jobs. **A**
- B. Logging the lower Tsitika would produce revenue for the provincial government and the timber companies. **B**
- C. Logging the lower Tsitika as part of that annual allowable cut allows the timber companies to meet the demand for domestic wood supplies. **C**
- D. Logging the lower Tsitika will help to keep the local resource-based communities alive. **D**
- E. Logging the lower Tsitika will profit timber industry and will cause no significant loss to any other used group. **E**
- F. Logging the lower Tsitika allows residents in a resource-based community to pursue their chosen livelihood. **F**
- G. Logging the lower Tsitika would discourage environmental groups who constantly increase their demands for environmental protection. **G**
- H. Logging the lower Tsitika is legally authorized by the BC government through Tree Farm License agreements. **H**
- I. Logging the lower Tsitika was decided on the basis of careful planning procedure and extensive studies. **I**
- J. Logging the lower Tsitika will not significantly damage the aesthetic value of the region. **J**
- K. Logging the lower Tsitika is based on a plan for sustainable harvesting of the area. **K**
- L. Logging the lower Tsitika will have no known adverse effects on the area's wildlife, including the killer whale habitat. **L**
- M. Logging the lower Tsitika is the most productive management option for this valuable old growth forest resource, which would otherwise be wasted as the old trees die or burn down. **M**
- N. Logging the lower Tsitika is opposed mostly by people who are ill-informed about the timber industry. **N**
- O. Logging the lower Tsitika is economically beneficial and will not damage any of the best examples of old growth forest ecosystems in the province. **O**
- P. Logging the lower Tsitika benefits the general public by improving recreational access and the visibility of some wildlife species in the area. **P**

2. REASONS FOR YOUR POSITION

The "**NO**" tab denotes the section for those that **disagreed** logging **should proceed in the lower Tsitika Valley**. In this section you will be asked for the reasons in support of your position.

First, you will be asked to select from a list of reasons generated by others knowledgeable about the issue.

Second, you can insert additional reasons if desired.

Third, you are asked to choose up to three of the most important reasons.

over ...

2. REASONS FOR YOUR POSITION *(No Position)*

Please put check marks in the boxes beside those reasons that you would select in support of your position on not logging the lower Tsitika (check as many as you wish).

- A. Not logging the lower Tsitika would have minimal negatives effects on the timber industry (e.g. the number of jobs, corporate profits, government revenue, and volume of timber cut) since it represents such a small area. **A**
- B. Not logging the lower Tsitika would allow the other (non-timber) users to have a long-term sustainable future in the region, (e.g. tourism, fishing, hunting, research). **B**
- C. Not logging the lower Tsitika would protect this region's biodiversity. **C**
- D. Not logging the lower Tsitika would prevent significant environmental damage including degradation of the habitat of fish, killer whales and other wildlife. **D**
- E. Not logging the lower Tsitika would avoid risking environmental damage including the degradation to wildlife habitat since present research is inadequate to provide error-proof management plans. **E**
- F. Not logging the lower Tsitika would conserve an area, which has significant spiritual and emotional value for many people. **F**
- G. Not logging the lower Tsitika would show our respect for other living creatures in the ecosystem. **G**
- H. Not logging the lower Tsitika would protect an area that is considered sacred by the Tlowitsis-Mumtagilia peoples and over which they have never relinquished their traditional rights. **H**
- I. Not logging the lower Tsitika would respect widespread public desire to protect a valuable publicly owned wilderness area for future generations. **I**
- J. Not logging the lower Tsitika would lead to restructuring of obsolete management plans for the area which do not reflect changing public attitudes towards the forest. **J**
- K. Not logging the lower Tsitika would help to protect an internationally recognized ecological feature of BC. **K**
- L. Not logging the lower Tsitika would avoid further tarnishing Canada's reputation as a country committed to environmental protection. **L**
- M. Not logging the lower Tsitika would set an example and encourage third world countries to consider the environmental costs of development and to preserve significant natural areas. **M**
- N. Not logging the lower Tsitika would represent increased public influence over the timber activities of large multinational corporations. **N**
- O. Not logging the lower Tsitika would protect the last significant example of a unique ecosystem. **O**

Over

ADDITIONAL REASONS

If you have a reason not mentioned on the previous page, that you would select in support of your position on logging the lower Tsitika Valley, please write it in the space below:

MOST IMPORTANT REASONS

Please reread the list of reasons on the previous page and select **up to three** that you consider to be the **most important reasons** why logging should proceed in the lower Tsitika Valley. Enter the letters corresponding to each of your important reasons in the spaces below and on the yellow paper provided. Place the yellow paper on the table to be referred to during the next section.

(your selection to the three most important reasons) _____, _____, _____

NEXT

The next section investigates each of your important reasons using a series of probes. Please turn to the **letter** on the **blue TAB** corresponding to the letter of your first important reason.

3. PROBES FOR REASON A (Yes Position)

One of the reasons you chose as important was that "logging the lower Tsitika would provide jobs in the timber industry e.g. logging, milling, silviculture and other related jobs".

This reason implies that, in principle, you believe "we ought to do things that provide jobs".

Please indicate your answer to each of the probes, which follow. Spaces below each probe have been provided if you wish to explain your answer.

PROBES		<i>Circle your answer</i>	
1.	If jobs were to be lost in other ways such as by mechanization, would you oppose mechanization? <hr/>	Y	N
2.	If continuing an industry that provides jobs meant that there would be damage to a world-renowned scenic area would you support the industry? <hr/>	Y	N
3.	If you were involved in the fishing industry would you support the idea of providing jobs for people who engaged in an industry that damaged your livelihood? <hr/>	Y	N
4.	If there were other ways to provide jobs during tough economic times such as employees accepting a drop in salary in order to keep everyone employed, would you take a drop in salary to provide jobs? <hr/>	Y	N

Having answered the probes, do you still feel that "**providing jobs in the timber industry e.g., logging, milling, silviculture and other related jobs**" is an important reason for logging the lower Tsitika? Y N

Do you feel the reason should be modified? Y N

If yes how?

Refer to the yellow paper. Please go to the lettered tab of your next reason. If you have answered probes for all of your important reasons, proceed to

Blue TAB 4.

The above was an example of the probe page format. The following are lists of the probes for each position.

YES POSITION PROBES

REASON B PROBES

1. If only a relatively small amount of revenue was to be produced by a project but the project would damage an internationally recognized natural area, would you support the project in order to produce the revenue?
2. What if you were a native person and you felt that although the government and timber companies were making profits, they were at the same time desecrating areas which your ancestors held sacred and in which they had lived and were buried, would you support these revenue-generating activities?
3. If a profitable mine which would generate revenue for the government and a large corporation and which would have significant side effects was proposed for a site adjacent to your home, would you support this revenue-producing mine?
4. If an industry that brought in revenue for government and industry also jeopardized your children's long-term opportunities to make a living in the area, would you support the industry?

REASON C PROBES

1. If the volume of timber in an area adjacent to your town was relatively small and you and your neighbours considered the area a scenic and popular recreation spot, would you feel it had to be included in the annual allowable cut to allow the timber companies to meet the demand for domestic the wood supplies?
2. Would you support all British Columbians decreasing their demand for wood supplies in order to allow timber companies to meet the domestic demand?
3. If allowing timber companies to meet the domestic demand for wood meant that huge profits from public resources went overseas to multinational corporations would you support allowing this activity?
4. Should sacred areas be included in the cutting permits to allow timber companies to meet the demand for domestic wood supplies?

REASON D PROBES

1. Would you agree with keeping resource-based communities alive if it required financial subsidies from the provincial government or from urban centres?
2. If people in resource-based communities were provided with jobs but the considerable profits from the public resources went primarily to multinational corporations outside of the country, would you support keeping these resource-based communities alive?
3. What if one resource use, that would keep the community alive, conflicted with another resource use? For example, if you were in the fishing industry would you support another resource user being allowed to threaten the future of your resource?
4. If the activities of some resource-based communities were unavoidably damaging to the future of certain ecosystems and also to human health and well being, would you support keeping these resource-based communities alive?
5. What if you were a native person who had lived in a region for generations and in the last 50 years a non-native community had moved in and begun resource extraction. If the livelihood of the new community damaged your cultural heritage would you feel the new community should be supported?

REASON E PROBES

1. Consider the consequences if everyone in resource-based communities wanted to farm. Do you agree that present Crown forest land should be available to other residents e.g. farmers, to allow them to pursue their chosen livelihood?
2. Suppose some residents of resource-based communities wanted to farm. Do you agree that Crown forest land should be available to other residents e.g. farmers, to allow them to pursue their chosen livelihood?
3. If some residents felt they could not continue to pursue their livelihood because of logging in the region, would you support stopping logging to allow these residents to pursue their chosen livelihood?
4. If a resident in the course of pursuing his chosen livelihood, was polluting a river such that the nearby communities could no longer use it for their

water supply, should that resident be allowed to continue to pursue his chosen livelihood?

REASON F PROBES

1. Consider the consequences if everyone in resource-based communities wanted to work in the timber industry. Would you agree that things ought to be done to allow all of these people to pursue their chosen livelihood?
2. Suppose some residents of resource-based communities wanted to farm. Do you agree that present Crown forest land should be available to other residents e.g. farmers, to allow them to pursue their chosen livelihood?
3. If some residents felt they could not continue to pursue their livelihood because of logging in the region, would you support stopping logging to allow these residents to pursue their chosen livelihood?
4. If a resident in the course of pursuing his chosen livelihood, was polluting a river such that the nearby communities could no longer use it for their water supply, should the residents be allowed to continue to pursue his chosen livelihood?

REASON G PROBES

1. If a local school's environmental youth club had cleaned up a river that ran through town and were disturbing leaflets about the identity and control of other local sources of pollution, would you discourage these students?
2. If an environmental group conducted a campaign to keep forested land in the agricultural land reserve from being turned into golf courses in order to preserve the working forest, would you discourage this group?
3. Consider the effects that environmental groups have had on policies for clean air and water and the future consequences on air water if everyone now thought environmental groups should be discouraged, do you still support doing things to discourage environmental groups?
4. If your spouse was employed by an environmental group would you do things that discouraged this environmental group?

REASON H PROBES

1. If a mining company had mineral claims under your town's new church or community centre and the company was proposing to develop these claims, would you support the company because it is legally authorized to proceed?

2. Daily fining of polluting industries is legally authorized by the BC government. Would you support fining polluting pulp mills on a daily basis because it is legally authorized by the government of BC?
3. Would you support a forest company's legally authorized five-year plan for their tree farm licence (TFL) if it meant that due to problems elsewhere in the TFL, the forest cover around your community would be severely over-harvested?
4. If a foreign-owned forest company was maximizing its export profits without respecting the local forestry community, would you support the actions of this company merely they had been legally authorized by the government of BC?

REASON I PROBES

1. If 20 years ago a mining company had commissioned careful studies and plans for a surface pit mine adjacent to your town and in the interim the town had expanded into the area near the mine, would you support the company proceeding on the basis of those twenty-year old plans and studies?
2. Would you support decisions for development around your community that were based on elaborate planning and extensive studies if the people doing the planning and studies stood to profit from the approved development?
3. Suppose extensive studies undertaken 15 years ago, had laid out elaborate plans for the nuclear energy needs of your growing town and the development of nuclear facilities was now beginning as dictated in the plans. Would you support this development on the basis of these plans despite changes in public attitudes about nuclear power?
4. If unacceptable procedures such as profiting from raw log export were part of a forest company's careful planning procedures and extensive studies for future logging in a forest region, would you support the company merely because it had carried out careful plans and extensive studies?

REASON J PROBES

1. If a highway rerouting was going to divide your town or neighborhood and cut you off from the school and the shopping area, would you be satisfied with the plan if it didn't significantly damage the aesthetics of the region?

2. If you valued the rural appearance of the farmland, would you accept an urban planner's opinion that the aesthetic value of farmland would not be significantly damaged if a developer built a beautiful high-rise complex?
3. If a company wanted to use your local watershed for toxic waste and said that the waste was a tasteless, odourless, pleasant blue colour and wouldn't affect the aesthetic value of the region, would you support the company's plan?
4. Would you feel that "not significantly damaging the aesthetics of a region was acceptable if the overall region when viewed from a distance appeared unaffected, but the small site where you lived was extensively damaged?

REASON K PROBES

1. The export of raw logs could be part of a plan for sustainable use of timber resources even though jobs from value-added products would be lost. Would you support plans for sustainable use that involved raw log export?
2. If plans for the sustainable use of resources in a area involved extensive local environmental pollution, would you support these plans for the sustainable use of resources
3. If there were two competing sustainable uses of the resources in an area, do you feel that deciding solely on the basis of sustainable use would fairly determine which industry should use the resource?
4. If an area had significant spiritual, hereditary or ecological value would you support development plans for this area that were based only on the idea of sustainable use?

REASON L PROBES

1. As a native person would you support activities that had no known adverse effect on wildlife resources even if you felt that those activities would destroy significant aspects of your cultural heritage?
2. Many wildlife managers would admit that our overall knowledge of the effects of our various activities on wildlife populations is very limited. For example, prior to the 1970's there was no known evidence of the importance of killer whale activity in Robson Bight so that effects on the killer whales were unknown. Given our limited knowledge of effects, would you still agree with doing things that have no known effect on wildlife

3. Would you agree to an activity in your local area that had no known effect on the wildlife resources but was severely damaging to the aesthetics of the area?
4. Would you support going ahead with a project that had no known effect on wildlife resources if studies of the effects of the project were in progress

REASON M PROBES

1. If a forest company decides that their most productive management option is to export raw logs to Japan even though they would lose the local advantages of value-added products, would you support adopting the most productive management option in this case?
2. If there was evidence of potentially valuable resources (other than timber) existing in the growth forest and you agreed we ought to chose the most productive management option, would you support halting the timber harvest until all the resources are known and the most productive management option can be selected?
3. Would you agree to exercising the most productive management option for resources if it meant that there would be significant damage to other values such as aesthetic, ecological or scientific?
4. Would you support using the resource in the most productive way even if it meant that other less productive users lost their jobs?

REASON N PROBES

1. If a radioactive waste deposit site was proposed for an area adjacent to your home, should the construction be allowed to proceed merely because your community which opposes the site as ill-informed about radioactive waste?
2. If an industry proposed activities that the activity should go ahead if the opponents are ill-informed about the industry?
3. Should mandatory AIDs testing be introduced because most of the people opposed to testing are ill-informed about AIDS?
4. If radical changes in the education system were proposed, should they be accepted merely if most objections came from people ill-informed about the technical details of the educational process?

REASON O PROBES

1. If your town had two rare landmarks should developers be allowed to destroy one and make a profit, on the basis that the town had another landmark that they considered to be more valuable?
2. If your district owned land adjacent to an excellent fishing river near your town and the district decided this land would become an industrial development on the basis that there are other better rivers for fishing in other parts of the province, would this be acceptable?
3. Suppose your town had been built around a scenic waterfall and developers decided to divert the water for the new golf course. Would you accept their comments that the golf course will be profitable and that there are other, better waterfalls in the province?
4. If a company logged one of the last old growth ecosystems on the basis that there was a better example in another part of the province and then the better example was destroyed by fire, would you still support doing things that don't damage the best examples of ecosystems?

REASON P PROBES

1. If benefiting the general public meant that your only local community park or natural area was to be turned into a shopping plaza would you support benefiting the general public in this case?
2. Suppose an activity that was beneficial to the general public was severely detrimental to a group of people, would you still agree with engaging in this activity because it benefited the general public?
3. If a highway bypass proposal, designed to benefit the general public was routed through the home that you had spent many years building and landscaping, would you support benefiting the general public in this case?
4. If benefiting the general public would involve destroying a world class ecological or historical feature of BC, would you consider this acceptable in order to benefit the general public?

NO POSITION PROBES

REASON A PROBES

1. If the overall effects of an action were minimal to a large industry but were severely damaging to the local community of persons employed by that industry such that the people became jobless and homeless, would you still support doing something that had minimal effects on an industry?
2. If having minimal negative effects on an industry meant that the industry would no longer have the funds to support charitable causes or the arts, would you support doing things that had minimum negative effects on the industry in this case?
3. If you were going to lose your job as a result of the minimal negative effects on an industry and your spouse and two small children depended on your income, would you support doing things that had minimal negative effects on your industry?
4. Often when funds are tight, industry lays off research whose work helps to ensure the future safety and success of the industry but who don't contribute to immediate revenue. Would you support these cuts on the basis of their having minimal negative effects on the industry?

REASON B PROBES

1. Would you be willing to give up your job in an industry which allowed you to five times the salary of people in other industries using the same resource, if this meant that people in the other industries would have a long-term sustainable future?
2. If allowing other (than timber) users than forestry to have long-term sustainable futures in certain regions meant that timber harvesting levels dropped and wood prices increased, would you be willing to pay this additional cost for wood and paper items?
3. What if allowing other (than timber) users to have a sustainable future in a region meant that many businesses in the local community had to close, would you support giving other (than timber) users a sustainable future in this case?
4. If huge multinational companies, whose profits go out of the country, were the users who were to have a long-term sustainable future in the region,

would you still support allowing other (than timber) users to have a long-term sustainable future in a region?

REASON C PROBES

1. If you are a supervisor for a large logging company and for at least a decade you have known most of your crew, their families and their financial needs; if preserving biodiversity meant that some of these people would be jobless, with no viable alternative means of livelihood, would you still support preserving biodiversity?
2. If significant steps were taken to preserve large natural areas for biodiversity and this means that oil and gas extraction was cut back and prices rose considerably such that driving a car was unaffordable, would you still support the protection of biodiversity?
3. If you had just purchased a piece of property and an ecologist neighbour discovered that very rare plants grew in the most scenic and suitable spot to build a house, would you support preserving biodiversity and put your house in a less desirable site?
4. If you were diagnosed as having a fatal disease like AIDS and a rare plant species was found to be the only cure, would you agree to support the preservation of biodiversity and not use the plant until it could be cultivated or its constituents made synthetically?

REASON D PROBES

1. Are you willing to immediately stop buying newspapers and other bleached or non-recycled paper products to prevent significant degradation of the environment by pulp mill effluent?
2. If you checked the environmental impacts of your job and found it to be unavoidably contributing to significant environmental damage, would you quit?
3. Are you prepared to accept a marked decline in the availability of commodities if everyone took action to prevent significant environmental damage?
4. Knowing that automobile emissions cause significant environmental damage would you be willing to use public transit wherever possible, even if it is not as convenient in order to prevent environmental damage?

REASON E PROBES

1. If you agree with avoiding the risk of damage to wildlife habitat because of inadequate research, would you support funding biological research even if the funding must be diverted from health and social service programs?
2. If to avoid risking damage to the remaining old-growth forest habitat, old-growth wood harvesting is dramatically reduced and since available second-growth will not meet the existing demand, the price of wood products would increase dramatically. Would you support these increased prices to avoid risking damage to wildlife habitat areas?
3. In some cases management plans have been designed to protect endangered species. Would you disagree with using these plans to manage areas with endangered species because of the risk of damaging wildlife habitat since present research is inadequate to provide error-proof management plans?
4. If you were the owner of a tourist facility which utilized the wildlife habitat of a rare and vulnerable wildlife species would you support stopping you industry to avoid risking damage to wildlife habitat areas because of the impossibility to produce error-proof management plans based on present research?

REASON F PROBES

1. If the preservation of an old church and graveyard meant that the construction of a needed hospital would not proceed in your community, would you support conserving these sites because they have significant spiritual and emotional value for many people?
2. If your house plans were opposed by the community on the grounds that the trees and gardens to be damaged during construction had significant spiritual and emotional value to the community, would you respect these people's values and not build your house?
3. Suppose that preservation of an area with important spiritual and emotional value for some groups of people meant that another group of people would lose their jobs and their homes, would you respect these people's values and not build your house?

4. If preserving an area that had significant spiritual and emotional value to an elite group of people meant that a housing project for some needy people could not be built would you favour the preservation of the area?

REASON G PROBES

1. Given that most industrial projects do not show respect for other living creatures, in fact they often adversely impact other creatures, would you support the stopping of all activities that do not show respect for other living creatures?
2. If you had a choice of building your house on a barren recently damaged site or in a pristine forested area, out of respect for the creatures still living in the forested area, would you choose the barren site?
3. If showing respect for other creatures meant that you would lose your job, would you support showing respect for other living creatures?
4. Consider the drastic changes in our overall lifestyles if everyone supported showing respect for other creatures in the ecosystem, would you support these changes if it was the only way to show respect for other living creatures?

REASON H PROBES

1. If a land claim settlement with Canada's aboriginal peoples meant that your house was now located in sacred Native territory and you would be required to conform to their policies, would you still support protecting areas that are sacred to Canada's aboriginal peoples and over which they have never relinquished their traditional rights?
2. If protecting all areas sacred to Canada's aboriginal peoples cost taxpayers a great deal of money, and fewer tax dollars were available for other programs including many social services, would you still support protecting these areas?
3. If preservation of a particular area sacred to Canada's aboriginal peoples conflicted directly with your job, would you support saving areas sacred to the Native peoples?
4. If everyone supported protecting areas that are sacred to the aboriginal peoples, and this meant that resource development slowed and costs, for

example, of wood, paper or oil products soared, would you still agree with protecting these sacred areas?

REASON I PROBES

1. Consider yourself in an industry which is a mainstay of the provincial economy and which is suffering extensive labour reductions and plant closures. If the public desire to save wilderness areas for future generations, conflicted with your industry's ability to function, would you still support addressing the public concerns for wilderness?
2. Suppose addressing the widespread public desire for the preservation of wilderness lands required tax dollars also needed to assist impoverished children, would you support the public's desire for wilderness over all other issues?
3. If everyone respected public desire to protect natural areas and as a result resource development declined and there was widespread unemployment and high commodity prices, would you still agree with respecting public desire for wilderness areas.
4. If you thought that widespread public opinion on a particular issue was ill-informed, would you still support things that are examples of widespread public opinion for this cause?

REASON J PROBES

1. If you had put together an industrial development plan for a region using existing knowledge and views, but public values towards your industry changed repeatedly over time, would you support the continual restructuring of the old plans and absorb the losses in time and profits?
2. If you had always lived in a scenic community and over the years developers had bought up much of the local property, would you support restructuring the obsolete community plan to allow developers to satisfy increasing public demands for house construction in scenic areas?
3. If a growing public awareness of environmental pollution resulted in proposed changes to auto exhaust emission standards in BC and only electric vehicles were to be driven in cities, would you support restructuring the old plan for vehicle emissions even if you couldn't afford an electric car?

4. Consider that you have all your life savings invested in a recycling operation. Your town's obsolete zoning plan is to be restructured due to increased public interest in moving all businesses out to an industrial site. Moving and rebuilding would put you heavily in debt, would you still support restructuring obsolete plans?

REASON K PROBES

1. If your company had hired workers and purchased equipment because it had been given legal rights to utilize an area and the government then decided that the area's important ecological features required protection. If that meant that your company could no longer operate, would you support protection of these ecological features?
2. If you had seen international opinion concerning valuable ecological features change several times over the years, and you didn't know if the present opinion had merit would you support protecting current internationally recognized ecological features of BC?
3. If protecting internationally recognized features of BC meant a rise in taxes to cover compensation payments to companies, social services to those left unemployed and fees for maintenance of these features, would you still support protecting these features?
4. If the mere presence of visitors in your favorite, regularly-used park was found to be damaging to a recognized ecological feature of BC, would you agree with preventing any access to the park to protect this ecological feature?

REASON L PROBES

1. If openly discussing present environmental problems in Canada was tarnishing Canada's reputation as a country committed to environmental protection, would you support keeping quiet about these problems to avoid tarnishing Canada's reputation?
2. Suppose avoiding tarnishing Canada's reputation as a country committed to environmental protection required that many industries had to reorganize resulting in massive unemployment, huge losses in government tax revenue and excessive prices of ordinary goods, are you prepared to accept these consequences in order to avoid tarnishing Canada's reputation?

3. If your job was identified as having unavoidable negative effects on the environment, would you be prepared to quit to avoid tarnishing Canada's reputation as a nation committed to environmental protection?
4. Excessive energy consumption by Canada's tarnishes our reputation as a nation committed to environmental protection. Are you willing to make dramatic cuts in all of your energy demands to avoid further tarnishing our reputation?

REASON M PROBES

1. Would you be willing to quit your job if you found that it caused unavoidable environmental damage, in order to set an example of environmental awareness to third world countries?
2. If setting a positive environmental example to third world countries meant not purchasing commodities, made in countries where the industry damages the environment, would you support doing without these bargain-priced goods in order to set that example?
3. Would you be willing to pay higher taxes to support employees of Canadian industries that damage natural areas, who would lose their jobs as a result of setting a positive environmental example to third world countries?
4. What if, in order to set a positive example to third world countries, many people in Canada were left unemployed and money for other government programs to protect the environment was severely reduced, would you support setting this example?

REASON N PROBES

1. If increased public influence over multinational meant that the companies were pressured to increase activities that caused environmental problems, would you support increased public influence in this case?
2. What if increased public influence over the activities of multinational lead to a complicated battleground of conflicting opinions that was ineffective in advising the corporation, would you still agree with increased public influence?
3. If the idea of increased public influence over corporate activities deterred corporations from investing in BC and the economy and standard of living

in this province was adversely affected, would you be willing to accept a more impoverished life style in order to have increased public influence?

4. Consider that increased public influence became an expected method of monitoring the activities of multinationals. Thus, on top of your regular job, as a member of the public, you would be expected to voluntarily check the activities of companies in your area. Would you still support the idea of increased public influence?

REASON O PROBES

1. If government officials told you that using your land, which you had recently purchased, would adversely affect the last remaining ecosystem of a rare wildflower, would you support protecting this last remaining ecosystem and agree not to use your land?
2. If high compensation costs had to be paid to resource extraction companies in order to protect the last remaining ecosystems, would you support paying these fees in order to protect the ecosystems?
3. Would you support protecting the last remaining unique ecosystems if it meant that the general public was no longer able to even visit these areas at will?
4. If the last remaining unique natural ecosystems were on the land of aboriginal peoples and protecting these ecosystems meant that growing Native populations who had lived for centuries on these lands would have to be relocated, would you support protecting the last remaining ecosystems?

4. CONSIDERING THE OPPOSITE POSITION

The following are reasons people might give for **disagreeing** with logging proceeding in the lower Tsitika. Please put a check mark beside any which you think are **good** reasons (check as many as you wish).

- A. Not logging the lower Tsitika would have minimal negatives effects on the timber industry (e.g. the number of jobs, corporate profits, government revenue, and volume of timber cut) since it represents such a small area. **A**
- B. Not logging the lower Tsitika would allow the other (non-timber) users to have a long-term sustainable future in the region, (e.g. tourism, fishing, hunting, research). **B**
- C. Not logging the lower Tsitika would protect this region's biodiversity. **C**
- D. Not logging the lower Tsitika would prevent significant environmental damage including degradation of the habitat of fish, killer whales and other wildlife. **D**
- E. Not logging the lower Tsitika would avoid risking environmental damage including the degradation to wildlife habitat since present research is inadequate to provide error-proof management plans. **E**
- F. Not logging the lower Tsitika would conserve an area, which has significant spiritual and emotional value for many people. **F**
- G. Not logging the lower Tsitika would show our respect for other living creatures in the ecosystem. **G**
- H. Not logging the lower Tsitika would protect an area that is considered sacred by the Tlowitsis-Mumtagilia peoples and over which they have never relinquished their traditional rights. **H**
- I. Not logging the lower Tsitika would respect widespread public desire to protect a valuable publicly owned wilderness area for future generations. **I**
- J. Not logging the lower Tsitika would lead to restructuring of obsolete management plans for the area which do not reflect changing public attitudes towards the forest. **J**
- K. Not logging the lower Tsitika would help to protect an internationally recognized ecological feature of BC. **K**
- L. Not logging the lower Tsitika would avoid further tarnishing Canada's reputation as a country committed to environmental protection. **L**
- M. Not logging the lower Tsitika would set an example and encourage third world countries to consider the environmental costs of development and to preserve significant natural areas. **M**
- N. Not logging the lower Tsitika would represent increased public influence over the timber activities of large multinational corporations. **N**
- O. Not logging the lower Tsitika would protect the last significant example of a unique ecosystem. **O**

4. CONSIDERING THE OPPOSITE POSITION

The following are reasons people might give for **agreeing** with logging proceeding in the lower Tsitika. Please put a check mark beside any which you think are **good** reasons (check as many as you wish).

- A. Logging the lower Tsitika would provide jobs in the timber industry e.g. logging, milling silviculture and other related jobs. **A**
- B. Logging the lower Tsitika would produce revenue for the provincial government and the timber companies. **B**
- C. Logging the lower Tsitika as part of that annual allowable cut allows the timber companies to meet the demand for domestic wood supplies. **C**
- D. Logging the lower Tsitika will help to keep the local resource-based communities alive. **D**
- E. Logging the lower Tsitika will profit timber industry and will cause no significant loss to any other used group. **E**
- F. Logging the lower Tsitika allows residents in a resource-based community to pursue their chosen livelihood. **F**
- G. Logging the lower Tsitika would discourage environmental groups who constantly increase their demands for environmental protection. **G**
- H. Logging the lower Tsitika is legally authorized by the BC government through Tree Farm License agreements. **H**
- I. Logging the lower Tsitika was decided on the basis of careful planning procedure and extensive studies. **I**
- J. Logging the lower Tsitika will not significantly damage the aesthetic value of the region. **J**
- K. Logging the lower Tsitika is based on a plan for sustainable harvesting of the area. **K**
- L. Logging the lower Tsitika will have no known adverse effects on the area's wildlife, including the killer whale habitat. **L**
- M. Logging the lower Tsitika is the most productive management option for this valuable old growth forest resource, which would otherwise be wasted as the old trees die or burn down. **M**
- N. Logging the lower Tsitika is opposed mostly by people who are ill-informed about the timber industry. **N**
- O. Logging the lower Tsitika is economically beneficial and will not damage any of the best examples of old growth forest ecosystems in the province. **O**
- P. Logging the lower Tsitika benefits the general public by improving recreational access and the visibility of some wildlife species in the area. **P**

5. CONCLUSION

Now please indicate again your position on logging in the lower Tsitika Valley. Put a check mark in the box beside the answer which best reflects your opinion.

Logging should proceed in the lower Tsitika Valley.

AGREE

DISAGREE

Please indicate how certain you feel about your answer.

ABSOLUTELY CONVINCED

REASONABLY CERTAIN

HAVE SOME RESERVATIONS

If your position or your certainty have changed please explain why.

Now please turn to **Red Tab 6**

6. BACKGROUND AND EVALUATION

Please answer the following by putting a check mark in the appropriate box .

1. Have you had any formal instruction in critically assessing or justifying positions in controversial issues?

- YES, QUITE A BIT
 YES, SOME
 NO, NONE

If yes, please explain.

2. To what extent have you been involved in previous environmental impact assessments (EIAs)?

- PARTICIPATED IN MANY
 PARTICIPATED IN A FEW
 NO PREVIOUS PARTICIPATION

For those who have participated in EIAs please explain your role, for example, observer/ researcher/ impact evaluator ...

3. Have you had any formal instruction in the process of environmental impacts assessment?

- YES, QUITE A BIT
 YES, SOME
 NO, NONE

If YES, please indicate where you received this instruction and what it involved.

over ...

4. Did the probes cause you to reevaluate your position on logging in the lower Tsitika Valley?

- YES, CAUSED CONSIDERABLE REEVALUATION
- YES, CAUSED SOME REEVALUATION
- NO, CAUSED NO REEVALUATION

Comments:

5. What were the sources of information that contributed to the development of your position on logging the lower Tsitika Valley?

6. Are there any other comments about the questionnaire or about logging in the lower Tsitika Valley you would like to mention?

APPENDIX C PROBE RESULTS

The results of the probes for each position are summarized on the following pages.

RESULTS OF PROBES - YES POSITION																	
Probe #	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	#	#	#	#
													YES	NO	BLANK	COMMENT	
COMMITTEE	N	C	C	C	N	C	C	N	C	C	C	C	C				
A provide jobs														4			
1	0				0	1		0						1	3	0	1 (25%)
2	0				0	1		0						1	3	0	1
3	0				0	0		0						0	4	0	1
4	B				0	0		1						1	2	1	1
AGREE	1				1	1		1						4	0	0	
MOD	0				0	0		0						0	4	0	
B produce revenue														0			
1																	
2																	
3																	
4																	
AGREE																	
MOD																	
C AAC allows company to meet domestic wood supplies																	
1																	
2																	
3																	
4																	
AGREE																	
MOD																	
D keep communities alive														5			
1		1				1	1			1	1			5	0	0	2(40%)
2		0				1	1			1	1			4	1	0	3(60%)
3		0				B	0			B	1			1	2	2	3(60%)
4		0				B	0			0	0			0	4	1	4(80%)
5		1				B	0			1	1			3	1	1	3(60%)
AGREE		1				1	1			1	1			5	0	0	
MOD		1				B	B			B	0			1	1	3	
E profit timber industry/no losses														0			
1																	
2																	
3																	
4																	
AGREE																	
MOD																	
Committee: N=non-committee member C= committee member														Mod=modifications			
														1=Yes 0=No		B=blank	

RESULTS OF PROBES - YES POSITION													TOTAL	#	#	#	#
Probe #	1	2	3	4	5	6	7	8	9	10	11	12	YES	NO	BLANK	COMMENT	
COMMITTEE	N	C	C	C	N	C	C	N	C	C	C	C					
F allow chosen livelihood													2				
1						B						1	1	0	1	1(50%)	
2						B						1	1	0	1	1(50%)	
3						B						0	0	1	1	1(50%)	
4						0						1	1	1	0	1(50%)	
AGREE						1						1	2	0	0		
MOD						0						0	0	2	0		
G discouraging environmentalists													0				
1																	
2																	
3																	
4																	
AGREE																	
MOD																	
H is legally authorized													3				
1			1	0					1				2	1	0	1(33%)	
2			1	1					1				3	0	0	1(33%)	
3			0	1					0				1	2	0	2(66%)	
4			0	1					0				1	2	0	1(33%)	
AGREE			1	1					1				3	0	0		
MOD			0	1					0				1	2	0		
I based on careful plans													8				
1	0	0	1	0	0				0	0		1	2	6	0	4(50%)	
2	B	0	1	1	1				0	1		1	5	2	1	4(50%)	
3	1	0	1	1	0				0	0		0	3	5	0	4(50%)	
4	0	0	0	1	0				0	1		B	2	4	1	5(63%)	
AGREE	1	1	1	1	1				1	1		1	8	0	0		
MOD	0	1	1	1	0				0	B		B	3	3	2		
J not harm aesthetics													1				
1									?B				0	0	1	1(100%)	
2									B				0	0	1	1(100%)	
3									0				0	1	0	1(100%)	
4									0				0	1	0	0	
AGREE									1				1	0	0		
MOD									B				0	0	1		
K is sustainable													4				
1	0				0			0	1				1	3	0	0	
2	0				0			0	0				0	4	0	0	
3	0				0			0	0				0	4	0	1(25%)	
4	0				0			0	0				0	4	0	0	
AGREE	1				1			1	1				4	0	0		
MOD	0				0			0	0				0	3	0		
Committee: N=non-committee member C= committee member													Mod=modifications				
1=Yes 0=No													B=blank				

RESULTS OF PROBES - YES POSITION													TOTAL	#	#	#	#
Probe #	1	2	3	4	5	6	7	8	9	10	11	12	YES	NO	BLANK	COMMENT	
COMMITTEE	N	C	C	C	N	C	C	N	C	C	C	C					
F allow chosen livelihood													2				
1						B							1	1	0	1	1(50%)
2						B							1	1	0	1	1(50%)
3						B							0	0	1	1	1(50%)
4						0							1	1	1	0	1(50%)
AGREE						1							2	0	0		
MOD						0							0	2	0		
G discouraging environmentalists													0				
1																	
2																	
3																	
4																	
AGREE																	
MOD																	
H is legally authorized													3				
1			1	0					1				2	1	0		1(33%)
2			1	1					1				3	0	0		1(33%)
3			0	1					0				1	2	0		2(66%)
4			0	1					0				1	2	0		1(33%)
AGREE			1	1					1				3	0	0		
MOD			0	1					0				1	2	0		
I based on careful plans													8				
1	0	0	1	0	0				0	0		1	2	6	0		4(50%)
2	B	0	1	1	1				0	1		1	5	2	1		4(50%)
3	1	0	1	1	0				0	0		0	3	5	0		4(50%)
4	0	0	0	1	0				0	1		B	2	4	1		5(63%)
AGREE	1	1	1	1	1				1	1		1	8	0	0		
MOD	0	1	1	1	0				0	B		B	3	3	2		
J not harm aesthetics													1				
1										?	B		0	0	1		1(100%)
2											B		0	0	1		1(100%)
3											0		0	1	0		1(100%)
4											0		0	1	0		0
AGREE											1		1	0	0		
MOD											B		0	0	1		
K is sustainable													4				
1	0				0			0	1				1	3	0		0
2	0				0			0	0				0	4	0		0
3	0				0			0	0				0	4	0		1(25%)
4	0				0			0	0				0	4	0		0
AGREE	1				1			1	1				4	0	0		
MOD	0				0			0	0				0	3	0		
Committee: N=non-committee member C= committee member													Mod=modifications				
1=Yes 0=No													B=blank				

RESULTS OF PROBES - NO POSITION																								
Probe #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Committee	N	N	N	N	C	C	C	N	C	C	N	N	N	C	N	C	C	C	N	N	N	N	C	N
A minimal harm to timber industry																								
											1													
1											1													
2											1													
3											1													
4											1													
AGREE											1													
MOD											1													
B other users sustainable future																								
				1										1		1	1							
1				0										0		1	0							
2				1										1		1	1							
3				1										0		1	0							
4				1										B		1	0							
AGREE				B										B		1	1							
MOD				B										B		1	0							
C protect biodiversity																								
		1	1			1		1	1						1				1			1		
1		1	1			1		1	0						1				1			1		
2		1	1			1		1	1						1				1			1		
3		1	1			1		1	1						1				1			1		
4		1	0			1		B	0						0				1			1		
AGREE		1	1			1		1	1						1				1			1		
MOD		0	B			0		0	0						1				0			0		
D prevent environmental damage																								
											1	1		1	1									1
1											1	1		B	1									1
2											1	1		B	1									1
3											1	1		1	1									1
4											0	1		0	1									1
AGREE											1	1		B	1									B
MOD											0	0		B	0									B
E avoid risking environmental damage																								
	1		1	1	1			1	1	1				1	1		1							1
1	0		1	0	0			1	1	0				1	1		1							0
2	1		1	1	1			1	1	1				1	1		1							1
3	0		0	1	1			0	1	1				1	0		1							0
4	0		0	0	1			1	1	1				1	1		1							1
AGREE	1		1	1	1			1	1	1				1	B		1							0
MOD	0		1	0	1			0	1	B				1	B		1							1
Committee :N=non-committee member C=committee member																								
1=Yes 0=No Mod=modifications B=blank																								

RESULTS OF PROBES - NO POSITION																									
Probe #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Committee	N	N	N	N	C	C	C	N	C	C	N	N	N	C	N	C	C	C	N	N	N	N	C	N	
F conserve spiritual/emotional area																									
							1	1			1							1		1	1				
1							1	0			B							B		B	1				
2							1	1			B							B		1	1				
3							1	1			B							B		1	1				
4							B	0			B							B		0	B				
AGREE							1	1			1							B		1	1				
MOD							B	0			0							B		0	1				
G respect for living creatures																									
					1		1								1									1	
1					0		0								1									1	
2					0		0								0									0	
3					1		1								1									1	
4					1		1								1									1	
AGREE					1		1								1									1	
MOD					1		1								0									0	
H sacred to First Nations																									
																				1	1	1			
1																				1	1	1			
2																				1	1	0			
3																				1	1	1			
4																				1	1	1			
AGREE																				1	1	1			
MOD																				0	0	B			
I public desire for wilderness																									
	1	1				1	1			1	1														1
1	1	1				1	1			1	1														1
2	0	1				1	1			0	1														1
3	1	1				1	1			1	1														1
4	0	1				0	0			0	1														1
AGREE	1	1				1	1			B	1														0
MOD	0	0				1	1			B	0														B
J restructure obsolete plans																									
1					1									1											
1					1									1											
2					0									0											
3					1									1											
4					1									1											
AGREE					1									1											
MOD					0									B											
Committee: N=non-committee member C=committee member																									
1=Yes 0=No Mod=modifications B=blank																									

RESULTS OF PROBES - NO POSITION																								
Probe #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Committee	N	N	N	N	C	C	C	N	C	C	N	N	N	C	N	C	C	C	N	N	N	N	C	N
K international ecological feature:																								
	1		1			1				1						1	1	1						1
	1	1		0		1				1						1	1	B						1
	2	1		1		1				1						0	1	B						1
	3	1		1		1				1						1	1	B						1
	4	1		1		1				1						0	1	B						1
AGREE	1			1		1				1						1	1	B						1
MOD	0			0		1				B						1	0	B						1
L avoid tarnishing Canada's reputation																								
																	1							
	1																0							
	2																0							
	3																0							
	4																0							
AGREE																	1							
MOD																	B							
M set example to third world countries																								
																								1
	1																							1
	2																							1
	3																							1
	4																							1
AGREE																								1
MOD																								0
N increase public influence																								
		1		1				1				1												1
	1	0		0				0			B													0
	2	1		1				1			1													0
	3	1		1				1			1													1
	4	1		1				1			1													1
AGREE	1			1				B			1													1
MOD	0			0				1			0													0
O protect last of a unique ecosystem																								
													1						1				1	1
	1											1							1				1	1
	2											0							1				0	1
	3											1							1				1	0
	4											0							1				1	1
AGREE												1							1				1	1
MOD												B							0				1	B
Committee: N=non-committee member C=committee member																								
1=Yes 0=No Mod=modifications B=blank																								

RESULTS OF PROBES - NO POSITION

Probe #											TOT	#	#	#	#
	25	26	27	28	29	30	31	32	33	34	YES	NO	BLANK	COMMENTS	
Committee	C	N	N	N	C	C	N	C	N	C					
A minimal harm to timber industry															
					1					1	3				
1					1					B	3	0	0	1(33%)	
2					1					B	2	0	1	1(33%)	
3					1					B	2	0	1	1(33%)	
4					1					B	2	0	1	1(33%)	
AGREE					1					B	2	0	1		
MOD					0					B	1	1	1		
B other users sustainable future															
					1				1	1	7				
1					1				0	0	2	5	0	2(29%)	
2					1				1	1	7	0	0	0	
3					1				1	1	5	2	0	0	
4					1				0	1	4	2	1	2(29)	
AGREE					1				B	1	4	0	3		
MOD					0				1	0	2	3	2		
C protect biodiversity															
										1	9				
1										1	8	1	0	2(22%)	
2										1	9	0	0	0	
3										1	9	0	0	0	
4										0	4	4	1	4(44%)	
AGREE										1	9	0	0		
MOD											1	6	2		
D prevent environmental damage															
			1	1	1					1	9				
1			1	1	0				0		6	2	1	2(22%)	
2			1	0	1				B		6	1	2	3(33)	
3			1	1	1				B		8	0	1	1(11)	
4			1	1	1				B		6	2	1	3(33)	
AGREE			1	1	1				1		7	0	2		
MOD			0	B	0				0		0	6	3		
E avoid risking environmental damage															
						1	1				14				
1						1	1				9	5	0	6(43%)	
2						1	1				14	0	0	4(29)	
3						0	B				6	7	1	6(43)	
4						1	B				9	4	1	7(50)	
AGREE						1	1				12	1	1		
MOD						1	0				7	5	2		

Committee :N=non-committee member C=committee member

1=Yes 0=No Mod=modifications B=blank

RESULTS OF PROBES													#	#	#	#
Probe #	25	26	27	28	29	30	31	32	33	34		YES	NO	BLANK	COMMENTS	
Committee	C	N	N	N	C	C	N	C	N	C						
F conserve spiritual/emotional area																
			1			1						6				
1			1									3	1	4	4(50%)	
2			1			1						6	0	2	2(25%)	
3			1									5	0	3	3(38%)	
4			1									1	2	5	3(38%)	
AGREE			1			1						7	0	1		
MOD			0			0						1	5	2		
G respect for living creatures																
		1										5				
1		1										3	2	0	1(20%)	
2		B										0	4	1	4(80)	
3		x										4	0	0	1(20)	
4		1										5	0	0	1(20)	
AGREE		1										5	0	0		
MOD		0										2	3	0		
H sacred to First Nations																
			1	1	1							6				
1			1	1	1							6	0	0	0	
2			1	B	1							4	1	1	0	
3			1	1	1							6	0	0	0	
4			1	B	1							5	0	1	0	
AGREE			1	1	1							6	0	0		
MOD			0	B	0							0	4	2		
51																
I public desire for wilderness																
		1	1	1					1			11				
1		1	B	1					1			10	0	1	1(9%)	
2		1	0	0					0			6	5	0	5(45%)	
3		1	B	1					1			10	0	1	3(27%)	
4		x	B	0					0			3	6	1	3(27%)	
AGREE		1	B	1					B			7	1	3		
MOD		B	1	B					1			4	3	4		
J restructure obsolete plans																
												2				
1												2	0	0	1(50%)	
2												0	2	0	0	
3												2	0	0	0	
4												2	0	0	2(100%)	
AGREE												2	0	0		
MOD												0	1	1		

Committee: N=non-committee member C=committee member
1=Yes 0=No Mod=modifications B=blank

RESULTS OF PROBES - NC														#	#	#	#
Probe #	25	26	27	28	29	30	31	32	33	34	YES	NO	BLANK	COMMENTS			
Committee	C	N	N	N	C	C	N	C	N	C							
K international ecological feature																	
				1			1			1	11						
1				1			1			1	9	1	1	5(45%)			
2				1			1			1	9	1	1	3(27%)			
3				1			1			1	10	0	1	2(18%)			
4				1			1			1	9	1	1	2(18%)			
AGREE				1			1			1	10	0	1				
MOD				0			1			0	4	5	2				
L avoid tarnishing Canada's reputation																	
										1	2						
1										0	0	2	0	0			
2										0	0	2	0	1(50%)			
3										1	1	1	0	1(50%)			
4										1	1	1	0	1(50%)			
AGREE										1	2	0	0				
MOD										1	1	0	1				
M set example to third world countries																	
											1						
1											1	0	0	0			
2											1	0	0	0			
3											1	0	0	0			
4											1	0	0	1(50%)			
AGREE											1	0	0				
MOD											0	1	0				
N increase public influence																	
				1							6						
1				1							1	4	1				
2				1							5	1	0	3(50%)			
3				0							5	1	0	3(50%)			
4				x							5	0	0	2(33%)			
AGREE				1							5	0	1	3(50%)			
MOD				0							1	5	0				
O protect last of a unique ecosystem																	
											4						
1											4	0	0				
2											2	2	0	0			
3											3	1	0	1(25%)			
4											3	1	0	0			
AGREE											4	0	0	0			
MOD											1	1	2				
											96			23			
Committee: N=non-committee member C=committee member																	
1=Yes 0=No Mod=modifications B=blank																	

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